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Abstracts of the MASC/ISOO 2015 Annual Meeting

Supportive Care in Cancer

MASC/ISOO

ANNUAL MEETING ON SUPPORTIVE CARE IN CANCER
Bella Center, Copenhagen, Denmark
25-27 June, 2015

Supportive Care Makes Excellent Cancer Care Possible

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Explanation of Abstract Coding System

Invited Speaker Presentations appear first followed by abstracts grouped according to Topic.

Each abstract Topic is assigned a code (01–27). For each Topic, following the Topic code the abstracts are numbered in sequential order starting with 01. Within each Topic, oral abstracts appear first followed by posters. Oral abstracts are marked “O” and posters are marked “P.”

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Supportive Care is a Continuum

LATE TOXICITIES INDUCED BY ANTI-NEOPLASTIC AGENTS; A HALF CENTURY EVALUATION OF ADVANTAGES AND CHALLENGES

L. Einhorn

Introduction
Fifty years ago there was significant therapeutic nihilism concerning chemotherapy of cancer. Many drug regimens were associated with severe acute toxicity, such as myelosuppression, mucositis, and severe nausea and vomiting.

Objectives
In 1973, cisplatin entered clinical trials. Cisplatin combination chemotherapy was demonstrated to actually cure a metastatic solid tumor, namely testicular cancer. During the succeeding decades, platinum and non-platinum based combination chemotherapy was used in many common solid tumors with routine improvement in acute quality of life and prolongation of survival.

Methods
Today late toxicities of chemotherapy are a major research topic. Platinum is a model for looking at late complications of chemotherapy such as ototoxicity, neurotoxicity, fertility, second malignancies and cardiovascular toxicity. Platinum is standard first-line chemotherapy in a dozen different solid tumors.

Results
Studies are evaluating late complications of platinum-based chemotherapy in patients with testicular cancer, including clinical parameters and genomic analysis.

Conclusions
Several decades ago, advances were made in preventing acute toxicity of chemotherapy, especially nausea and vomiting. Hopefully, in the next half century, we will be able to recognize and prevent late complications as well.
(elevated estrogens, insulin resistance, dysglycemia, altered adipokines, low grade inflammation) as well as altered tumor microenvironment (inflammatory cells, cytokines, adipokines) leading to activation of key signalling pathways (e.g. PI3K, MAPK, TNFα, STAT3), increased proliferation, reduced apoptosis, and enhancement of metastatic potential.

T2DM has been associated with a modest increase in cancer risk. Agents used to treat T2DM may also impact cancer risk—lower risk in patients receiving metformin has received the greatest attention. Biases inherent in observational studies may have contributed to these reported associations. T2DM at cancer diagnosis may lead to increased treatment toxicity (e.g. with chemotherapy or surgery) and require treatment modification. T2DM has also been associated with poor cancer outcomes, in part due to comorbid conditions but also due to increased cancer mortality.

Intervention research targeting diet, physical activity and weight loss or using anti-diabetic agents such as metformin is underway.

**IS-05**

**Endocrine Issues in Cancer**

**HYPOTHYROIDISM AFTER RADIOTHERAPY**

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**Introduction**

Radiation-induced hypothyroidism (RIHT) is a well-known late effect after radiotherapy (RT) to the neck in head and neck squamous cell carcinoma (HNSCC), Hodgkin lymphoma, and breast cancer.

**Objectives**

To investigate the reported incidence and risk factors for development of RIHT as well as normal tissue complication probability (NTCP) models and dose constraints for radiation treatment planning.

**Methods**

Review of the literature on RIHT and data extraction from our studies of two independent cohorts of patients with HNSCC treated with definitive RT without surgery.

**Results**

Subclinical hypothyroidism has been reported in 24–50 % and overt hypothyroidism in 6–20 % of patients. We found an estimated 5-year incidence of biochemical hypothyroidism of 26 %. A high radiation dose to the thyroid gland and a small volume were significant risk factors for RIHT, which is supported by other studies. In the literature, surgery to the neck and sex have also been found to be significant risk factors whereas chemotherapy does not seem to be of importance in patients with HNSCC. NTCP models taking both thyroid volume and mean dose to the gland have been proposed for prediction of RIHT as well as threshold values for thyroid dose for RT planning.

**Conclusions**

Radiation-induced hypothyroidism is a frequent late effect after RT to the neck. Surgery, radiation dose, and thyroid volume seem to affect the risk of RIHT. Considering the frequency of RIHT and the possible consequences of hypothyroidism, thyroid dose constraints are needed in RT planning. Furthermore, thyroid function should be monitored after RT to the neck.

**IS-06**

**Use of E-Health in Supportive Care**

**E-HEALTH PATIENTS EXPERIENCE**

J. Peloucova1, 2, 3

1European Cancer Patient Coalition, Brussels
2Leukemia Patient Advocates Foundation, Bern
3Diagnoza leukemia, Czech Republic

With the twenty-first century representing a decade of targeted therapies in oncology, the focus on e-health is emphasized in the field of patient’s use of technology. The increasing demand for information on cancer is connected to improving treatment outcomes, legislative changes enabling patients to access medical records and the constant rise of Internet connectivity. These factors contribute to a general need for information concerned with disease-related facts, treatment options, medical innovations, as well as medical record management and improved doctor-patient communication. With the ongoing development of the Internet as the prime medium of information distribution, the importance of electronic technologies in supporting information access is increasing. The use of devices such as iPhones/iPads enables patients to utilize specially designed applications for tracing and assembling medical evidence (e.g. results of lab tests), facilitates the response to targeted surveys on aspects of quality of life and can ensure the continuous monitoring of treatment side effects. Another advantage concerns the option of communicating online with healthcare professionals and hence avoiding unnecessary visits to medical centres, ensuring a cost-effective and faster information flow. A key factor for the potential of e-health is also apparent in the field of patient networking. Disease-specific patient organisations can build networks to enhance knowledge sharing on treatment development and improve distribution of best practices in patient advocacy related to treatment access. The future aim should be to improve patient information tools, develop joint campaigns and build alliances on various issues to help disseminate these resources amongst patients of all generations.

**IS-07**

**Best Supportive Care in Patients with Haematological Malignancies**

**SUPPORTIVE CARE IN HAEMATOLOGY**

L. Kjeldsen1

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**Introduction**

Many haematological diseases are characterized by impairment of both the innate and acquired immune system, either due to the disease itself or as a consequence of treatment. Therefore, most patients with haematological disorders are in need for supportive care.

**Objectives**

To give an overview regarding the extensive use of supportive care treatments in haematology.

**Methods**

Systematic review of published literature regarding different aspects of supportive care in haematology including use of transfusions, haematopoietic growth factors, prophylactic antimicrobials, immunoglobulins and bisphosphonates.

**Results**

Depending on the intensity of chemotherapy there is frequently a need for transfusions with both blood and platelets. Patients with neutropenic fever are occupying a large proportion of the beds in haematology units,
although many infections can be prevented by the use of prophylactic antibiotics or granulocyte colony stimulating agents. By systematic use of prophylactic antibiotics, transfusions and thorough patient education, outpatient treatment of patients with acute leukaemia, patients receiving high dose therapy with autologous stem cell support and even patients undergoing allogeneic stem cell transplantation has proven feasible.

Patients with low risk myelodysplastic syndrome often suffer from transfusion dependence, which in a large proportion can successfully be treated with erythropoiesis stimulating agents (ESA), sometimes in combination with G-CSF, although data regarding improvement of quality of life by ESA treatment are conflicting.

ESAs are also used in other haematological malignancies especially in multiple myeloma and chronic lymphocytic leukemia, where also substitution with immunoglobulins is often given due to the inherent immunoparesis.

The bone disease in multiple myeloma can be improved by bisphosphonates.

**Conclusions**

Supportive care treatments in haematology have improved over time allowing more and more outpatient treatment, in spite of prolonged treatment induced bone marrow suppression.

**IS-08**

**Best Supportive Care in Patients with Haematological Malignancies**

**GENERAL MANAGEMENT OF NEUTROPENIC PATIENTS**

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Neutropenia is the most common dose-limiting toxicity of cancer chemotherapy, and complications from chemotherapy-induced neutropenia (CIN) can cause significant morbidity and mortality. In fact, Given and Sherwood (2005) identified CIN as a nursing-sensitive patient outcome symptom. Expert nursing assessment, intervention, education and evaluation facilitate patient management of CIN.

To identify and highlight evidence-based management of CIN and related complications, and to provide effective nursing interventions which should be implemented in daily practice. Extensive review and summary of published neutropenia literature, clinical practice guidelines and meta-analyses.

Prevention of infection should be the primary focus of oncology nurses’ practice rather than management of neutropenia.

Based on a review of the literature following classification of cost-effective nursing interventions for the prevention and management of febrile neutropenia (FN), according to the level of evidence, can be proposed:

**Low Evidence:** wearing mask by the healthcare provider, low bacterial food and dressing of tunneled central catheters.

**Moderate Evidence:** systematic use of HEPA-filtered air for prevention of Aspergillus infection and Laminar Air Flow rooms.

**High Evidence:** frequent oral care, venous access devices not placed during neutropenia, antimicrobial prophylaxis if neutropenia \( \leq 500/\text{mm}^3 \) is expected during more than 7 days, construction barriers, avoiding fresh flowers and plants and prompt action when neutropenic fever (administration of antibiotics in 2 h after first fever).

Oncology nurses play critical roles in the areas of clinical practice, research and education as related to the prevention and management of CIN and are charged with maintaining their knowledge of the evidence and guidelines. In doing so, oncology nurses can be confident that clinical evidence is driving their decision-making processes to ensure quality cancer care and provide patients with the best opportunity for favorable long-term outcomes.

**IS-09**

**Supportive Care in the Elderly**

**NURSING FACILITIES AND CANCER SUPPORTIVE CARE: PROVIDING BEST PRACTICES CLINICAL SERVICES TO OLDER ADULT CANCER PATIENTS**

B. Appel Esbensen

Research Unit, Glostrup Hospital, Glostrup, Denmark

**Introduction**

In spite of a growing number of older people with cancer, the research has been limited on how they manage their situation and how nursing care to this group is performed.

**Objectives**

To outline, how it is possible from a nursing and interdisciplinary perspective, to integrate knowledge from nursing research in other chronic diseases and geriatrics, into the care of older adults with cancer.

**Methods**

Based on existing research from different nursing disciplines, factors with significant meaning to older adults with cancer, and how they can manage to live with a chronic disease are identified. Furthermore, how this quite new knowledge might be incorporated into nursing practice.

**Results**

Research on aspects of symptom management, and cognitive and behavioural aspects of chronic diseases has revealed a different understanding of how older individuals cope with chronic disease. In addition, Comprehensive Geriatric Assessment (CGA) has proved to be a method to identify vulnerable individuals among elderly with cancer and to optimize care. CGA has also proved to be a sound procedure to recognize the heterogeneity of the elderly population and to focus care plans accordingly. Such combined knowledge may provide guidance on how to set-up a more accurate intervention for the individual in clinical practice.

**Conclusions**

In caring for older adults with cancer, it is recommended to set up appropriate intervention strategies aiming to identify a person’s resources based on an interdisciplinary evidence based understanding of older adults with a chronic disease and to make use of CGA.

**IS-10**

**Pharmaceutical Supportive Care**

**PHARMACOGENOMICS IN SUPPORTIVE CARE**

A. Chan

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In clinical practice, we frequently observe that certain patients with cancer are highly sensitive to adverse effects of anticancer treatment, or certain patients are less sensitive to certain supportive care means to mitigate adverse effects. Inter-individual differences are consistently observed with most anticancer agents or supportive care agents, and some of these differences may be explained by pharmacogenomics. Pharmacogenomics is the study on how all of the genes (the genome) can influence responses to drugs, including the individual differences of toxicities occurrence and severity. In this talk, the audience will be introduced to some foundational knowledge on pharmacogenomics and how it may impact on supportive care decisions for our patients. A number of examples will be discussed. We will also discuss the challenges in terms of translating genomic information into daily clinical practice to personalize supportive care.
IS-11
Pharmaceutical Supportive Care

UNMASKING SIDE EFFECTS FROM “FIRST-IN-MAN” ANTI-NEOPLASTIC MEDICINE

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Patients referred for phase 1 oncology trials have exhausted all conventional treatment options, as this is a strict inclusion criteria. The majority of patients have advanced disease and carry a variety of complex symptoms and perhaps some sequelae after prior therapy. The patients are also required to have a favourable performance status of PS 0 or 1. Therefore, most patients are within a narrow window before deterioration, driven by hope, and perhaps not motivated for palliative treatment. Dealing with these patients is difficult. The evaluation of side effect and safety is the primary endpoint of phase 1 trials, and the patients must spend more time in the clinic for investigations, compared to prior standard therapy.

In addition, the patients undergo many examinations and blood sampling for pharmacokinetic, dynamic and genomic analyses. So participating in phase 1 trials is time consuming and may be cumbersome. The identification of the right patients for this is delicate: who should be included and who should be referred for palliation. The Phase 1 Units are the resort for the patient, and it is necessary to be devoted to giving the best supportive care on one side and the active treatment on the other side. It is often a matter of precision to choose the right moment to introduce more specialized palliative initiatives, when it becomes apparent that the study drug is not active, and at the same time be able to discriminate between progressive disease related symptoms and study drug related adverse events.

IS-12
Oral Care in Head and Neck Cancer

FOCUS ON TASTE DISTURBANCES

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Introduction
It is accepted in sensory science that taste is but one component of flavor. However, widespread and colloquial use of the word ‘taste’ means that patient-reported ‘taste’ changes actually refer to many domains outside the sense of taste itself. This anomaly is not widely understood across supportive care teams, making clinical judgment of flavor problems difficult. Further challenges are that routine methods of assessing taste and flavor related complications are not employed in the clinical oncology setting and no clinical guidelines exist for the management of such problems.

Objectives
This lecture aims to:
1) Define taste and related concepts including flavor and food hedonics
2) Provide an overview of current assessment tools
3) Describe patterns of true taste changes in oncology populations and evidence of effective management strategies
4) Describe an emerging taxonomy of ‘taste’ to help better identify the clinical problem and relevant support mechanisms

Methods
This lecture is informed by empirical research of patients and clinicians; as well as systematic literature reviews. Multidisciplinary collaborators include sensory scientists, oncologists, dietitians, dentists and oncology nurse researchers.

Results
Cancer treatment has adverse effects on taste, smell, touch, food liking and appetite. This has gastronomic, nutritional and emotional consequences. Clinically applied ‘taste’ assessment tools usually measure other elements of flavor, although taste is mentioned. Laboratory derived tools often lack clinical utility.

Conclusions
A linguistic platform that matches language used by patients to specific sensory and hedonic domains is posed as a future approach to management of flavor related problems.

IS-13
Complementary and Alternative Medicine in Cancer Care

COMPLEMENTARY AND ALTERNATIVE MEDICINE IN CANCER CARE: NEW DATA CALL FOR MINDSHIFTING?

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Introduction
Complementary therapies are adjuncts to mainstream care to improve quality of life through decreasing the adverse effects of anti-cancer treatments or through alleviating the symptoms of cancer through improving the general well-being of the patient. On the contrary alternative therapies are generally promoted as such-for use as actual antitumor treatments.

Objectives
To present the latest scientific evidence for the efficacy and safety of first line complementary therapies.

Methods
This is a comprehensive review of the relevant literature

Results
There is sufficient evidence to support Acupuncture and acupressure for alleviating chemotherapy-induced nausea and vomiting, aromatherapy to improve well-being, relaxation to control pain and reduce fatigue and visualization to reduce anxiety and depression just to report a few. This scientific evidence has allowed for a phenomenon to grow known as integrative care where patients are using non-conventional treatments or therapies alongside their conventional course of care which are seen as supportive to the therapeutic process whether or not they have direct biological effects on cancer.

Conclusions
The popularity of integrative care has grown because it incorporates complementary therapies that are rational, cost-effective, non-invasive and also empowering the patient by allowing him to assume an active role in their care. Combining the effective complementary therapies with mainstream oncology care to address patients’ physical, psychological and spiritual needs is recommended in clinical practice.

IS-14
Novel Therapies and Best Supportive Care in Cutaneous Malignancies

EFFICACY OF AGENTS TARGETING THE BRAF/MEK PATHWAY

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Introduction
Malignant melanoma is responsible for approximately 80 % of skin-cancer related deaths. In recent years novel treatment strategies have revolutionized the management of advanced stages of the disease.
**Objectives**
To present the current clinical data and personal experience on BRAF/MEK-therapy for advanced malignant melanoma.

**Methods**
Review of the recent literature and personal clinical experience.

**Results**
In 2011 Chapman et al. demonstrated that the BRAF-inhibitor (BRAFi) vemurafenib achieved patient response rates of 48% as compared to 5% for the standard chemotherapy (dacarbazine). At 6 months, the OS was 84% in the vemurafenib group and 65% in the dacarbazine group. Subsequently, similar results were reported for dabrafenib, another BRAFi. Despite their efficacy, most patients treated with BRAFi develop mechanisms of acquired resistance, eventually leading to disease progression. A main mechanism of this resistance is caused by a BRAF-independent activation of the downstream MAP-kinase MEK. Most recently MEK-inhibitors (MEKi) have been introduced for the treatment of advanced malignant melanoma. Larkin et al. reported 9-month interim OS-rates of 73% for vemurafenib alone and 81% for the combination of vemurafenib and the MEK-i cobimetinib. Robert et al. reported 12-months interim OS-rates of 65% for vemurafenib alone and 72% for patients receiving a combination of dabrafenib and the MEK-i trametinib. BRAFi-therapy is associated with the development of inflammatory rashes (>30%), photosensitivity (>10%) and secondary skin tumors (e.g. squamous-cell-carcinomas, SCC, or keratoacanthomas, KA; up to 20%). Interestingly, the combination of BRAFi and MEKi reduced the frequency of secondary SCC or KA to 1%.

**Conclusions**
The introduction of the BRAFi and MEKi has revolutionized the treatment of advanced malignant melanoma. Both drugs were amongst the first to achieve a significant improved overall-survival (OS) in patients with advanced stages of the disease.

**IS-15**
ISOO CE Course and Business Meeting

**ANTIMICROBIAL RESISTANCE**

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Oral and systemic infections arising from the oral cavity are significant problems in cancer patients treated with intensive chemotherapy regimens. Oral mucositis is a common symptomatic complication associated with myeloablative chemotherapy, and a significant cause of suffering morbidity and mortality. Infection by multi-drug-resistant bacteria is the worst type.

**Objectives**
To show antimicrobial resistance of bacteria on the oral mucosa undergoing intensive myeloablative chemotherapy, by discussing a typical case and studies in hematopoietic cell transplantation (HCT) patients.

**Methods**
A case is presented with opportunistic multi-drug-resistant bacteria on the oral mucosa during HCT. In addition, studies on bacterial substitution, bacterial antibiotic sensitivity, and detection frequency of mecA, which mediates methicillin resistance, on the oral mucosa after HCT are discussed.

**Results**
An HCT patient with multi-drug-resistant *Stenotrophomonas maltophilia* on the oral mucosa developed sepsis and died. Our studies showed that bacterial substitution of coagulase-negative staphylococci (CoNS) for streptococci occurs frequently, there were many antibiotic-resistant bacteria on the oral mucosa after HCT, and mecA was detected at high frequency in the oral mucosa of patients undergoing HCT.

**Conclusions**
Oral mucosal bacteria in patients after HCT, with typical intensive myeloablative chemotherapy, had high antimicrobial resistance. Oral bacteria on the mucosa of patients undergoing other myeloablative chemotherapy regimens would also have antimicrobial resistance if many antibiotics are used. In such cases, oral mucositis is an infection route of these bacteria. Appropriate oral care for cancer patients possibly with mucositis and antimicrobial resistance bacteria would be important as supportive care.

**IS-16**
ISOO CE Course and Business Meeting

**DIFFERENTIAL DIAGNOSIS OF ORAL LEUKOPLAKIA AND LEUKOPLAKIC LESIONS**

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In an international meeting in 2005, held under the auspices of the WHO, oral leukoplakia has been defined as: "A white plaque of questionable risk having excluded (other) known diseases or disorders that carry no increased risk for cancer".

A list of "known", predominantly white diseases or disorders that carry no increased risk for cancer is presented in Table 1. These lesions will be briefly discussed. In the majority of cases the diagnosis can be established on clinical grounds alone; in a few disorders there is a distinct role for a biopsy. Nevertheless, there remains an occasional patient in whom no firm diagnosis can be established in spite of the availability of a biopsy specimen.

**Table 1. Known white diseases and disorders that may occur in the mouth**

<table>
<thead>
<tr>
<th>Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alveolar ridge &quot;keratosis&quot;</td>
</tr>
<tr>
<td>Aspirin burn</td>
</tr>
<tr>
<td>Candidiasis, hyperplastic type</td>
</tr>
<tr>
<td>Contact lesion (Amalgam restoration associated lesion)</td>
</tr>
<tr>
<td>Frictional lesion</td>
</tr>
<tr>
<td>Hairy leukoplakia</td>
</tr>
<tr>
<td>Leukoedema</td>
</tr>
<tr>
<td>Lichen planus*</td>
</tr>
<tr>
<td>Lupus erythematosus</td>
</tr>
<tr>
<td>Morsicatio (habitual chewing or biting of the cheek, tongue, lips)</td>
</tr>
<tr>
<td>Syphilis, secondary (‘mucous patches’, lichenoid lesions)</td>
</tr>
<tr>
<td>Verrucous carcinoma</td>
</tr>
<tr>
<td>White sponge nevus</td>
</tr>
</tbody>
</table>

*There is an ongoing discussion in the literature about the premalignant character

**IS-17**
Chemotherapy Induced Neurological Complications

**GENOMIC RISKS FOR DEVELOPING CIPN**

L. Eckhoff, M. Ewertz
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**Introduction**
Chemotherapy-induced Peripheral Neuropathy (CIPN) may occur as a dose-limiting toxicity during chemotherapy with taxanes, and platinum compounds. CIPN may regress after treatment completion, but if it persists
it is likely to have a negative impact on quality of life (QoL). So far, the most promising preventive measure is to equip patients with frozen gloves and socks during treatment, but no drugs have been shown to be effective in the prevention of CIPN. Therefore, research efforts have been directed to focus on factors that may predict the occurrence of CIPN prior to treatment.

**Objectives**

Single nucleotide polymorphisms (SNP) are the most common type of genetic variation among people and can be identified by a diverse range of SNP genotyping methods.

**Methods**

A review will be presented of possible associations between SNPs and the risk of CIPN induced by taxanes and platinum compounds.

**Conclusions**

The literature does not give a clear picture of the predictive value of determining SNPs prior to treatment. As the number of long-term cancer survivors increases, a new focus on long-term effects of chemotherapy-induced side effects has emerged. Hopefully, in the future, the knowledge gained from application of translational genomics to CIPN will improve the quality of life of cancer survivors.

**IS-18**

MASCC AFSOS Symposium

**BACK HOME: EVIDENCE FOR SUPPORTIVE NETWORK; HOW, WHEN AND FOR WHO?**

M. Lemonde

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**Introduction**

Discharge from hospital follow-up is a key time point in the cancer journey. With recommendations from cancer survivors, attention to the return home is important as it can be a period of emotional reactions and challenges for both the patient and the caregiver. Supportive network is defined as a group of people who provide emotional and practical help to someone in serious difficulty, which can be relevant to the individual living with cancer and his/her caregiver. Optimum home care for patients living with cancer depends on adequate care for the caregivers to continue providing care. Carers reported the need to be prepared for their caring role for their relative at home with cancer, so as to be visible to professionals by being involved during the consultation, to receive clear and specific information about the relative’s condition, treatment progression, illness prognosis and to be emotionally supported. In addition, the hospital-to-home transition has to be facilitated by the following elements: translating knowledge into safe, health-promoting actions at home, inclusion of caregivers at every step of the transition process which is congruent with what they need and anticipating needs back home in order to make arrangements to meet them.

**Objectives**

To describe the process to capture the return home from a supportive network perspective.

**Methods**

A literature review and synthesis to describe the return home of individuals living with cancer.

**Results**

The results will be an understanding of the factors to consider and when to implement them for the individuals living with cancer and their caregiver.

**Conclusions**

This presentation will target the importance and relativity of the supportive network particularly through the caregiver in the home environment of those living with cancer.

**IS-19**

MASCC AFSOS Symposium

**MUCOSITUS GUIDELINES: AN UPDATE**

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**Introduction**

Mucositis Guidelines: An Update.

**Objectives**

Oral and gastrointestinal mucositis due to cancer therapies such as high-dose chemotherapy and/or radiation continues to be an important clinical problem. Fortunately, there have been strategic advances over the past decade relative to understanding the molecular basis of the injury, opportunities for development of drugs and devices to prevent or treat the toxicity.

**Methods**

The new ESMO Mucositis guidelines represent updates from the version published in the 2011 Annals of Oncology, including recent suggestions regarding management of targeted cancer therapeutics-associated stomatitis.

**Results**

This important and comprehensive update of ESMO Mucositis guidelines will be presented and discussed, with a focus on new data, and comparison with AFSOS, MASCC and ASCO guidelines on this topic.

**Conclusions**

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**IS-20**

MASCC AFSOS Symposium

**BREATHELESSNESS AT THE PALLIATIVE TIME: FROM GUIDELINES TO PRACTICE**

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**Introduction**

Dyspnea is commonly encountered by many cancer patients in the terminal stage of their disease. It is a devastating symptom and it severely hampers their quality of life. It often is associated with anxiety and depression. The management of cancer-related dyspnea remains a challenge because of lack of systematic guidelines for clinical care.

**Objectives**

The objectives of this parallel session are to discuss of pharmacological and non-pharmacological options to improve this symptom.

**Methods**

Review of recent literature.

**Results**

For patients who are not actively dying, strategies should be focused on treating the underlying cause of the breathlessness while concurrently controlling symptomatic distress. Optimal outcomes from palliative care interventions require a multi-level approach, involving pharmacological and non-pharmacological interventions. Pharmacological interventions include opioids, bronchodilators, steroids, diuretics, and psychotropic drugs. The evidence for these drugs is variable, and sometimes weak. Non-pharmacological interventions involve techniques to improve breathing efficiency, use of non-invasive ventilation, and of high-flow oxygen, particularly in patients with severe hypoxemia or significant cachexia with respiratory muscle weakness. Psychosocial support seeking to reduce anxiety and distress can also improve the management of dyspnea.

**Conclusions**

Optimal outcomes from supportive and palliative care interventions require a multi-level approach to improve the management of dyspnea at end-of-life cancer patients.

IS-21
Fatigue

HOW DO WE DEFINE FATIGUE AND WHAT IS NEW?

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Background
Fatigue has been identified as the symptom that frequently triggers the initial medical consultation prior to a cancer diagnosis, as a symptom that often occurs during cancer treatment, as the most distressing symptom experienced by those with advanced cancer, and as a symptom that is also reported by cancer survivors.

Objective
In this presentation I will review definitions of fatigue and discuss new findings regarding its etiology and management across the cancer trajectory, including recently released clinical practice guidelines.

Results
A full understanding of the etiology of fatigue has been elusive, given its multidimensional nature and shifts that may occur over time. Early attempts to manage fatigue showed that an increase in hemoglobin did not result in an improvement in fatigue to the degree expected. Recent reviews of available evidence showed significant improvements in fatigue following both exercise and psychosocial interventions, and no significant improvement following pharmacologic interventions. Evaluation of patient outcomes based on current clinical practice guidelines is warranted.

IS-22
Fatigue

COMPASSION FATIGUE: HOW TO DEAL WITH IT?

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Introduction
Compassion fatigue has been studied amongst health care professionals for a long time. Where burn out is mostly related to a conflict in the work setting, compassion fatigue stems from emotional engagement and interpersonal intensity associated with witnessing tragedy with the work setting. Burnout arises when assertiveness-goal achievement intentions are not met. Compassion fatigue evolves when rescue-caretaking strategies are unsuccessful, leading to caregiver feelings of distress and guilt. Burnout and compassion fatigue can cause feelings of frustration, powerlessness, and diminished morale ensuing.

Objectives
The objectives of this presentation are to explore the differences between compassion fatigue and burn out, the risk factors for healthcare workers, symptoms and management.

Methods
Multiple environmental stressors, such as, workload, long hours, need to respond to complex patient needs; pain, traumatic injury, emotional distress, can result in feeling tired, depressed, angry, ineffective, apathetic, headaches, insomnia, and gastrointestinal distress. Ignoring these symptoms can easily result in cumulative stress.

Results
Compassion fatigue will not only influence the individual but will also have its impact on workers recruitment and retention, patient satisfaction and patient safety. Encouraging self-care strategies and offering workplace interventions can address a key distinction in daily practice. It is also important that managers, educators and researchers are aware of this phenomena and facilitate prevention strategies like counseling, support groups, de-briefing sessions, massage sessions, bereavement interventions and attention to spiritual needs.

Conclusions
Healthcare providers are at risk for compassion fatigue, sometimes the work environment cannot be changed but prevention, early detection and management can help to prevent workers getting in this situation with all its consequences.

IS-23
Fatigue

FATIGUE IN ADVANCED CANCER

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Fatigue is one of the most common and debilitating symptoms experienced by patients with cancer. Cancer-related fatigue (CRF) is characterized by feelings of tiredness, weakness, and lack of energy and it differs from tiredness in the general population as it is not associated with increased or decreased physical activity, nor is it relieved by rest. It occurs both as a consequence of the cancer itself and as a side effect of cancer treatment.

Objectives
To advance the knowledge of fatigue in patients with advanced cancer.

Methods
This is a comprehensive review of the relevant literature.

Results
Etiologic factors associated with CRF include cachexia, infection, anemia, neurological changes, psychological distress, metabolic and endocrine disorders, over-exertion, medications, side-effects of anti-neoplastic treatment and paraneoplastic neurological syndromes. Prevalence of fatigue in patients with cancer varies between 17 and 96 %. Cancer-related fatigue is often clustered with other symptoms including pain, changes in sleep patterns, and emotional distress, making it even more devastating to the patient. The management of CRF in patients with advanced cancer is complex and incorporates conventional as well as unconventional interventions.

Conclusions
Cancer-related fatigue is a consistent and serious problem for many patients with advance cancer. Its high prevalence indicates that CRF remains a phenomenon that is not well understood or managed in this population. Cancer-related fatigue can limit communication and adaption, prevent patient involvement in social interactions, and disrupt daily life. Its subjective and non-life-threatening nature along with the thought to be an unavoidable symptom in cancer may result to go ignored or under treated.

IS-24
How to write a manuscript for Supportive Care in Cancer

EDITOR’S VIEW

F. Ashbury 1, P. Hesketh 2, I. Olver 3
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3Sansom Institute for Health Research, University of South Australia, Adelaide, Australia

Introduction
Supportive Care in Cancer (SCC) is a multidisciplinary, peer-reviewed journal dedicated to publishing the highest quality
original research and reviews concerning the supportive care needs of cancer patients from diagnosis through to end-of-life. SCC is the official journal of the Multinational Association of Supportive Care in Cancer. Papers published in SCC cover many important topics, including communication, rehabilitation and survivorship, clinical interventions, behavioural interventions, targeted therapies and novel agents, radiation therapy, palliative care, the science of symptoms, ethics, guidelines and policy, and quality of life. The session focuses on preparing and submitting manuscripts to SCC for publication consideration—key issues and lessons learned.

Objectives
The objectives of the session include:
- strategies to ensure relevance of your paper for SCC
- the submission process
- planning and writing the manuscript
- understanding the peer-review process
- responding to decisions
This workshop will be particularly useful for young investigators and people who have limited experience with writing articles for peer-reviewed journals.

Methods
The session will include the editor’s, author’s and reviewer’s perspectives to give participants insights to inform a more competitive submission.

Results
The content and guidance from today’s session should improve authors’ understanding of SCC’s processes and facilitate preparation of manuscripts for submission to SCC and peer review.

Conclusions
Almost 40% of papers received are accepted for publication. Most papers require revision before a final acceptance decision. Understanding the submission and review process for a prominent, international journal such as SCC can assist authors in preparing more competitive submissions.

IS-25
Supportive Care in Breast Cancer - the Significance of Life Style

USE OF EXERCISE IN PATIENTS WITH BREAST CANCER

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Introduction
Anti-neoplastic treatment may enhance physical inactivity and it remains unclear what optimal setting, dosage and combination of exercise and health promoting components best facilitate patient adherence and symptom management to support sustainable lifestyle changes in an at-risk population of pre-illness physically inactive cancer patients.

Objectives
Verified sedentary patients with breast or colon cancer referred to adjuvant chemotherapy were eligible to enter a three-armed randomised feasibility study comparing a 12-week supervised hospital-based moderate to high intensity exercise intervention or alternate an instructive home-based 12-week pedometer intervention, with usual care on cardiorespiratory fitness (VO2-peak).

Methods
Primary outcome: VO2 peak was determined by direct measures of respiratory gases at baseline, week 6 and week 12.
Secondary outcomes: Physiological measures (respiratory exchange ratio, maximum heart rate, spirometry, full-body dual-energy X-ray absorptiometry scan, blood cholesterol, se-insulin and se-glucose, digital pedometer steps, aerobic walking time and patient-reported outcomes.

Results
A recommendation based physical activity screening instrument in order to correspond with VO2-peak was applicable to identify pre-illness sedentary cancer patients. Convincing recruitment (67%), safety and intervention adherence was seen among breast cancer patients; while the attendance rate for colon cancer patients was notably lower (33%). VO2-peak declined on average 12% across study groups though secondary physiological measures indices may favor high intensity exercise. Pedometer use was well adapted in breast or colon cancer patients.

Conclusions
The complexity of integrating exercise intervention within adjuvant chemotherapy for sedentary breast cancer patients seemed adequate in timing and dose, why comparative effects will be tested in a larger RCT.

IS-26
Supportive Care in Breast Cancer - the Significance of Life Style

HEALTHY DIET AND LIFESTYLE FOR BREAST CANCER PATIENTS

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Introduction
Breast Cancer is the most common cancer among women. With the increasing longevity and developments in breast cancer related with early detection, multimodal cancer therapy, and better supportive care, population of breast cancer survivors is increasing. The term “breast cancer survivor” applies to individuals from the time of diagnosis, recently diagnosed with breast cancer, undergoing active treatment or post-treatment follow-up, as well as those living with terminal disease. As this population grows, information related to whether lifestyle factors such as diet or physical activity can influence prognosis is of increasing interest.

Objectives
Analyze the literature related to diet, lifestyle and breast cancer recurrence or survival. Understand the importance of multi-professional team and care coordination among the different actors involved in survivorship care.

Methods
Relevant English literature was identified by searching the PubMed database using the search terms “breast cancer survivor” along with “obesity”, “diet”, “physical activity”, “Survivorship Care Plans”. We focused on a large epidemiological studies and meta-analyses to ensure the most thorough and up to date synthesis of available data.

Results
A multitude of studies investigating the impact of lifestyle modification on breast cancer survivors have produced highly variable and contradictory results.

Conclusions
Healthcare providers must become more involved in recommending (monitoring and implementation) healthy lifestyle behaviors for their patients.
Lifestyle modification may provide patients with feelings of control and self-determination because they become active participants in managing their own health. We need more studies that relate dietary factors and healthy lifestyles to the increase of survivorship for the breast cancer patients.

**IS-27**

**Mucositis**

**UPDATES ON CLINICAL STUDIES OF PALIFERMIN FOR ORAL AND GASTROINTESTINAL MUCOSITIS**

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Palifermin, a recombinant derivative of human keratinocyte growth factor, was the first drug approved by the FDA and EMA for the prevention of severe oral mucositis induced by highly mucotoxic total body irradiation-containing conditioning regimens for autologous haematopoietic stem cell transplantation (HSCT). Mucositis is a dose-limiting toxicity of cytotoxic treatment for cancer especially severe oral and gastro-intestinal mucositis as this can hamper timely and optimal cytotoxic therapy because patients need to be hospitalized for supportive measures such as iv narcotic analgesics, total parenteral nutrition, iv antibiotics. Mucositis also has a marked negative impact on both the quality of life and health-related costs. This paper will discuss the most important clinical studies of palifermin that attempted to reduce severe oral and gastro-intestinal mucositis and to improve mucositis-related patient-reported outcomes. The focus will be on patients undergoing HSCT, those treated with combined chemoradiotherapy for head and neck cancer as well as those treated with less mucotoxic therapy for sarcoma or colorectal cancer. Palifermin is generally well tolerated with mild-to-moderate skin and oral adverse events that are totally dependent on the schedule of administration. Since its introduction palifermin has fascinated many clinicians but several questions remain regarding the optimal use of this potent drug not least because of its other pleiotrophic effects e.g. the protective role of epithelial (skin, mucosa, thymus) lining and its presumed immunological activity. Hopefully new studies can be performed to investigate those areas of interest.

**IS-28**

**Mucositis**

**STOMATITIS SECONDARY TO TARGETED ANTI-CANCER AGENTS**

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**Introduction.** The term «stomatitis» was used to distinguish the oral mucosal toxicity secondary to targeted anti-cancer agents from the specific «oral mucositis» related to conventional anti-cancer therapies.

**Objective.** To present stomatitis secondary to targeted anti-cancer agents.

**Methods.** The relevant English literature was reviewed.

**Results.** Stomatitis, characterized as aphthous-like ulcers, was a frequent dose-limiting toxicity related to the class of mTOR inhibitors. Diffuse hyperkeratotic whitening of the oral mucosa, with or without burning sensation, emerged as another “class-effect” toxicity related to BRAF inhibitors, while oral cancer development was reported. Stomatitis, oral mucositis, mucosal inflammation, oral changes, stomatitis and related oral symptoms were also reported, associated with different targeted agents. Increased oral mucosal toxicity was observed when targeted agents were combined. Symptoms included painful mucosa, dysphagia, burning mouth or gingival, taste alterations, and xerostomia. Lack of specific oral examination was associated with limited characterization of the clinical picture, while anecdotal case reports described necrotizing mucositis or painful depapillation of the tongue. Different pathobiological mechanisms were hypothesized to correspond to the different clinical oral mucosal toxicities, necessitating appropriate assessment scales and management strategies.

**Conclusion.** Distinct dose-limiting oral mucosal toxicities emerged secondary to targeted anti-cancer agents. An expert oral examination, included in the clinical studies, would contribute to the characterization of the clinical picture and the underlying pathobiology, resulting to appropriate assessment scales and management strategies. The rapid evolution of oncological therapies, including the upcoming immune checkpoint inhibitors and combination therapies further highlight the need of the endorsement of oral examination.

**IS-29**

**Rehabilitation**

**LESSONS TO BE LEARNED FROM REHABILITATION OF NON-CANCER PATIENTS**

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**Introduction.** Rehabilitation was introduced back in 1950–60, and has been accepted as part of comprehensive care aimed at patients with cardiac diseases for more than 20 years. There is well established evidence that rehabilitation improves quality of life, and physical and psychological functional level in cardiac patients. Further rehabilitation reduces re-hospitalization, and mortality, and are considered a cost-effective intervention in cardiac care. Rehabilitation services aimed at cardiac patients have been developed throughout the world during the last decade. Despite solid evidence a number of organizational challenges still exist in order to ensure rehabilitation services as part of comprehensive cardiac care. Parallel it has been documented that rehabilitation improves quality of life among cancer survivors, and rehabilitation services are under the development within the field of cancer care.

**Objectives.** The aim of this presentation is to give an overview of the development and status of rehabilitation aimed at patients with cardiac diseases and to draw parallels to development of rehabilitation as part of comprehensive cancer care.

**Methods.** The presentation will be based on systematic literature review supplemented with data from organizational and economic analysis.

**Results.** The results will be presented with focus on the complex intervention of rehabilitation and the effect of the intervention. Further results demonstrate the patient-perspective, organizational challenges and economic aspects of rehabilitation will be presented in the context of cardiac and cancer care.

**Conclusions.** Parallel situations within the field of rehabilitation can be identified across the diagnostic entities of cardiac disease and cancer. The presentation will discuss what to consider in the process of developing rehabilitation services within cancer care based on learning from cardiac care.
Bone
01-01-O


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Objectives
To present our experience in the treatment and prevention of medication-associated osteonecrosis of the jaw between 2009 and 2014.

Methods
Four-hundred-fourteen patients were evaluated between 2009 and 2014. Underlying diagnosis was multiple myeloma (38.8 %), breast cancer (35.9 %), lung cancer (13.3 %) and other malignancies. Patients received zoledronic acid (67.7 %), or other antiresorptives (median time 27.3 months), while 66 patients (15.9 %) received concurrent antiangiogenics. One patient with osteonecrosis stage II received pazopanib alone. Osteonecrosis was diagnosed in 154 patients, while 260 patients were referred for prevention, before/after the initiation of antiresorptives.

Results
Osteonecrosis Group: Mandible was affected in 98/154 cases (63.6 %), maxilla in 40/154 (26 %) and both jaws in 15/154 (9.7 %). Dental extraction preceded osteonecrosis in 44.2 % of the cases. Fifty-eight patients (37.7 %) presented with non-exposed and 96 with exposed bone (62.3 %). Patients were managed with long-term or intermittent antibiotics; dental extractions were performed in 24 patients and local applications of ozone oil in 47 patients. Of all 154 osteonecrosis patients, 12 (9.1 %) healed, 60 (45.5 %) are stable, 52 (39.4 %) are asymptomatic with minor mucosal inflammation and 7 (5.3 %) progressed. Prevention group: Dental extractions were performed in 18 patients. All dental extractions healed. No osteonecrosis was observed in the prevention group.

Conclusions
This report does not support the dental extraction as the main risk factor of osteonecrosis.

01-02-O

PALLIATIVE SURGICAL INTENT IN THE TREATMENT OF BONE SARCOMAS: A MIDTERM REVIEW FROM A RESOURCE CHALLENGED ENVIRONMENT

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Introduction
Palliative surgeries are known to reduce tumor volume and reduce pain in terminally sick children with osteosarcoma and Ewing sarcomas. The role of palliative surgery is controversial more so in countries with poor resources.

Objectives
To evaluate the outcome of palliative surgery in patients with osteosarcoma and Ewing sarcomas vis a vis resource challenged environment.

Methods
We retrospectively evaluated a total of 443 biopsy proven sarcomas of the extremities who were treated at our MSK Oncology service over a period of 10 years. Patients who underwent palliative surgeries (amputation, tumor debulking and intralesional resections) were included for evaluation. All included patients had distant metastatic disease at presentation.

Results
A total of 126 (28 %) patients were treated with palliative intent at the time of surgery. Main reason for late presentation were socioeconomic. Amputation was done in 77 cases, debulking in 27 and intralesional resection was done in 22 cases. High tumor volume was the commonest reason for an amputation. All patients were followed up on a regular basis. Evaluation of pain relief and MSTS Functional Scoring was done at follow-ups. Survivorship analysis was done. 29 (23 %) patients showed a good quality survival of more than 24 months. Thirty-seven patients died within 8 weeks of surgery while 54 patients died within 6 months of the index procedure.

Conclusions
Palliative surgery has a definite role in the management of high volume limb extremities particularly in resource challenged situations like ours.
105 breast cancer patients. During standard adjuvant chemotherapy the patients received up to 1425 mg of prednisolone in intervals as required. Patients were advised to take calcium and vitamin D daily. We correlated the cumulative dose of prednisolone with the percentage change in BMD using Fisher's exact tests.

**Results**
Baseline characteristic is shown in table 1. Ten patients were excluded due to osteoporosis at baseline DXA and one due to poor quality scan. None had osteoporosis at the 2nd DXA. Table 2 shows BMD changes from the 94 patients. Median prednisolone dose was 1305 mg with 90% receiving at least 1100 mg. Overall, cumulative prednisolone dose was not significantly associated with changes in spine, hip and radius BMD ($P>0.05$).

**Conclusions**
During chemotherapy bone loss by all three DXA measurements was not detected in any patient and no significant association was found to dose of prednisolone. However, we keep following the patients with DXA.

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**01-04-P**

**COMPARING THE EFFICACY OF DENOSUMAB VERSUS Zoledronic Acid (ZA) FOR PREVENTION OF SKELETAL-RELATED EVENTS (SREs): A CRITICAL APPRAISAL OF THREE PIVOTAL TRIALS**

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**Introduction**
Rigorous critical appraisal of clinical trials to assess bias and chance effects, which can distort trial results, can help evaluate the validity of research findings. In a pre-specified integrated analysis of three phase 3 pivotal trials in patients with bone metastases from breast cancer, prostate cancer, and other solid tumors or multiple myeloma ($N=5723$), denosumab was reported to be superior to ZA for the prevention of SREs, with statistically and clinically significant differences.

**Objectives**
Delfini Group performed critical appraisals of the three individual pivotal trials and the integrated analysis.

**Methods**
Published trials (Lipton et al., EJC, 2012; Stoneck et al., JCO, 2010; Henry et al., JCO, 2011, Fizazi et al., Lancet, 2011) and supplementary information were analyzed. Potential threats to study validity, such as selection, performance, and assessment bias, and the likelihood for chance effects instead of true effects, were evaluated. A detailed analysis of attrition (discontinuation or loss to follow up) was conducted to assess the presence of attrition bias.

**Results**
The trials were found to be of high-quality evidence and at low risk of bias and chance effects. Important quality features included a robust randomization process, high likelihood of patients remaining balanced and blinded throughout the study, and a high degree of adherence to assigned treatments. These and other factors make bias from attrition unlikely.

**Conclusions**
The critical appraisal confirmed that the results of the integrated analysis and three pivotal trials were robust, with denosumab providing clinically meaningful benefit in patients with bone metastases from advanced cancer.

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**01-05-P**

**EFFICACY OF SURGICAL TREATMENT STRATEGIES FOR LONG BONE METASTASES**

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**Introduction**
Impending and pathological fractures are often treated using surgical methods.

**Objectives**
To analyse the surgical treatment of long bone metastases.

**Methods**
Patients treated for a pathologic or impending fracture were treated from 2007 to 2010 with three treatment modalities: a) resection of the diaphyseal lesion and reconstruction with intramedullary nail combined with bone cement, b) resection of the metaphyseal lesion and reconstruction with cemented tumor prosthesis, c) Intra-lesional curettage and reconstruction with intramedullary nail and bone grafting. Functional evaluation was done by Enneking’s system.

**Results**
The cohort consisted of 26 men and 19 women with median age of 54 years, and femur (33 cases) and humerus (12 cases). Pathological fractures were seen in 18 cases. Intra-lesional curettage was used in two patients, resection of the metaphyseal lesion and prosthetic replacement in 14, resection of the diaphyseal lesion and reconstruction with intramedullary nail and bone cement in 29. The complete metastasectomy was associated significantly with a less postoperative complication compared with intra-lesional curettage ($P<0.001$). The average follow-up time was 28 months. Two recurrences were seen in the intralesional curettage group. Enneking’s functional score with intramedullary nail and bone cementation was not different compared to prosthetic replacement ($P=0.19$). Postoperative function was good in 71.11 %, medium in 22.22 %, poor in 6.67 %. The pain relief was 84.44 % with the survival rates 33.33 % at 2 years.

**Conclusions**
Intralesional therapy has higher recurrence rate than complete metastasectomy. The reconstruction with intramedullary nail or prosthetic replacement together with bone cementation is the better way for restoring function.

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**01-06-P**

**ELECTROACUPUNCTURE EFFICACY IN METASTATIC BONE PAIN RAT MODEL WITH MORPHINE TOLERANCE**

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**Introduction**
Opioid is widely used in cancer pain, but long-term use may lead to tolerance.

**Objectives**
This research is to explore the efficacy of electroacupuncture treatment in morphine tolerance rat model with metastatic bone pain. And to study the expression of calcitonin-gene related peptide (CGRP) immunohistochemistry in dorsal root ganglion (DRG).

**Methods**
Forty SD rats were divided into four groups: sham, CIBP+morphine tolerance (CM), CIBP+electroacupuncture (CE), and CIBP+morphine tolerance+electroacupuncture (CME). CM, CE and CME groups were prepared CIBP model by carcinoma cell tibia implanted. Sham only accepted
sham operation without carcinoma cell implanted. After 6 days, the three CIBP models accepted treatment of morphine, electroacupuncture, and morphine combined electroacupuncture, separately, 9 days continuously. Acupoints were selected Zusanli (ST36) and Sanyinjiao (SP6) bilateral. Electroacupuncture treatment was manipulated by 2/50 Hz frequency, 20 min bid, 9 days continuously. Fifty percent mechanical withdraw threshold was evaluated by von Frey filament stimulation. CGRP expression in DRG was detected by immunohistochemistry.

Results
After 9 days of electroacupuncture treatment, pain threshold was (10.9±0.8)g in CME group, (8.7±0.6)g in CM group and (6.2±0.9)g in CE group. The results had significant statistic differences (P<0.01, separately).IOD value of CGRP expression in dorsal root ganglion was 9026.5±1827.4 in CME group, compared with 14803.1±2086.7 in CM group and 15730.6±2712.5 in CE group (P<0.01, separately).

Conclusions
Electroacupuncture can relieve morphine tolerance. The mechanism is related to inhibiting CGRP expression in DRG.

01-07-P
TRANSMISSION OF ER STRESS RESPONSE BY ATF6 IS ESSENTIAL FOR CHONDROCYTE DIFFERENTIATION

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Introduction
BMP2 is known to activate ER stress signaling molecules, including XBP1S and ATF6. We previously reported that BMP2 induces mild ER stress in chondrocyte differentiation, then XBP1S enhances and controlled growth plate chondrocyte hypertrophy and differentiation. However, whether ATF6 can influence the chondrogenesis has not yet been elucidated; especially, the molecular mechanism underlying these processes remains unexplored.

Objectives
To investigate the role of ATF6 in chondrogenesis and bone formation, with the special focus on associated molecules of hypertrophic chondrocyte differentiation, as well as the molecular events underlying this process.

Methods
Mouse BMSCs Isolation and culture; Immunohistochemistry; Quantitative PCR; EMSA; Immunoblotting analysis; Chromatin Immunoprecipitation; Reporter gene assays

Results
Herein we exhibit that ATF6 demonstrates prominent expression in growth plate chondrocytes. It is differentially expressed during the course of BMP2-triggered chondrocyte differentiation of pluripotent C3H10T1/2 cells and BMSCs. This expression is probably due to the activation of the ATF6 gene by Runx2 and repression by Sox6 transcription factor. Runx2 and Sox6 bind to the 5′-flanking regulatory region of ATF6 gene at their consensus binding elements. Overexpression of ATF6 accelerates chondrocyte differentiation, as revealed by enhanced expression of ColII, Aggrecan and ColX; besides, the ex vivo and in vivo studies support that ATF6 is a potent stimulator of chondrocyte hypertrophy, mineralization and endochondral bone growth. Knockdown of ATF6 via an siRNA approach abolishes chondrogenesis. In addition, ATF6 associates with RUNX2 and enhances RUNX2-mediated chondrocyte hypertrophy. These findings demonstrate that ATF6 positively regulates chondrogenesis and endochondral bone formation by 1) associating with Runx2 and activating Runx2-induced hypertrophic chondrocyte differentiation; 2) multiple controlled by Runx2 and Sox6 in chondrogenesis; and 3) affecting IHH/PTHrP signaling.

Conclusions
These findings demonstrate that ATF6 positively regulates chondrogenesis and endochondral bone formation by 1) associating with Runx2 and activating Runx2-induced hypertrophic chondrocyte differentiation; 2) multiple controlled by Runx2 and Sox6 in chondrogenesis and 3) affecting IHH/PTHrP signaling.

01-08-P
IRE1A, FORMING A CONTROL LOOP WITH BMP2 AND GEP, MODULATES OSTEOBLASTOGENESIS

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**Introduction**

It was known that IRE1 is involved in the switch between the prosurvival UPR, differentiation, and initiation of cell death pathways during ER stress. We previously report that BMP2 induces ER stress during chondrocyte differentiation and activates the IRE1a-XBP1 pathway. However, little is known about the modulation and physiological significance of IRE1a in osteoblast differentiation, especially the molecular mechanism in these processes.

**Objectives**

To investigate the role of IRE1a in osteoblastogenesis, with the special focus on associated molecules of osteoblast differentiation and the molecular events underlying this process.

**Methods**

Mouse BMSCs Isolation and Culture; Immunohistochemistry; Quantitative PCR; EMSA; Immunoblotting analysis; ALP and OCL Assays; Reporter gene assays.

**Results**

In this study, we demonstrate that overexpression of IRE1a inhibits osteoblast differentiation. Mechanistic studies revealed that the expression of IRE1a during osteoblast was a consequence of JunB transcription factor binding to several AP1 sequence in the 5′-flanking regulatory region of the IRE1a gene, followed by transcription. In addition, GEP induces IRE1a expressions and this induction of IRE1a by GEP depends on JunB; Furthermore, IRE1a inhibition GEP-induced osteoblastogenesis relies on JunB; Besides, BMP2-induced osteogenic activity and IRE1a inhibition were restored when GEP was re-expressed. GEP is required for IRE1a inhibition of BMP2-induced bone formation. Collectively, IRE1a inhibits BMP2 and GEP was required for IRE1a inhibition of BMP2-induced osteoblastogenesis.

**Conclusions**

Collectively, these findings demonstrate that (1) IRE1a inhibits BMP2-mediated Osteogenic Differentiation; (2) JunB upregulates endogenous IRE1a expression and enhanced this inhibition; (3) GEP induces IRE1a expressions and this induction depends on JunB; (4) GEP is required for IRE1a inhibition of BMP2-induced bone formation; (5) IRE1a inhibition of GEP induced osteoblastogenesis is, at least partially, mediated by the transcription factor JunB. Thus, IRE1a, BMP2, GEP, and JunB constitute a regulatory feedback loop and act in concert during osteoblast differentiation and bone formation.

**01-09-P**

**A MULTIDISCIPLINARY BONE METASTASES CLINIC AT SUNNYBROOK ODETTE CANCER CENTRE: A REVIEW OF THE EXPERIENCE FROM 2009 TO 2014**


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**Introduction**

Sunnybrook Odette Cancer Centre’s Bone Metastases Clinic (BMC) is a one-stop clinic which provides a coordinated multidisciplinary approach to the care of cancer patients with metastatic bone disease.

**Objectives**

The objective of this study was to review the experience of the BMC.

**Methods**

Patients with symptomatic bone metastases are referred to the BMC and evaluated by a team of specialists in various disciplines, including orthopedic surgery, radiation therapy, radiation oncology and interventional radiology. At initial consultation, patient demographics, reasons for referral, and case disposition were recorded.

**Results**

From January 2009 to December 2014, a total of 431 patients with bone metastases were referred to the BMC. The median age was 66 years (range 34–94 years) and median Karnofsky Performance Score was 70 (range 30–100). The majority of patients came from home (95 %), while others came from a hospital (4 %). Approximately a quarter (26 %) of patients had two or more reasons for referral, yielding a total of 542 reasons. The predominant reason for referral was bone or neuropathic pain (52 %), followed by pathological fracture (18 %) and impending fracture (15 %). Out of 431 patients, 428 case dispositions were recorded; 20 % of patients required further investigation and/or imaging, 18 % received palliative radiation, 13 % were offered surgery and 13 % were referred to other supportive care services.
BONE TURNOVER MARKER (BTM) LEVELS AND CLINICAL OUTCOMES IN ADVANCED CANCER PATIENTS (PTS) TREATED WITH ANTIRESORPTIVE BONE THERAPIES

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Introduction
Advanced cancer pts with metastatic bone disease have elevated BTM levels. Antiresorptive agents such as denosumab and zoledronic acid can significantly reduce BTM levels.

Objectives
We evaluated BTM levels after antiresorptive treatment in advanced cancer pts with bone metastases.

Methods
This post-hoc analysis represents patient-level data from three identical phase 3 trials with pts randomized to receive denosumab (120 mg SC) or zoledronic acid (4 mg IV, adjusted for creatinine clearance). Urinary N-telopeptide (uNTx) and bone-specific alkaline phosphatase (BSAP) were measured at study entry and 3 months. Disease progression (DP), overall survival (OS) and DP in the bone (DPB) were compared in pts with BTMs above and below median levels at month 3 by covariate analyses stratified by treatment and stratification factors based on month 3 assessments.

Results
Pts with uNTx levels ≥ median of 10.04 nmol/mmol at month 3 had a significantly greater risk of DP (31 %) and reduced OS (85 %) than pts with uNTx levels < median. Pts with BSAP levels ≥ median level of 12.56 ng/mL at month 3 had an increased risk of DPB (11 % for uNTx and 27 % for BSAP).

Conclusions
A multidisciplinary clinic is beneficial for managing patients with bone metastases to allow for comprehensive assessment and treatment.

PREVENTION OF SKELETAL-RELATED EVENTS (SRE) BY DENOSUMAB: IMPACT ON HOSPITALISATION OF PATIENTS WITH BONE METASTASES SECONDARY TO SOLID TUMOURS (ST) IN GERMANY

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Introduction
Prior studies have shown that BM-associated SREs, defined as pathologic fracture, radiation to bone, surgery to bone or spinal cord compression, increase healthcare resource utilisation (HRU).

Objectives
To estimate the reduction in hospitalisations due to the number of SREs avoided with denosumab treatment versus zoledronic acid (zol) in patients with BM from STs (breast [BC], prostate [PC], other STs [OST]) in Germany.

Methods
The number of patients with STs and BM were derived from a German registry. German market research data was used to estimate the number of these patients treated with denosumab or zol for SREs prevention. The difference in SRE rates was extrapolated from the rates observed in phase 3 trials. Hospitalisation rates and length of stay associated with SREs were taken from the German patient cohort of a multinational prospective chart review.

Results
In Germany, 33,814 patients with BM from STs (BC: 15,230; PC: 9317; OST: 9267) were assumed to receive denosumab or zol annually. Per year, 5,380 more SREs would be prevented (BC: 2,182, PC: 1,873, OST: 1,325) in the denosumab versus zol group, leading to a reduction of 1,749 hospitalisations (BC: 729, PC: 568, OST: 452). Compared with zol, denosumab use was associated with approximately 3,250 days of inpatient stays avoided per year (BC: 1,379, PC: 1,033, OST: 926). The number of patients with STs and BM from STs (BC: 15,230; PC: 9317; OST: 9267) were assumed to receive denosumab or zol annually. Per year, 5,380 more SREs would be prevented (BC: 2,182, PC: 1,873, OST: 1,325) in the denosumab versus zol group, leading to a reduction of 1,749 hospitalisations (BC: 729, PC: 568, OST: 452). Compared with zol, denosumab use was associated with approximately 3,250 days of inpatient stays avoided per year (BC: 1,379, PC: 1,033, OST: 926).

Conclusions
Treating German patients suffering from BM from STs with denosumab instead of zol reduces the number of SREs and consequently decreases the HRU, particularly the number and duration of hospitalisations associated with SREs.

RADIOTHERAPY FOR THE PROPHYLAXIS OF HETEROTOPIC OSSIFICATION: A META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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Introduction
Heterotopic ossification (HO) involves the formation of lamellar bone in nonosseous tissue. For HO, radiotherapy has been shown to be an effective prophylactic modality.
Objectives
In this meta-analysis of randomized controlled trials (RCTs), we aim to compare HO outcomes following radiotherapy and to investigate the effects of various factors in radiotherapy administration including dose (BED ≤25 or >25 Gy), timing (preoperative vs postoperative) and fractionation scheme (single vs multiple).

Methods
A systematic search was conducted on Ovid MEDLINE, EMBASE and Cochrane CENTRAL. Studies were included if they were RCTs, included patients who were prescribed prophylactic radiation and if relevant HO progression outcomes were reported.

Results
From a literature search of 528 articles, 12 RCTs were included. There was a statistically significant reduction in HO incidence with multiple fraction radiotherapy in comparison to single fraction radiotherapy (p = 0.04), however this result became statistically nonsignificant when examining HO progression (p = 0.28). There was no statistically significant difference in HO progression when comparing a biologically effective radiation dose (BED) of >25 to ≤25 Gy (p = 0.28). As well, no statistically significant difference existed in HO progression between postoperative vs preoperative radiation (p = 0.43).

Conclusions
Radiotherapy, either prescribed postoperatively or preoperatively, is effective in preventing HO progression. The effects of different fractionation schemes and dose are not clear from this analysis. The meta-analysis was limited by the small number of studies that met the inclusion criteria.

01-13-P
COMPARATIVE STUDY: HYPERCALCEMIA IN BREAST AND PROSTATE CANCER PATIENTS ATTENDING THE NATIONAL CANCER INSTITUTE (NCI)-CENTRAL SUDAN

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Results
The bone is the third most common site for metastatic disease in tumors of all types and the second most common in breast and prostate cancer.

Methods
The aim of this study was to find the incidence of Hypercalcemia in new cases with breast and prostate cancers at National Cancer Institute (NCI), Gezira University, Sudan.

Objectives
The study was performed on 200 cases of female breast cancer and 200 of prostate cancer patients. The biochemical parameters measured were serum calcium and albumin. They were measured by spectrophotometer. Anthropometric measurements determined was the body mass index (BMI). A questionnaire was designed in order to obtain information regarding demographics details and stage of cancer.

Introduction
Mean age for female was (48.74±13.04), and for males were (71.04±7.04). Hypercalcemia was detected in 44(11.0 %) of the total patients. Hypercalcemia was appearing in 28(14.0 %) of females breast cancer and 16(8.0 %) of prostate cancer patients. 47.6 % of the female had (BMI) over 25 kg/m², (77.3 %) of patients were presented with advance stages. Mean serum calcium were (9.17±0.69 and 8.60±1.41 mg/dl respectively). The mean serum albumin concentration was (4.04±0.69, 3.82±0.80) mg/dl.

Conclusions
Conclusion: Calcium and albumin levels among Sudanese females’ breast and prostate cancer patients were similar to the internationally published levels. Hypercalcemia is common condition among breast and prostate cancer patients and should be checked whenever there is a symptom because it can lead to many serious complications and death.

01-14-P
BONE HEALTH ASSESSMENT IN THE MANAGEMENT OF EARLY BREAST CANCER IN WOMEN: A SINGLE CENTER, RETROSPECTIVE ANALYSIS

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Introduction
Extension of survival among breast cancer (BC) patients makes paramount the consideration of long-term consequences of cancer treatments, with important reference for osteoporosis and skeletal-related events. Maintenance of bone integrity is an important aspect to consider in the management of BC. Timely assessments are essentials for early intervention on bone health management.

Objectives
Aim of the study was to correlate biochemical (serum PTH, calcium and phosphate) and instrumental (lumbar and femoral BMD, T-score, Z-score) bone parameters with prognostic factors for recurrence (stage of disease, ER, PgR, HER-2 and p53 expression) and treatment (Chemotherapy, CT; Hormonotherapy, HT; Chemo+Hormonotherapy, CT+HT).

Methods
From January 2004 to May 2013, 61 patients who underwent adjuvant treatment for early BC were followed for biochemical and instrumental bone health assessment.

Data were reviewed and analyzed using Principal Component Analysis (PCA), MATLAB® ver. 5.2 software.

Chosen threshold of statistical significance was p<0.05.

Results
ANOVA test showed that instrumental parameters are influenced by treatment regimen (p<0.0232) compared to biochemical parameters (p=0.89).

Data from comparing instrumental parameters using paired t-tests were the following:

- Patients treated with hormonotherapy showed lower values than patients treated only with chemotherapy alone, HT vs. CT (p=0.0078).
- Patients treated with chemo plus hormonotherapy showed lower values than patients treated only with chemo alone, CT+HT vs. CT (p=0.0107).

Conclusions
Our data clearly show the impact of hormonotherapy, alone or in combination with cytotoxic treatments, on the considered instrumental bone parameters values.

We can say that hormonotherapy exerts an independent effect on bone integrity regardless of whether or not the patients had received chemotherapy.

01-15-P
AN OBSERVATIONAL STUDY TO EVALUATE THE APPLICATION OF PREVENTIVE MEASURES FOR BISPHOSPHONATE-RELATED OSTEONECROSIS OF THE JAW IN A TERTIARY TEACHING HOSPITAL

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Conclusions
Calcium and albumin levels among Sudanese females’ breast and prostate cancer patients were similar to the internationally published levels. Hypercalcemia is common condition among breast and prostate cancer patients and should be checked whenever there is a symptom because it can lead to many serious complications and death.
Introduction
Bisphosphonate-related osteonecrosis of the jaw (ONJ) can produce significant morbidity and hinder quality of life of cancer patients. Prevention is still the most effective way to limit this complication.

Objectives
To assess application of ONJ preventive measures by our physicians on patients treated with bisphosphonate.

Methods
We conducted an observational cross-sectional study at our hospital between March and June 2014. Bisphosphonate-prescribing physicians were asked to complete an anonymous, structured and self-administered questionnaire.

Results
One hundred twenty-seven physicians completed the questionnaire (response rate: 70.5 %). 47.8 % fear this complication. Only 31.5 % advised their patients to consult a dentist, and 43.1 % informed them of the need to notify their dentist of bisphosphonate before any dental treatment; oncologists more than other specialists (p=0.004).

Conclusions
Preventive measures for bisphosphonate-related ONJ are an important part of our patients’ care. We have noticed an inconsistency in applying these measures by our physicians. There is a need to develop a protocol on bisphosphonate-related ONJ prophylaxis at our hospital. Collaborating with our dentists will play a pivotal role in its development and implementation. Thereafter, further studies will be needed to assess the impact of this collaboration on our patients’ oral health.

DEMOCRATIC PROFILE OF OSTEOSARCOMA FROM A TERTIARY CARE CENTER IN A DEVELOPING COUNTRY-RETROSPECTIVE ANALYSIS FROM LAST EIGHT YEAR

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Introduction
It is known that demographic profile of Osteosarcomas give etiological insights. Most demographic studies are from Developed countries with paucity of data from developing world

Objectives
To evaluate demographically occurence of Osteosarcoma from a high volume MSK Oncology centre

Methods
Our was a retrospective study with identification of Osteosarcomas presenting between January 2004 and December 2011. Data was extracted from hospital records. All demographic data including age, gender, site of involvement, histopathological subtype and metastasis at presentation noted. Type of surgery was noted.

Results
We identified 408 cases of biopsy proven Osteosarcoma. Average age at presentation 18.4 years. Male-female ratio was 2.1:1. 52.3 % of patients were in age group of 15 to 24 years while nine patients (2.2 %) were aged 45 years or more. No bimodal peak of tumor occurrence was noted. Thirty-nine patients (9.6 %) were found to have metastasis at presentation. Most frequent site was femur (49.2 %), followed by tibia (21.6 %) and humerus (9.3 %). Following neo-adjuvant chemotherapy, 170 patients underwent surgical treatment. Limb salvage surgery was performed in 136 patients while 34 patients underwent amputation. Tumor excision alone was performed in seven patients, intercalary reconstruction using fibular graft was done in 33 patients. Reconstruction using irradiated bone was done in two patients. Forty patients underwent arthrodesis while 54 patients had an endoprosthetic reconstruction. Survivorship analysis was done for patients who surgery.

Conclusions
Our study has limitation of being a hospital based data. In the absence of population based data, intermediate term experience of a tertiary care centre from second largest country throws light on epidemiology of Osteosarcoma.
LEBANESE PHYSICIANS’ KNOWLEDGE AND ATTITUDE REGARDING BISPHosphONATES-RELATED SIDE EFFECTS

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Introduction
Bisphosphonates are commonly prescribed to prevent skeletal complications and relieve bone pain induced by malignancies. However, these benefits are associated with multiple complications.

Objectives
To evaluate the knowledge and attitude of Lebanese physicians regarding bisphosphonates-related complications.

Methods
An observational cross-sectional survey was conducted at a major tertiary teaching hospital in Beirut. Data were collected through an anonymous structured self-administered questionnaire distributed to physicians expected to regularly prescribe bisphosphonates (n=215). The questionnaire assessed participants’ knowledge, fear and experience regarding bisphosphonates-reported side effects.

Results
One hundred fifty-seven physicians completed the questionnaire (response rate: 73%); 77.2 and 75.2 % of them considered that gastrointestinal intolerance and osteonecrosis of the jaw (ONJ) are linked to bisphosphonates, respectively. Conversely, the least recognised complications are ocular inflammation (7.6 %) and severe musculoskeletal pain (37.6 %). The association of bisphosphonates with oesophageal cancer, atrial fibrillation and hepatotoxicity was wrongly reported by 11.5, 13.4 and 24.8 % of respondents, respectively.

Physicians are mainly concerned about ONJ, atypical fractures and nephrotoxicity, when prescribing a bisphosphonate. However, the complications frequently encountered in their practice are gastrointestinal intolerances due to an earlier detection and management. Our study revealed that the adverse effect profile of these drugs is not well well-known by our physicians. Appropriate training strategies to increase their knowledge are needed.

Conclusions
Practitioners’ awareness of bisphosphonates-related side effects can potentially lead to prevent the occurrence of more serious complications due to an earlier detection and management. Our study revealed that the adverse effect profile of these drugs is not well well-known by our physicians. Appropriate training strategies to increase their knowledge are needed.
Introduction
Dental extractions have been reported as the main risk factor for the development of osteonecrosis of the jaw (ONJ).

Objectives
To present the clinical course of 26 dental extractions performed in eight patients receiving denosumab.

Methods
Two breast cancer and six osteoporotic patients receiving denosumab were included. Cancer patients received one infusion per month each, while the osteoporotic received two infusions per year (mean infusions 3.3). One cancer patient was pretreated with zoledronic acid for 6 months. Two osteoporotic patients were pretreated with alendronate (7 and 9 years each); one with ibandronic acid (7 years) and one with two infusions of zoledronic acid. Denosumab was interrupted. Antibiotics were administered before the extraction and until healing. Ozone oil was locally applied in four patients.

Results
Nine dental extractions in cancer patients (maxilla 8, mandible 1) and 17 extractions (mandible 13, maxilla 4) in osteoporotic patients were performed. Dental disease was the cause for 26 extractions. All the extractions were healed (mean time 3.5 weeks in cancer and 2 weeks in osteoporotic patients).

Conclusions
In this small study cohort, the healing of all extraction sites does not support the dental extractions as the main risk factor for ONJ development.

01-21-P
MICROBES IN DRUG-RELATED OSTEONECROSSES OF THE JAWS (DRONJ)
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Introduction
The role of microbes in DRONJ is still unclear. In order to find out if there are differences between various groups of patients we compared several aspects in our patients. This could have an impact on the antibiotic regimen.

Objectives
In this 6-year study all hospitalized patients with DRONJ were included.

Methods
We compared oncological and non-oncological patients as well as patients who had received bisphosphonates (BP) versus monoclonal antibodies (MA). The prevailing two bacteria were noted.

Results
Out of 100 patients with DRONJ only in 40 instances (25 oncological and 15 non-oncological patients) a microbiological report was available. Twenty-two patients had received BP and 18 patients MA. The prevailing organisms were streptococci, staphylococci or other bacteria of the normal oropharyngeal flora in 30 patients. In ten patients anaerobic bacteria prevailed. Only in four patients actinomyces had been found.

Conclusions
We were not able to detect a relationship between patients who had been treated for oncological versus non- oncological coinditions nor between patients who had received BP or MA. A number of other factors may influence the result of microbiological investigations, e.g. systemic diseases (diabetes), antibiotic administration before hospitalisation etc. As long as there are no large statistics with reliable data available it does not seem possible to draw conclusions from a single microbiological report.

01-22-P
CANCER REHABILITATION OF CHILDREN WITH BONE SARCOMAS
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Introduction
Cancer rehabilitation is becoming more of a focus for the field of physiatry due to increased longevity and the side effects of treatment.

Objectives
In order to investigate the rehabilitation needs of patients, chart analysis was conducted on 46 children at the mean age of 12.4±4.2 years (aged 3–19 years), 25 (54.3 %) males, 21 (45.7 %) females treated by chemotherapy, radiotherapy, oncologic surgery, included limb-sparing procedures. Histologically, 24 patients had ESFT, 21 - OS, chondrosarcoma – 1. The most often affected area was lower extremity – 30 cases. Twenty patients had distant metastases.

Methods
Eighteen patients underwent courses of preoperative inpatient physical therapy, at the neoadjuvant part of special treatment, 18 patients underwent courses of postoperative inpatient physical therapy at the adjuvant part of special treatment, 26 patients underwent courses of physical therapy during remission. This study evaluated the short and long-term changes in physical fitness of a child with a childhood malignancy; using an individual rehabilitation program, consist with combined physical exercise, kinesiotherapy, aquatic rehabilitation and orthopedic correction implemented during and shortly after treatment.

Results
We suggest that the usage an individual rehabilitation program can decrease pain, improve muscle strength and range of motion in joints, an increased supply of blood to the muscles, higher muscle metabolism, and more circulation in the limbs, improves tissue nutrition and helps the healing process.

Conclusions
Physical activity may to prevent the long-term risk for adverse cardiovascular effects, low bone density, low muscle strength and range of motion in joints.

01-23-P
USE OF URINARY MARKERS IN CANCER SETTING: A LITERATURE REVIEW
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Introduction
In bone metastases, the disruption of normal bone processes results in increased resorption and formation rates, which can often be quantitative- ly measured by biomarkers in the urine and blood.

Objectives
The purpose of this review is to summarize relevant studies of urinary markers used as a diagnostic and/or prognostic tool, as well as its potential and advances in directing therapy.

Methods
A literature search was conducted to identify studies that detailed the use of urinary markers in the cancer setting, specifically involving markers for bone metastases. Search terms included “urinary markers”, “cancer”, and “bone metastases”.

Results
A total of 35 articles, with 24 original studies, were identified. In general, urinary markers can be used to detect early signs of bone metastases prior to skeletal imaging, but still must be used in conjunction with imaging to avoid false positive results. While urinary markers have shown to be potentially useful in confirming the efficacy of bone metastases treatments and directing therapy, it is still unclear as to what extent urinary markers should be reduced by.

Conclusions
The potential use of urinary markers in the management of bone metastases is promising. However, additional studies involving prospective clinical trials are suggested to further examine the potential of urinary markers in developing appropriate treatment strategies and endpoints, especially in developing a clearer protocol on the extent urinary markers should be reduced by to correlate with achievement of clinical benefit.

01-24-P
COMPARISON OF RADIOLOGICAL CHANGES BEFORE AND AFTER STEREOTACTIC BODY RADIATION THERAPY (SBRT) FOR NON-SPINE BONE METASTASES

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Introduction
Stereotactic body radiation therapy (SBRT) uses higher doses of radiation and smaller target volumes than conventional radiation therapy. SBRT is becoming more widely applied for non-spine bone metastases. However, unlike conventional radiation therapy, its outcomes and toxicities for non-spine bone metastases have not been thoroughly studied.

Objectives
This study aims to measure SBRT-induced radiological changes in tumours and identify trends in response and recovery time. This will enable us to better assess the effectiveness of SBRT for our patients with non-spine bone metastases.

Methods
Change in average computed tomography (CT) number of the radiation treatment contour (delineated by the radiation oncologist) was used as a surrogate for treatment response. Relative differences were compared to a baseline scan and follow-up scans between 0.5 and 31 months post-treatment. A rigid fusion was performed between the planning CT and the baseline and follow-up CT to map the treatment contour to the correct spatial location in radiological images.

Results
Prostate cancer patients with sclerotic lesions experienced an earlier response and recovery time than renal cell cancer patients with lytic lesions. They also experienced a larger decrease in average CT number than renal cell cancer patients.

Conclusions
After SBRT, response and recovery times for prostate cancer patients with sclerotic lesions and renal cell cancer patients with lytic lesions follow unique trends. These findings have biological support and provide insight as to how SBRT works.

01-25-P
IN VITRO INHIBITION EFFECT OF CIRCADIAN GENE PERIOD 2 (PER2) ON HUMAN OSTEOsarcoma CELLS MG63

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Introduction
The physiological and behavioral activities of many organisms are driven by the circadian rhythm, which has the biological molecular basis, namely the circadian gene. Recent studies have demonstrated that the circadian genes regulate other molecular and biochemical processes beyond their established role in the mammalian circadian clock, a growing body of research suggests that the role of the circadian clock could be a fundamental regulator for tumor suppression in humans. Period2 (Per2) is an essential component of the mammalian clock mechanism, which has been shown to play critical roles in growth control and tumor development, and frequently deregulated in several metastatic human cancers. In the present study, we sought to construct the recombinant pEGFP-N1-hPer2 plasmid with pEGFP-N1 vector carrying fluorescent protein expressed gene then transfected into MG63 cells in order to observe the biological behavior of the cells. These data might provide scientific information for prognosis prediction and targeted therapy for osteosarcoma.

Objectives
To investigate the effects of circadian gene period 2 on human osteosarcoma cell line MG63.

Methods
hPer2 expression plasmid pEGFP-N1-hPer2 was constructed, and transfected into MG63 cells as the experiment group, paralleled with the vector control pEGFP-N1 and blank group. Inhibitory effects of Per2 on MG63 cells were measured.

Results
The human circadian gene Per2 overexpression exhibited a statistically significant growth-inhibitory effect and apoptosis-inductive effect on MG63 cells.

Conclusions
hPer2 inhibits growth of the MG63 cell, which could play a key role in gene therapy of osteosarcoma.

01-26-P
A DEFINITION OF “UNCOMPLICATED BONE METASTASES” BASED ON PREVIOUS BONE METASTASES RADIATION TRIALS COMPARING SINGLE-FRACTION AND MULTIFRACTION RADIATION THERAPY

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Introduction
The purpose of this review is to summarize relevant studies of urinary markers used as a diagnostic and/or prognostic tool, as well as its potential and advances in directing therapy.
Introduction
The most recent systematic review of randomized trials in patients with bone metastases has shown equal efficacy of single fraction (SF) and multiple fraction (MF) palliative radiation therapy in pain relief. It is important to determine the patient population to which the evidence applies.

Objectives
This study aims to examine the eligibility criteria of the studies included in the systematic review to define characteristics of “uncomplicated” bone metastases.

Methods
Inclusion and exclusion criteria of 21 studies included in the systematic review were compared. Common eligibility criteria were documented in hopes of defining the specific features of a common patient population representative of those in the studies.

Results
More than half of the studies included patients with cytological or histological evidence of malignancy. Patients with impending and/or existing pathological fracture, spinal cord compression or cauda equina compression were excluded in most studies. Most studies also excluded patients receiving treatment at the same site.

Conclusions
“Uncomplicated” bone metastases can be defined as: presence of painful bone metastases unassociated with impending or existing pathologic fracture or existing spinal cord or cauda equina compression. Therefore, MF and SF have equal efficacy in patients with such presentations of bone metastases.

BONE METASTASES CHARACTERISTICS ASSOCIATED WITH NEAR-TERM FUNCTIONAL DECLINE

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Introduction
Bone metastases cause severe declines in the functionality of some patients with cancer, but have little impact on others. Distinguishing which patients are at risk for near-term disablement may improve clinical decision making regarding the choice to engage rehabilitative, palliative, and orthopedic services.

Objectives
To identify radiographic and clinical characteristics of bone metastases that predict impending mobility losses.

Methods
Data were collected from the members of a 311-patient cohort with Stage IIIIB or IV Non-Small Cell or Extensive Stage Small Cell Lung Cancer who developed radiographically-confirmed bone metastases associated with an increase in symptom intensity. Functional capabilities were assessed at 3–4 week intervals over the study’s 2-year duration with the Activity Measure for Post-Acute Care Computer Adaptive Test (AM-PAC CAT).

Results
Seventy-nine (79) participants developed new or progressive bone metastases during the course of the study. A majority was male and 83 % had NSCLC. Metastases were most frequently located in the ribs (N=62), pelvis (N=49), or the thoracic (N=60) and lumbar spine (N=44). While, neither the number of bone metastases nor their specific location was associated with changes in patient mobility, their association with pain or a focal neurological deficit was strongly associated with declines in mobility. Similarly, patients whose imaging studies revealed new metatheses or the expansion of established metastases were more likely to lose mobility.

Conclusions
Patients with lung cancer-associated bone metastases are at markedly increased risk for declining mobility when their metastases are either expanding in size, increasing in number, or are associated with pain or with new neurological deficits.
includes surgical fixation to stabilize the area, radiotherapy to promote bone healing, and bone strengthening agents such as bisphosphonates to prevent loss of bone mass.

**Objectives**
The purpose of this case report is to discuss the effective management of impending pathological fractures of the humerus due to metastatic disease.

**Methods**
An 81-year-old male was seen in the Rapid Response Radiotherapy Program at the Sunnybrook Health Sciences Centre in Toronto, Canada for increasing right humeral pain. An x-ray of the humerus and right shoulder revealed an approximately 14 cm sclerotic lesion in the proximal mid humeral shaft at risk for pathological fracture. The patient was treated with 3000 cGy of radiation in ten fractions.

**Results**
The patient experienced significant pain relief in his shoulder as a result of multiple fraction radiation treatment. In addition, new x-ray images showed no change in the size and state of disease in the humerus.

**Conclusions**
When treating impending fractures, surgical fixation can be very effective at returning the affected area to acceptable function. However, this may only be effective in high performance status patients with certain disease types, sites, and sizes. It is always important to examine all relevant factors before making a decision on management of an impending pathological fracture from metastatic cancer.

**01-30-P**

**UNUSUAL PRESENTATION OF OSTEOLYTIC BONE METASTASES IN PROSTATE ADENOCARCINOMA**


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**Introduction**
Prostate adenocarcinoma is one of the leading causes of death in men. Bone metastases are common in patients with prostate cancer, typically being characterized as osteoblastic. Evidence shows that although osteoblastic activity is dominant, osteolytic activity is also present. Treatment for bone metastases is often multidisciplinary and palliative, targeting pain management as well as preventing deterioration in quality of life.

**Objectives**
The purpose of this case report is to discuss a patient who was found to have prostate cancer metastatic to bones, leading to diffuse osteolytic lesions rather than the typical osteoblastic lesions.

**Methods**
A 76-year-old male with prostate cancer was referred to Sunnybrook Health Sciences Centre, Odette Cancer Centre for consideration of radiotherapy for painful left pelvic and thoracic vertebrae bone metastases.

**Results**
The patient underwent treatment to the right hemipelvis including the hip to mid-femur and left mid femur of 30 Gy in ten fractions. Morphine was also given for pain control. The treatment led to progressive improvement and eventual absence of pain. Computed tomography (CT) scans showed increased sclerosis within the osteolytic lesions and periosteal new bone formation, suggesting response to treatment.

**Conclusions**
CT results as well as the response of this patient to radiotherapy suggests that radiation is an effective treatment for osteolytic bone metastases.

**01-31-P**

**BONE METASTASES IN A PATIENT WITH SEVERAL PRIMARY CANCER ORIGINS: A CASE REPORT**

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**Introduction**
Bone is one of the common metastases from thyroid and lung cancers.

**Objectives**
The objective of this report is to explore which primary cancer caused bone metastases in a patient first diagnosed with thyroid cancer, then uterine cancer.

**Methods**
A 60-year-old female presented with a pathologic fracture in the right distal femur. Bone metastases from thyroid cancer or new lung cancer from the most recent biopsy were the most likely differential diagnosis.

**Results**
A bone scan and medical imaging reports showed diffuse metastatic disease. An MRI showed pathologic fracture through the right distal femoral metaphysis without soft tissue extension. CT scan of the chest showed right lower lobe mass and nodular densities in the right upper lobe with right pleural effusion and right lower lobe atelectasis. Bronchoscopy demonstrated that there was no obvious endobronchial lesions and active bleeding except atelectasis. A collapse of the right middle and lower lobe area was noted. CTs of chest, abdomen and pelvis showed extensive metastatic disease and unclear primary malignancy that may be breast or lung. Ultrasound of breast demonstrated no convincing evidence for malignancy. The pathological result of cecal biopsy was metastatic adenocarcinoma that its appearance was consistent with a metastatic carcinoma of the lung or thyroid origin.

**Conclusions**
Uterine cancer and lung cancer may be the second and third primary malignancies in this thyroid cancer patient. It was unclear which primary malignancy metastasized to bone.

**Cachexia**

**02-01-O**

**RESULTS FROM ROMANA 1 AND 2: TWO PHASE III TRIALS OF ANAMORELIN IN ADVANCED NON-SMALL CELL LUNG CANCER (NSCLC) PATIENTS WITH CACHEXIA**

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**Introduction**
Cachexia frequently occurs in advanced cancer patients, and is associated with worsening functional status and quality of life.
Objectives
Two randomized, double-blind, Phase III trials evaluated the efficacy and safety of anamorelin, an oral ghrelin receptor agonist, in patients with advanced NSCLC and cachexia.

Methods
In ROMANA 1 (NCT01387269; N=484) and ROMANA 2 (NCT01387282; N=495), patients with unresectable stage III/IV NSCLC and cachexia (≥5 % weight loss during prior 6 months or BMI <20 kg/m²), were randomized (2:1) to daily oral 100 mg anamorelin or placebo, for 12 weeks. Co-primary endpoints were change in lean body mass (LBM) and handgrip strength (HGS) over 12 weeks. Secondary endpoints included change in the anorexia/cachexia domain of FACT-C, and pooled 1-year survival from both studies. Exploratory analyses evaluated fat mass (FM) and total body mass (TBM) at Week 12.

Results
Over 12 weeks, anamorelin significantly increased LBM versus placebo ([1.10 vs −0.44 kg; p<0.001] and [0.75 vs −0.96 kg; p<0.001]) and improved anorexia/cachexia symptoms ([4.12 vs 1.92; p<0.001] and [3.48 vs 1.34; p=0.002]), in ROMANA 1 and 2, respectively; there was no difference in HGS. Post-hoc analyses showed increased TBM and FM for anamorelin versus placebo (Table). There was no difference in median 1-year survival between treatment arms. Most frequent drug-related adverse events included hyperglycemia and diabetes (≤5 %).

Conclusions
Anamorelin significantly increased TBM, due mainly to LBM improvements, but also accompanying increases in FM, suggesting anabolic activity and energy balance restoration. Anamorelin improved anorexia/cachexia symptoms and was well tolerated, with similar pooled 1-year survival between study arms.

Objectives
The global, double-blind, Phase III, randomized ROMANA 1 (NCT01387269) and 2 (NCT01387282) trials assessed safety/efficacy of ANAM. Patients with unresectable stage III/IV NSCLC and cachexia (≥5 % weight loss within prior 6 months or BMI <20 kg/m²) were randomized (2:1) to daily oral 100 mg ANAM or placebo for 12 weeks. Following completion, patients (ECOG ≤2) could join ROMANA 3 (NCT01395914) safety extension study and continue study treatment for 12 weeks; concurrent chemotherapy was permitted.

Results
In total, 228 (44.4 %) patients completing ROMANA 1 and 285 (55.6 %) completing ROMANA 2 entered ROMANA 3 (ANAM N=345; placebo N=168). Entry demographics were comparable between treatment arms. Overall, mean age was 62 years, 72.3 % had ECOG PS 1, and 57.5 % received chemotherapy. Similar incidences of treatment-emergent AEs (TEAEs), drug-related or not, (52.2 % vs 55.7 %), grade ≥3 TEAEs (22.5 % vs 21.6 %), and serious TEAEs (12.8 % vs 12.6 %) were reported for ANAM vs placebo-treated patients. Incidence of drug-related TEAEs was 3.5 % vs 1.2 % for ANAM vs placebo; most common was hyperglycemia (1.2 % vs 0.0 %). No drug-related grade ≥3 TEAEs or serious drug-related TEAEs were reported. There were 35 (10.2 %; ANAM) and 22 (13.2 %; placebo) deaths, none were drug-related.

Conclusions
ANAM treatment over 24 weeks was well tolerated and had a comparable safety profile to placebo, with no new safety signals identified.

Introduction
Cancer cachexia affects a majority of advanced cancer patients, including patients with gastrointestinal or lung cancer. An association between cachexia and anticancer treatment-related toxicity has been described.

Objectives
To explore whether the pharmacokinetics of commonly used anticancer drugs may be altered in cachectic patients.

Methods
The global, double-blind, Phase III, randomized ROMANA 1 (NCT01387269) and 2 (NCT01387282) trials assessed safety/efficacy of ANAM. Patients with unresectable stage III/IV NSCLC and cachexia (≥5 % weight loss within prior 6 months or BMI <20 kg/m²) were randomized (2:1) to daily oral 100 mg ANAM or placebo for 12 weeks. Following completion, patients (ECOG ≤2) could join ROMANA 3 (NCT01395914) safety extension study and continue study treatment for 12 weeks; concurrent chemotherapy was permitted.

Results
In total, 228 (44.4 %) patients completing ROMANA 1 and 285 (55.6 %) completing ROMANA 2 entered ROMANA 3 (ANAM N=345; placebo N=168). Entry demographics were comparable between treatment arms. Overall, mean age was 62 years, 72.3 % had ECOG PS 1, and 57.5 % received chemotherapy. Similar incidences of treatment-emergent AEs (TEAEs), drug-related or not, (52.2 % vs 55.7 %), grade ≥3 TEAEs (22.5 % vs 21.6 %), and serious TEAEs (12.8 % vs 12.6 %) were reported for ANAM vs placebo-treated patients. Incidence of drug-related TEAEs was 3.5 % vs 1.2 % for ANAM vs placebo; most common was hyperglycemia (1.2 % vs 0.0 %). No drug-related grade ≥3 TEAEs or serious drug-related TEAEs were reported. There were 35 (10.2 %; ANAM) and 22 (13.2 %; placebo) deaths, none were drug-related.

Conclusions
ANAM treatment over 24 weeks was well tolerated and had a comparable safety profile to placebo, with no new safety signals identified.

02-02-O
RESULTS FROM ROMANA 3: A SAFETY EXTENSION STUDY OF ANAMORELIN IN ADVANCED NON-SMALL CELL LUNG CANCER PATIENTS WITH CACHEXIA

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Introduction
Cachexia is a debilitating condition often observed in advanced non-small cell lung cancer (NSCLC) patients. Anamorelin HCl (ANAM) is a novel investigational ghrelin receptor agonist.

Objectives
Assessment of ANAM safety and tolerability in advanced NSCLC patients.

Methods
The global, double-blind, Phase III, randomized ROMANA 1 (NCT01387269) and 2 (NCT01387282) trials assessed safety/efficacy of ANAM. Patients with unresectable stage III/IV NSCLC and cachexia (≥5 % weight loss within prior 6 months or BMI <20 kg/m²) were randomized (2:1) to daily oral 100 mg ANAM or placebo for 12 weeks. Following completion, patients (ECOG ≤2) could join ROMANA 3 (NCT01395914) safety extension study and continue study treatment for 12 weeks; concurrent chemotherapy was permitted.

Results
In total, 228 (44.4 %) patients completing ROMANA 1 and 285 (55.6 %) completing ROMANA 2 entered ROMANA 3 (ANAM N=345; placebo N=168). Entry demographics were comparable between treatment arms. Overall, mean age was 62 years, 72.3 % had ECOG PS 1, and 57.5 % received chemotherapy. Similar incidences of treatment-emergent AEs (TEAEs), drug-related or not, (52.2 % vs 55.7 %), grade ≥3 TEAEs (22.5 % vs 21.6 %), and serious TEAEs (12.8 % vs 12.6 %) were reported for ANAM vs placebo-treated patients. Incidence of drug-related TEAEs was 3.5 % vs 1.2 % for ANAM vs placebo; most common was hyperglycemia (1.2 % vs 0.0 %). No drug-related grade ≥3 TEAEs or serious drug-related TEAEs were reported. There were 35 (10.2 %; ANAM) and 22 (13.2 %; placebo) deaths, none were drug-related.

Conclusions
ANAM treatment over 24 weeks was well tolerated and had a comparable safety profile to placebo, with no new safety signals identified.

02-03-O
IMPACT OF CANCER CACHEXIA ON THE PHARMACOLOGY AND TOXICITY OF CHEMOTHERAPY (5-FU, PACLITAXEL) AND THE ORAL TYROSINE KINASE INHIBITOR ERLOTINIB: A RETROSPECTIVE PILOT STUDY (CAT)

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Introduction
Cancer cachexia affects a majority of advanced cancer patients, including patients with gastrointestinal or lung cancer. An association between cachexia and anticancer treatment-related toxicity has been described.

Objectives
To explore whether the pharmacokinetics of commonly used anticancer drugs may be altered in cachectic patients.

Methods
Population: A dataset of 122 patients with advanced incurable cancer treated with chemotherapy or targeted therapy is used. Data is derived from clinical studies implementing anticancer drug monitoring with plasma concentration analysis.

Design: In a retrospective analysis, the relationship between cachexia, based on low lean body mass (LBM) measured in routine-CTs, and prospectively
measured toxicity (common toxicity criteria grades (CTC) associated with paclitaxel, 5-fluorouracil and erlotinib and pharmacokinetics (PK) is investigated.

**Analysis:** Individual LBM was tested as a potential independent covariate on the pharmacokinetics, and both LBM and pharmacokinetics were analysed as predictors of individual toxicity.

**Results**

**Preliminary Results:** Fifty patients 5-FU, 50 with paclitaxel and 22 with erlotinib have been analysed. In preliminary analyses, the association between LBM and toxicity was less clear, but severe toxicity was lower than in published literature. LBM did not correlate with paclitaxel clearance or 5FU-clearance, but with the distribution of paclitaxel. Erlotinib results are pending and further analyses are ongoing.

**Conclusions**

LBM is not significantly impacting on the clearance of paclitaxel or 5FU, and any correlation between tumor cachexia and increased toxicity from these anticancer drugs may primarily be driven by pharmacodynamic effects such as individual sensitivity towards toxic events.

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**02-05-P**

**RESULTS FROM THREE GLOBAL SURVEYS: THE PERSPECTIVES OF HEALTH CARE PROFESSIONALS ON CANCER CACHEXIA**

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**Introduction**

Cancer cachexia (CC) is a multifactorial, debilitating and life-threatening condition, characterized by weight loss, and with a high prevalence in advanced cancer patients. Current therapies still have a limited ability to treat advanced CC and, therefore, early detection is crucial.

**Objectives**

International surveys were carried out to assess the current perspectives of health care professionals (HCPs) on CC.

**Methods**

Three surveys were conducted globally among HCPs involved in CC management. Topics assessed included: terms associated with CC; factors leading to consideration of drug treatment; primary goals of and desired improvements in CC therapy.

**Results**

Overall, 776 HCPs responded, and the majority were oncologists (95%). The most frequent terms provided (unaided) as the definition of CC were weight loss and loss of appetite. The factor most commonly given for the consideration of drug treatment was weight loss >5 % (69 % of respondents). Almost half (46 %) of the participants would diagnose and treat CC at a weight loss of 10 %, but over 10 % of participants would wait until weight loss was ≥25 %. The primary goals of CC therapy for HCPs were to promote weight gain/stabilization, improve quality of life (QoL), and minimize side effects; desired improvements in CC therapies included more specific mode of action and enhancing multiple aspects of the patients’ QoL

**Conclusions**

These surveys revealed that current understanding of CC among HCPs is still varied and suboptimal. They underscore the need for raising awareness of CC and its detrimental consequences among HCPs, enabling earlier prevention and more cost-effective therapies.

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**02-04-O**

**VALIDATING ASSESSMENT OF SKELETAL MUSCLE MASS (SMM) AT L1 ON CHEST CT SCAN IN EVALUATING CANCER CACHEXIA (CC) AND SARCOPENIA IN PATIENTS WITH LUNG CANCER**

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**Introduction**

Sarcopenia / CC affects up to 60 % of lung cancer patients, and is associated with poor outcomes. SMM assessment by CT is more accurate than DXA or BIA. A single CT slice at L3 correlates highly (r=0.924) with total body SMM in healthy individuals; however, chest CT in lung cancer patients rarely extends to L3.

**Objectives**

We tested using the L1 level for evaluating SMM in lung cancer patients.

**Methods**

SMM measurements at L1 used Slice-O-Matic software in Hounsfield unit range of −29 to +150. Accuracy at the L1 level and the ability to use the software properly were assessed.

**Results**

Twenty-three patients (with 47 assessments) were enlisted. Characteristics: 58 % female; medians: Age 57, KPS 80 %; BMI 24.1, weight 72.2 kg, SM index 57.92. Sarcopenia was detected in 32 % of patients; all had normal or overweight BMI. 98 % of CTs included L1; only 7 % were difficult to evaluate for SMM. Correlation of BMI with SMM was low at L1 (r=0.34), as previously reported at L3 (r=0.35).

**Conclusions**

1) SMM assessment at L1 is achievable on routine chest CT in 98 % of patients, and 91 % have acceptable quality for evaluation. Evaluability would not have been improved at L3.

2) Use of L1 enhances patient evaluation for SMM without additional testing or radiation exposure, permitting more patients with lung cancer to be easily assessed for SMM changes and CC.

3) L1 could provide accuracy for testing investigational anti-cachexia agents especially in lung cancer.

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**02-06-P**

**ELDERLY PATIENTS WITH CANCER CACHEXIA TEND TO BE EASILY DISABLED AND HOSPITALIZED DURING THE TREATMENT OF THEIR ADVANCED NON-SMALL-CELL LUNG CANCER**

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**Introduction**

Cancer cachexia is often seen in elderly people living with advanced non-small-cell lung cancer (NSCLC). However, little is known about its impact on use of medical resources.
Objectives
To explore the relationship among the presence of cachexia, development of disability, and length of hospital stay during the anticancer treatment of elderly NSCLC patients.

Methods
This is the prospective longitudinal observational study approved by the institutional review board. Patients aged ≥ 70 years with advanced NSCLC (stage III-IV) scheduled to commence first-line chemotherapy (n=30) or radiotherapy with or without chemotherapy (n=30) were enrolled. Cachexia was diagnosed by the international criteria (Fearon K, 2011). Disability free survival (DFS) was defined as the time between the baseline and the date of ten points decline of Barthel index. DFS was calculated by Kaplan-Meier method.

Results
Among 60 patients (17 women and 43 men) enrolled from Jan. 2013 to Nov. 2014, median age was 76 (range, 70–89) years. Cachexia was diagnosed in 35 (58 %) patients. The presence of cachexia and incremental shuttle-walk distance were not statistically associated. Cachexia patients have shorter median DFS (9.2 vs 21.2 months, log-rank test p = 0.0235) and longer length of hospital stay (103 vs 42 days per person-year, Wilcoxon test p = 0.0008) than non-cachexia patients.

Conclusions
Cancer cachexia is commonly seen in elderly patients with advanced NSCLC. Patients with cachexia at baseline tend to be easily disabled and hospitalized during their cancer journey. (Clinical Trials Registry No. UMIN0000097688)

THE INCIDENCE OF CANCER CACHEXIA WITHOUT ANOREXIA IN ELDERLY PATIENTS WITH ADVANCED NON-SMALL-CELL LUNG CANCER

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Introduction
Cancer cachexia is often seen in elderly people living with advanced non-small-cell lung cancer (NSCLC). However, little is known about whether the presence of anorexia is essential for developing cachexia.

Objectives
To elucidate the actual decline of oral intake in elderly NSCLC patients before developing cachexia.

Methods
This is the prospective longitudinal observational study approved by the institutional review board. Patients aged ≥ 70 years with advanced NSCLC (stage III-IV) scheduled to commence first-line chemotherapy (n=30) or radiotherapy with or without chemotherapy (n=30) were enrolled. Actual daily oral intake of energy was estimated from the direct interviewing by the national registered dietitian. Mini Nutritional Assessment (Nestle R) was taken. Cachexia was diagnosed by the international criteria (Fearon K, 2011).

Results
Among 60 patients (17 women and 43 men) enrolled from Jan. 2013 to Nov. 2014, median age was 76 (range, 70–89) years. Cachexia, pre-cachexia, and non-cachexia were observed in 35 (58 %), 17 (28 %), and 8 (13 %) patients. A total of 24 (69 %) out of 35 cachexia patients did not report food intake decline over the past 3 months of the study enrollment. Actual energy intake in cachexia patients were 1460±582 kcal/day with the adequacy rate of energy intake for the estimated resting energy expenditure was 1.1±0.5.

Conclusions
Cancer cachexia is commonly seen in elderly patients with advanced NSCLC. Majority of cachexia patients have not experienced food intake decline before developing cachexia. It might indicate a great contribution of increased energy expenditure on cancer-associated weight loss. (Clinical Trials Registry No. UMIN0000097688)

THE RELATIONSHIP OF VISCERAL ADIPOSE TO INFLAMMATION IN METASTATIC COLORECTAL CANCER PATIENTS

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Introduction
Cytokine production from visceral adipose may contribute to cancer formation. We hypothesized that adipose volume would correlate with adipose produced cytokine concentration.

Objectives
Objectives: To correlate circulating cytokines with visceral adipose.

Methods
Methods: Serum for analysis was gathered prospectively for newly diagnosed metastatic colorectal cancer patients. Each sample was analyzed for a panel of cytokines using multiplex assay or ELISA. Images from baseline CTs were analyzed for muscle and fat content at L3. Statistical analysis used Spearman, COX, and logistic regression when appropriate.

Results
Results: One hundred five patients were available for analysis. We found inverse correlations between visceral adipose index and IL-6 (r = –0.196, p = .049), IL-8 (r = –0.195, p = .046), and FGF (r = –0.196, p = .045). No association was seen between body composition and HGF or TNF-a. Skeletal muscle index also varied inversely with IL-6 (r = –0.283, p = .0035) and IL-8 (r = –0.402, p < .0001). Forty-four patients were sarcopenic at baseline. The presence of sarcopenia was associated with IL-8 (chi-squared 4.5, p = .034). However, the presence of sarcopenia was not associated with overall survival, nor was visceral adipose index.

Conclusions
Conclusion: The finding that IL-8, rather than IL-6, more strongly correlates with adipose and muscle loss may distinguish colorectal cancer from other diseases (e.g. pancreatic cancer). Visceral adipose was also inversely proportional to cytokines, suggesting that adipose may not be their major source and that adipose loss may be a result of exposure to inflammation. However, visceral adipose tissue did not appear to influence the presence of sarcopenia or survival.

S47

Introduction
The prognostic impact of pre-treatment prognostic nutritional index (PNI) score has not been investigated in locally-advanced pancreatic (U-LAPC) patients undergoing definitive chemoradiotherapy (CRT) yet.

Objectives
To investigate the prognostic significance of pre-treatment PNI score on survival outcomes of U-LAPC patients treated with definitive CRT.

Methods
This retrospective analysis included 74 U-LAPC patients referred for definitive CRT between January 2007 and December 2012. All patients received 50.4 Gy (1.8 Gy/fx) C-CRT and concurrent 5-fluorouracil-based chemotherapy. The PNI was calculated utilizing pre-NCRT blood data (PNI = 10 × serum albumin in g/dL + 0.005 × total lymphocyte count per mm³) for each patient. The primary endpoint was the impact of PNI on overall survival (OS).

Results
At a median follow-up of 12.3 months (range: 1–37 months), median- and 2-year OS were 14.7 months (95 % CI: 11.9–17.5) and 22.9 %, respectively. Patients were dichotomized into two groups according to the PNI value of 40 (PNI < 40 vs. ≥ 40) as defined by Ondera. Patients with PNI < 40 had significantly shorter median OS compared to those with PNI ≥ 40 (7.3 vs. 16.8 months; p < 0.001). Multivariate analysis demonstrated that the PNI < 40 was associated with significantly shorter OS times independent of other clinical parameters such as T and N status, performance status, tumor size, CA-19-9 levels, and presence or absence of weight loss prior to CRT (p < 0.001).

Conclusions
We demonstrated that the pre-treatment PNI score is associated with survival outcomes independent of available conventional prognosticators in U-LAPC patients treated with definitive CRT. Therefore, use of PNI such patients may serve as a reliable surrogate marker in anticipation of survival outcomes.

02-11-P
THE RELIABILITY AND PRECISION OF OSIRIX® IMAGING SOFTWARE IN THE ASSESSMENT OF PSOAS MUSCLE SURFACE AREA FROM COMPUTED TOMOGRAPHY SCANS IN ADVANCED CANCER PATIENTS
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Introduction
Assessment of skeletal muscle using computed tomography (CT) is important in determining sarcopenia and cachexia in advanced cancer. Medical imaging software programs such as OsiriX are available to quantify paraspinal skeletal muscle from CT scans; however, the inter-rater reliability and precision of OsiriX has not yet been determined.

Objectives
To determine the reliability and precision of OsiriX medical software in assessing the cross-sectional surface area of the psosas muscle at the 4th lumbar vertebra (L4). It is hypothesized that there are no significant inter-rater reliability differences for measurements of the surface area of the psosas muscle at L4 over time and among the top, middle and bottom scan measures.

Methods
Psosas muscle cross sectional area was measured using OsiriX software from CT scans obtained from 19 advanced cancer patients. Reliability measurements were done over time (t=0, 24 h, 2 weeks) and over three regions of L4 (top, mid, bottom) by two different raters (SF & NM).

Results
Inter-rater correlations demonstrated a high reliability over time and at each of the three levels of L4. No differences in the level of precision (%CV and SDcm²) were observed between raters.

Conclusions
OsiriX medical imaging software is shown to be reliable and precise and can be used by multiple raters to assess psosas muscle surface area in axial CT scans. Future studies can take advantage of OsiriX technology to determine the presence of muscle wasting conditions such as sarcopenia and cachexia using CT.

02-12-P
WHAT CAN WE DO TO AVOID WEIGHT LOSS IN PATIENTS WITH LUNG CANCER – A CROATIAN SINGLE INSTITUTION EXPERIENCE
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Introduction
Lung cancer patients develop oral complications with adverse effect on quality of life.

Objectives
We aim to present the oral complications in lung cancer patients with cachexia

Methods
Seventeen lung cancer patients with cachexia (mean age 68) and three without cachexia (mean age 58) were included. Patients received standard chemotherapy; n received bevacizumab or erlotinib and 8 zoledronic acid and/or denosumab. Participants completed the EORTC - QoL C30 and OH17 questionnaires and were educated on basic oral health care.

Results
Seven patients with cachexia had poor oral health, 6 moderate and 4 good. Patients without cachexia had moderate oral health. Clinical signs and symptoms were observed in all patients. Osteonecrosis of the jaw was diagnosed in one patient with cachexia and two without; oral candidiasis in 2 with cachexia, lip ulcers in 6 with and 1 without cachexia and dental problems in 4 with cachexia and 2 without. Symptoms reported with C3O and OH17 were: difficulties in enjoying meals (14 with cachexia/1 without), xerostomia (13 versus 2), taste alterations (9 versus 1), difficulties in solid food intake (7 versus 1), mouth sensitivity (6 versus 1), gingival pain (4 versus 1), sticky saliva (3 versus 1) and angular cheilitis (2 versus 1). Seventy-six oral problems were observed in patients with cachexia and 16 in patients without cachexia. The study is ongoing.

Conclusions
This preliminary report highlights the prevalence of oral problems in lung cancer patients with cachexia and the need of a regular oral supportive care.
NON-SMALL CELL LUNG CANCER (NSCLC) CACHEXIA (CC) / SARCOPENIA IN PATIENTS WITH FUNCTIONAL OR PRO ENDOPOINTS IN EVALUATING CANCER - A PROSPECTIVE TRIAL TO VALIDATE APPROPRIATE ENDPOINTS IN PATIENTS WITH NSCLC.

Methods
A prospective study with total of 76 patients and 417 visits (on average five visits every 3 weeks per patient) were performed from November 2013 till Jun 2014. Demographic data, disease stage, treatment line, pain and BMI were measured, standardized questionnaire NRS 2002 was also used.

Results
Most our patients were male (76.3 %), stage IIIB/IV (86.8 %), 1st line treatment (59.5 %). Ideal BMI 19–25 had 44.8 % of patients, 3.1 % had BMI 19. Even 37.4 % patients had severe malnutrition risk (62.8 % among those with ideal body weight). Reduced food intake was present in 32.1 % attributed to anorexia (37.7 %), fatigue (31.2 %), pain (24.6 %), nausea (22.9 %), vomiting (19.9 %), while 7.9 % patients had opstipation or diarrhoea.

Conclusions
There was no statistical significance among reduced food intake and treatment line. Nausea and vomiting are among last causes of reduced food intake which confirms correct supportive care of our patients. Poorly controlled pain still remains in about 20 % patients and can be connected with reduced food intake. Adequate follow-up and supportive care in everyday clinical practice should be the key to successful assessment of lung cancer patients treatment.

02-14-P
AMINO ACID SUPPLEMENTATION FOR CACHEXIA IN CANCER PATIENTS. A SYSTEMATIC REVIEW PROTOCOL

Introduction
Cancer cachexia (CC) is expressed as a continuing loss of lean mass that cannot be fully reversed by conventional nutritional support. Protein requirements for CC (≥1.5 kg/kg) are unlikely to be met through diet alone and the amino acid composition of the diet is not always optimal for lean mass maintenance. Essential amino acids (EAA) availability is rate limiting for protein synthesis with a deficiency in any EAA resulting in net protein degradation. Therefore a minimum requirement in the dietary management of CC is the inclusion of sufficient essential amino acids in the diet.

Objectives
To systematically review studies evaluating the effect of EAA (elemental or in whole protein) in oral or enteral form in adult cancer patients. The results will highlight deficiencies in the literature and aid dietitians and oncologists in determining which outcomes in adult cancer patients. The results will highlight deficiencies in the literature and aid dietitians and oncologists in determining which essential amino acids patients with NSCLC.

03-01-O
EFFICACY, SAFETY, AND TOLERABILITY OF FULRANUMAB AS ADJUNCTIVE THERAPY FOR CANCER-RELATED PAIN: A RANDOMIZED, DOUBLE-BLIND, PLACEBO-CONTROLLED, MULTICENTER STUDY

Conclusions
This systematic review will address the efficacy of oral or enteral EAA in elemental or protein form on a number of clinically- and patient-relevant outcomes in adult cancer patients. The results will highlight deficiencies in the literature and aid dietitians and oncologists in determining which cancer patients would benefit from amino acid supplementation.
Introduction
FULTRANUMAB is a human monoclonal antibody that neutralizes nerve growth factor.

Objectives
To evaluate the efficacy, safety and tolerability of fulranumab as an adjunct to opioid therapy in inadequately controlled, moderate to severe, chronic, cancer pain patients.

Methods
Study consists of a 4-week double-blind (DB) phase and a 48-week open-label extension (OLE) phase. Cancer patients (83 % terminally ill) were randomized to the 9 mg/0.9 mL Q4 week fulranumab subcutaneous injection or placebo in 2:1 ratio.

Results
In total 98 patients received study drug (placebo:31, fulranumab:67); men (56 %); mean age 58.3 years; 69 patients entered OLE. Primary endpoint: Change in average cancer pain intensity score from baseline (average of last 3 days prior to randomization) to end of DB (average of last 7 days), mean [SD] was: –0.8 [1.3] for fulranumab group and −0.7 [1.6] for placebo. Secondary endpoints: a responder rate based on 30 % average cancer pain adjusted improvement (p=0.020) and change in BPI-SF Pain Intensity Subscale (p=0.003) and Pain Interference Subscale (p=0.006) from baseline to DB endpoint were significant in fulranumab-treated group vs. placebo. The most common adverse events for fulranumab vs. placebo were asthenia (16 % vs. 10 %), fatigue (10 % vs. 0 %), decreased appetite (12 % vs. 6 %), and malignant neoplasm progression (10 % vs. 0 %).

Conclusions
Adjuvantive fulranumab therapy did not show significant improvement in average cancer pain intensity in terminally ill cancer patients. However, greater responder rate and improvement in BPI-SF scale in fulranumab-treated group vs. placebo support further research of anti-NGF therapy in cancer pain.

03-02-O
COMPARISON OF UPPER AND LOWER EXTREMITY CHARACTERISTICS IN CHEMOTHERAPY-INDUCED NEUROPATHY (CIN) USING PATIENT REPORTED OUTCOME MEASURES

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Introduction
CIN is the most prevalent neurologic complication of cancer treatment. Because no effective preventative or treatment strategies are available for CIN, it can result in delays or cessation of chemotherapy. Patients with CIN experience painful symptoms, decreased functional status, and poorer quality of life that can persist after the completion of chemotherapy.

Objectives
The purpose of this study was to evaluate for differences in pain characteristics in the upper and lower extremities of patients who had CIN in both extremities.

Methods
A sample of 185 patients who had completed chemotherapy and self-reported CIN in both their upper and lower extremities were evaluated using a detailed questionnaire about pain characteristics (i.e., intensity, qualities, and interference with function).

Results
Compared to their upper extremities, lower extremity pain was significantly worse in terms of intensity (p<.0001) and duration (p=.005). Pain interference scores for general activity, mood, walking ability, relations with others, sleep, and enjoyment of life were significantly higher in the lower extremities (all p<.0001). For all of the pain qualities, ratings were significantly higher for the upper extremities (i.e., intense, sharp, hot, dull, cold, sensitive, shooting, numb, electrical, tingling, cramping, heavy, unpleasant (all p<.001), tender (p=.032), itchy (p=.037), radiating (p=.003), throbbing (p=.004), and aching (p=.015)).

Conclusions
Results provide a detailed characterization of self-reported pain characteristics associated with chronic CIN, as well as differential effects in the upper versus the lower extremities. In addition, these results suggest that CIN is associated with decrements in functional status and mood.

03-03-P
DEFINITION OF CHEMICAL COPING USING DELPHI METHOD

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Introduction
“Chemical coping” is a commonly used term in the pain and palliative care literature, but is heterogeneously defined.

Objectives
We conducted a Delphi survey among palliative care and pain specialists internationally to identify a consensus definition for “chemical coping with opioids” and risk factors for chemical coping.

Methods
This Delphi survey consisted of 2 rounds on the following: (1) concepts and definition related to chemical coping, (2) risk factors for chemical coping, and (3) demographics. Consensus in this study was defined as agreement by a minimum of 70 % of the experts.

Results
14/19 (74 %) physicians participated the first round, and 12/14 (86 %) participated in the second round. The international experts reached the following consensus definition for chemical coping with opioids (92 % agreement): “the use of opioids to cope with emotional distress and is characterized by inappropriate and/or excessive opioid use”. They also identified depression (consensus 93 %), psychiatric disease (86 %), a history of substance abuse (86 %), a positive score for the Cut-down, Annoyed, Guilty, and Eye-opener (CAGE) alcoholism screening test (79 %), a history of alcoholism (79 %), and a history of smoking (71 %) as important risk factors for chemical coping.

Conclusions
Our expert panel reached a consensus definition for chemical coping and related risk factors, which may help clinicians and researchers to identify patients at risk of opioid misuse.
03-04-P

FREQUENCY, PREDICTORS AND MEDICAL RECORD DOCUMENTATION OF CHEMICAL COPING AMONG ADVANCED CANCER PATIENTS

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Introduction
Chemical coping, defined as using prescribed opioids to control non-nociceptive symptoms, is one of the major challenges in the management of cancer pain.

Objectives
In this prospective study, we determined the frequency of opioid-related chemical coping among advanced cancer patients as diagnosed by palliative medicine specialists, determined predictors for chemical coping and the concordance between the physician’s diagnosis and documentation in the medical records.

Methods
Palliative medicine specialists evaluated and diagnosed consecutive patients seen for chemical coping. The proportion of patients identified as chemically coping was compared to the proportion documented in the medical records. Demographic data, cancer diagnosis, history of smoking, substance abuse, and psychiatric disease, morphine equivalent daily dosage (MEDD), CAGE (Cut-down, Annoyed, Guilty, Eye-opener) questionnaire scores, and Edmonton Symptom Assessment System (ESAS) scores were also collected.

Results
Four hundred thirty-two patients were evaluated. Seventy-six patients (18%, 14–21%) were diagnosed as chemically coping. Documented frequency of chemical coping in the medical records was reported in only 15 patients (4, 2–6%). CAGE positivity (OR 2.89), younger age (OR 0.97 per year), better performance status (OR 0.68 per point), pain (OR 1.20 per point) and well-being (OR 1.28 per point) were found to be significant predictors of chemical coping by protocol definition. After recursive partitioning, 21/50 patients (42%) who were CAGE positive and ECOG ≤2 were diagnosed as chemically coping.

Conclusions
Approximately 18% of palliative care patients seen were diagnosed as chemically coping by palliative medicine specialists. The frequency of documentation in the medical records was significantly lower. Better and safer ways for physicians to assess and report chemical coping are needed.

03-05-P

CONVENTIONAL VERSUS PULSED RADIO FREQUENCY ABLATION OF SPHENOPALATINE GANGLION FOR FACIAL PAIN IN CANCER RELATED PAIN: A PROSPECTIVE STUDY

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Introduction
Pain is present in up to 80 % of patients with cancer of the head and neck. Pulsed radiofrequency ablation (PRFA) is relatively new use of an older procedure, conventional thermal radiofrequency.

Objectives
This study was designed to analyze the effectiveness and comparison of conventional versus PRFA of Sphenopalatine ganglion for severe pain in the oro-facial region in advanced head and neck cancer pain patients on oral morphine or fentanyl patch and to assess the Quality of life before and after radiofrequency ablation.

Methods
Twenty consecutive consenting patients were divided into two equal groups of ten patients each. The pain relief, analgesic consumption, breakthrough pain, changes of any medication, performance status of patients and side effects were recorded in each visit. Data from each group were collected and analyzed statistically.

Results
Pain score (VRS) decreased in both the groups but statistically significantly in PRFA group (Group P) on 2nd day onward (1.4 vs 2.1 at 1 week, 2.2 vs 2.6 at 1 month, 1.8 vs 2.8 at 3 month and 2.6 vs 3.1 at 6 month. Analgesic consumption was decreased in both the groups. The Karnofsky score improved from the baseline of 60 to 90 subsequently in both groups. The line quality of life scale showed an improvement from a scale of two to four in the follow up period.

Conclusions
Pulse Radio Frequency ablation and conventional radiofrequency ablation of Sphenopalatine ganglion can be done for effective management of cancer facial pain.

03-06-P

A NOVEL TREATMENT OPTION FOR NEUROPATHIC PAIN: FINDINGS FROM A PROMISING CASE SERIES OF EGFR-RECEPTOR INHIBITION

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Introduction
Neuropathic pain (NP) has the potential to severely disturb patients’ functionality and quality of life. Up to 30 % of cancer patients and at-risk survivors suffer from NP due to malignant infiltration or chemotherpay-induced peripheral neuropathy (CIPN). We observed a case of severe NP in which treatment with an epidermal growth factor receptor inhibitor (EGFR-I) repeatedly led to pain relief.

Objectives
Given the limitations of existing therapies, there is a need to explore novel treatment options for NP.

Methods
EGFR-Is were given to a further 19 patients with chronic, severe NP. 7/20 patients had NP due to malignant invasion of nerves, two had oxaliplatin-related CIPN and the remainder had NP due to non-cancer related conditions. Pain severity, interference and adverse events (AE) were prospectively recorded.
Results
Eighteen of 20 patients with NP experienced clinically significant relief after EGFR-I administration. Median pain reduction for all patients was 8.5 (IQR=5–9.5) points (0–10 scale). 7/7 patients with NP due to malignant nerve invasion and 2/2 patients with CIPN experienced clinically significant pain relief. NP spike duration and frequency improved. Effect was more rapid after iv than oral drug administration. 4/4 approved EGFR-Is were equally effective and duration of pain relief was consistent with the drugs’ half-lives. Side effects were predominantly transient skin reactions. One grade 3 AE was registered. Median follow up for responders is 8 months.

Conclusions
EGFR-inhibition led to pain relief and thus dramatically altered the clinical course of 18/20 patients with NP, including nine patients with cancer or cancer-treatment related NP.

FREQUENCY OF UNSAFE STORAGE, USE, AND DISPOSAL PRACTICES OF OPIOIDS AMONG CANCER PATIENTS PRESENTING TO THE EMERGENCY DEPARTMENT

Introduction
More than 16,000 deaths are reported each year. Unsafe opioid storage and disposal may increase availability to others for abuse.

Objectives
We aim to describe opioid storage, use and disposal patterns in the Emergency department (ED) of a Comprehensive Cancer Center.

Methods
Cancer patients receiving opioids for at least 2 months were surveyed. We collected information regarding opioid use, storage, disposal, and scores on the Cut down, Annoyed, Guilty and Eye-opener (CAGE) questionnaire. Patients were screened out for delirium.
Results
Of the 113 respondents, median age was 53 years, 55% were female and 64% were white. Eighty-six percent had advanced cancer. Fourteen percent were CAGE positive. Sixty-seven percent had unused opioids at home. Only 13% previously received education about safe opioid disposal. Seventy-eight percent were unaware of proper disposal methods. Thirteen patients (12%) reported unsafe opioid use by sharing (5%) or losing (8%) them. Thirty-six percent kept opioids in plain sight. Only 15% locked them. Seventy-three percent would use a lockbox for storage if given one.

Safe storage predictors were: being asked for their opioids ($P=0.004$) and the desire to use a lockbox for opioids ($P=0.019$). Unsafe use predictors were: if prescribed more opioids than needed ($P=0.032$), being asked for opioids ($P=0.06$), unemployment ($P=0.07$), and unawareness of drug take-back programs ($P=0.06$).

Overall 77% (87) of patients reported unsafe storage, use, or possessed unused opioids at home.

Conclusions
An alarming number of cancer patients presenting to the ED improperly store, use, or dispose of opioids. Urgent educational interventions are required for all patients presenting to the ED.

03-08-P

NEURAXIAL ADMINISTRATION OF ANALGESICS TO INTRACTABLE CANCER PAIN: A SYSTEMATIC REVIEW

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Introduction
Approximately 2 to 5% of patients with advanced cancer have inadequate pain control with systemic medications.

Objectives
This review aimed to analyze the evidence to support neuraxial analgesic administration to patients with intractable cancer pain, considering balance between analgesia and side effects.

Methods
Search strategy was based on words related to cancer, pain, neuraxial analgesics and side effects (Jan/Feb 2014). Databases: PubMed, Embase, and Cochrane. Inclusion criteria: randomized controlled trials, $n\geq 20$, adults, cancer pain, failure with previous opioid treatment, long-term treatment outcomes, and English. Results, quality of evidence, and strength of recommendation (Grade Working Group) were analyzed.

Results
From 2142 abstracts, nine articles were analyzed and classified in: (1) neuraxial combinations of opioid (morphine or sufentanil) and adjuvants (bupivacaine, clonidine, ketamine, neostigmine or midazolam) vs. neuraxial administration of opioid alone ($n=4$), (2) single neuraxial drug bolus (morphine or aqueous phenol) vs. continuous administration ($n=2$), (3) single neuraxial drug (ziconitide) vs. neuraxial placebo ($n=1$), and (4) neuraxial opioid (morphine or hydromorphone) vs. other treatment than neuraxial therapy ($n=2$). Intrathecal and epidural routes were described. All studies presented limitations, which affected their internal validity. However, they demonstrated better pain control during combination of opioid and clonidine or ketamine, continuous infusion, administration of ziconitide, and use of implantable intrathecal system. Few significant side effects were described.

Conclusions
Few studies and low quality of evidence. As a result, weak recommendation for using neuraxial analgesics in adult patients with cancer. Further investigation is necessary.

Evidence-based Recommendations, a project of the EAPC-RN.

03-09-P

PHYSICIAN-TRAINEES’ KNOWLEDGE AND CONCERNS REGARDING CANCER PAIN MANAGEMENT: AN OBSERVATIONAL STUDY

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Introduction
Pain is a common and distressing symptom encountered in oncology. Despite the success of the regimens currently used, pain is still undertreated in cancer patients. Undertreatment of cancer pain is partially attributed to the inadequate knowledge of pain assessment and its treatment by physicians.

Objectives
To assess the level of knowledge among a sample of Lebanese physician-trainees regarding cancer pain management.

Methods
We conducted an observational cross-sectional study at a major tertiary teaching hospital in Beirut city. Data were collected through an anonymous, structured, self-administered questionnaire distributed to 120 eligible physician-trainees.

Results
Among the 103 respondents, 42% affirmed that cancer pain should be addressed in a multidimensional manner. Only 31% were familiar with the WHO three-step analgesic ladder, and 34% used the rating scales to assess pain intensity. The majority (87%) considered that cancer pain control is difficult to achieve. Physician-trainees were concerned about: analgesic side effects (78%), opioid addiction and dependence (91%), and patient-related barriers and beliefs (67%). Despite 74% expressed interest to learn how to manage cancer pain, only 12% reported having received a thorough training. These participants demonstrated a significantly higher mean score of knowledge compared with their untrained peers ($p-value=0.018$).

Conclusions
Our study revealed a deficient knowledge regarding cancer pain assessment and control among our physician-trainees. There is a need for professional training initiatives to enhance our physician-trainees’ knowledge and expertise in cancer pain, and improve their practices. Subsequently, an evaluation of the educational interventions should be performed to guarantee an optimal management of cancer pain.
03-10-P

LIDOCAINE TOPICAL PATCH 5% FOR THE TREATMENT OF CHRONIC REFRACTORY NEUROPATHIC PAIN IN CANCER PATIENTS: A PROSPECTIVE OPEN-LABEL STUDY

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Introduction
Cancer-related persistent neuropathic pain are often difficult to manage due to the complexity of the pain mechanisms involved in the disease process. Lidocaine topical patch is a first line treatment in peripheral neuropathic pain, but there still has limited studies done on the potential of Lidocaine patch in treating cancer-induced peripheral neuropathic pain.

Objectives
To determine the effectiveness of Lidocaine topical patch 5% in the treatment of refractory peripheral neuropathic pain among cancer patients

Methods
This is a prospective, open-label, pilot study in 27 patients (mean age 66.7 years) with reported persistent inadequate pain relief (VAS 4 and above) and treated with combination of opioids, antidepressants and anticonvulsants. Patients were started on Lidocaine topical patch 5% on focal affected areas (maximum of three patches/day) changed every 24 h. Other analgesic regimens were continued throughout the study. Patients were evaluated from baseline, at day 7 and day 30. Pain outcomes were measured using the Brief pain inventory and ID pain screening tool.

Results
VAS scores were, at baseline (6.0±1.7), at day 7 (3.3±1.6), and at day 30 (2.4±1.6). There was a significant reduction in VAS scores (p<0.01) after 7 and 30 days. Treatment with lidocaine topical patch helped relieve various characteristics of pain, including burning, electrical shock-like pain and allodynia. No adverse events were reported with lidocaine patch.

Conclusions
Lidocaine topical patch 5% have potential benefits for treatment of refractory neuropathic pain in cancer patients; controlled clinical trials is suggested to further evaluate the efficacy and also assessment in a larger study is recommended.

03-11-P

THE CONVERSION RATIO (CR) FOR OPIOID ROTATION (OR) FROM STRONG OPIOIDS TO TRANSDERMAL FENTANYL (TDF) IN CANCER PATIENTS

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Introduction
TDF is one of the most common opioids prescribed to cancer patients. However, the accurate CR for OR from other opioids to TDF is unknown and various currently used methods result in wide variation of CRs.

Objectives
To determine the CR of morphine equivalent daily dose (MEDD) to TDF when correcting for MEDD of breakthrough opioids (net-MEDD) in cancer outpatients.

Methods
We reviewed records of 22,532 consecutive patient visits at our Supportive Care Center in 2010–13 for OR from other opioids to TDF. Data regarding Edmonton Symptom Assessment Scale and MEDD were collected in patients who returned for follow-up within 5-weeks. Linear regression analysis was used to estimate the CR between TDF dose and net-MEDD (MEDD prior to OR minus MEDD of breakthrough opioid used along with TDF after OR).

Results
One hundred twenty-nine patients underwent OR from other opioids to TDF. The mean age was 56 years, 59% male, and 88% had advanced cancer. Uncontrolled pain (80%) was the most frequent reason for OR. The median time between OR and follow-up was 14 days. In 101 patients with OR and no worsening of pain at follow-up, the median CR (range) from net-MEDD to TDF mg/day was 0.01 (−0.02–0.04) and correlation of TDF dose to net-MEDD was 0.77 (P<0.0001). The CR of 0.01 suggests that MEDD of 100 mg is equivalent to 1 mg TDF/day or 40 mcg/hour TDF patch (1000 mcg/24 h).

Conclusions
The median CR from MEDD to TDF mg/day is 0.01 and the CR from MEDD to TDF mcg/hour patch is 0.4. Further validation studies are needed.

03-12-P

ESTABLISHMENT OF CLINICALLY MEANINGFUL CUTOPTS FOR PAIN ASSOCIATED WITH CHEMOTHERAPY-INDUCED NEUROPATHY (CIN)

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Introduction
Previous work identified optimal cutpoints for mild, moderate, and severe cancer pain. These cutpoints are used by clinicians to determine the type of analgesics to prescribe as well as examine the impact of pain on patients’ quality of life (QOL).

Objectives
Purposes of this study were to determine the optimal cutpoints for mild, moderate, and severe pain associated with CIN in the upper and lower extremities using ratings of worst pain.

Methods
Combinations of cutpoints were tested to yield three-cutpoint solutions. Using multivariate analysis of variance for pain interference scores, the F-ratio that indicated the highest between-group differences was determined to be the optimal cutpoints between mild, moderate, and severe pain. Separate analyses were done for worst pain ratings in the upper and lower extremities.
Results
Evaluations were done on 261 patients who had CIN in their lower extremities and 202 who had CIN in their upper extremities. The optimal cutpoints in the upper extremities were: 1 to 4 = mild (41.1%), 5–7 = moderate (31.7%), and 8 to 10 = severe (18.8%) pain. The optimal cutpoints in the lower extremities were: 1 to 5 = mild (38.3%), 6–7 = moderate (21.1%), and 8 to 10 = severe (35.2%) pain. For both the upper and lower extremities, patients in the severe pain groups reported significantly lower QOL scores.

Conclusions
Findings suggest that the severity of pain associated with CIN varies among individuals. These cutpoints can assist clinicians to identify patients with CIN who are at higher risk for poorer QOL outcomes.

03-13-P

URINE DRUG SCREEN FINDINGS IN AN OUTPATIENT SUPPORTIVE CARE CLINIC

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Introduction
There are growing concerns regarding opioid misuse, chemical coping, and even opioid diversion in patients with cancer. An adaptation of Universal Precautions, initially developed for patients with non-cancer pain, has been proposed for patients with cancer. These include assessments of substance abuse risk, monitoring of aberrant behavior, and prescription monitoring programs. Urine Drug Screens (UDS) have been proposed as an additional tool to identify patients misusing medications and illicit drugs. Few studies report the use of UDS in patients with cancer.

Objectives
1. Describe use of un-prescribed opioids and illicit drugs in a supportive care clinic.
2. Characterize patients with abnormal UDS.

Methods
Retrospective review of 232 consecutive supportive care clinic patients at a National Cancer Institute center, including 80 patients who had at least 1 UDS. UDS results, demographics, history of substance abuse, identification of aberrant behavior, morphine equivalent daily dose (MEDD), and Edmonton Symptom Assessment (ESAS) scores were obtained.

Results
Thirty-four percent (n=80) of patients had at least one UDS. Seventy-three percent (58) or 1 in 4 of the 232 clinic patients had an abnormal UDS. Thirty-six percent (29) patients showed none of their prescribed opioids. Twenty-three percent (18) were both negative for the prescribed opioid and positive for non-prescribed drugs. Thirty-six percent (29) were positive for a non-prescribed opioid, benzdiazepine or illicit drug. Of patients who were positive, 79% (37/47) had drugs other than cannabis in their urine. Patients with inappropriate UDS were more likely young, male, African-American (p<0.05), and had a trend for higher pain scores (p=0.06).

Conclusions
Inappropriately positive and/or negative UDS were frequent in outpatients with cancer, raising concerns for substance abuse and opioid diversion.

03-14-P

EFFECTS OF THE EDUCATION PROGRAM FOR PATIENTS WITH CANCER PAIN

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The objective of this study was to test the effects of an education program on reducing barriers to pain management in oncology.

Methods
Participants completed baseline assessments and were randomly allocated to receive an education program or not in addition to standard care. As education materials for the pain management program, the ‘Guideline on cancer pain management for patients’. The average education time took basically 30 min, and CRNs implemented the education program using a booklet for an individual patient. Outcome measures at 1 week included the Barriers Questionnaire (BQ), Brief Pain Inventory. Adherence of analgesia and daily activity score were assessed.

Results
One hundred seventy-six participants were recruited from five sites over 3 months. Mean average pain and worst pain score (NRS) improved significantly in patients receiving education program 1.40 and 1.61. The addiction subscale of the BQ score was improved by 1.95 (pre:3.39, post:1.44, p<0.001) for participants receiving pain education.

Conclusions
A cancer pain education was effective in reducing patient’s barriers to pain management, improving pain score and daily activity score of cancer patients, especially using short-acting analgesics for breakthrough pain control in outpatients.

03-15-P

THE UNMET SUPPORTIVE CARE NEEDS OF PEOPLE WITH CANCER PAIN

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2Health and Social Care, University of Surrey, Guildford, United Kingdom

Introduction
Cancer pain has a detrimental effect upon sufferer’s lives. It’s associated with increased levels of distress, reduced quality of life and impaired physical function. From the literature it’s unclear whether people with cancer pain experience unmet supportive care needs.

Objectives
The objectives are to identify the unmet supportive care needs of cancer patients with pain and explore the factors associated with unmet needs.
Methods
In a prospective longitudinal study, conducted at a regional cancer centre, 162 participants with cancer pain completed a series of questionnaires, including the Supportive Care Needs Survey – short form. One hundred ten people repeated this 1 month later.

Results
Eighty percent of the participants reported at least one unmet need. Psychological and the physical daily living needs were the most prevalent. The highest reported needs for help were with concerns about loved ones (50 %), lack of energy (49 %) and not being able to do the things they used to do (46 %), for which a majority of people had a moderate to high need of help. Participants with uncontrolled pain ($p<0.001$) and breakthrough pain ($p=0.022$) were more likely to have unmet needs than participants with controlled pain. The prevalence of unmet supportive care needs reduced over time. This was not dependent on an improvement in pain.

Conclusions
People with cancer pain require further help from healthcare professionals. Assessment and management of symptoms, daily tasks and specific areas of psychological care may contribute to an improvement in a person’s pain and quality of life.

03-16-P

PREVALENCE OF CANCER-RELATED PAIN IN DIFFERENT TUMOR ENTITIES, ATLAS STUDY IN SPANISH ONCOLOGY UNITS


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Palliative Care, Hospital General de La Rioja, Logroño, Spain
Medical Oncology, Hospital Universitario de Torrejón, Madrid, Spain
Medical Oncology, Hospital Ernst Lluch Martin, Calatayud, Spain
Medical Oncology, Hospital Universitario Miguel Servet, Zaragoza, Spain
Medical Oncology, Hospital Lucas Augusti, Lugo, Spain
Medical Oncology, Hospital Universitario Central de Asturias, Oviedo, Spain
Palliative Care, Complejo Hospitalario Universitario de Ourense, Ourense, Spain
Medical Oncology, Hospital Universitario del Sureste, Madrid, Spain
Medical Oncology, Hospital Comarcal de Melilla, Melilla, Spain

Introduction
There are numerous surveys on prevalence of cancer-related pain. However, due to small patient samples, results are not strong enough to determine pain prevalence in uncommon tumors.

Objectives
Primary objective of the ATLAS study was to assess prevalence of cancer-related pain in different tumor entities.

Methods
Observational study, with an initial 1-month screening period, performed by 35 investigators in Spanish oncology units. During screening, data assessing primary tumor location, presence of metastases and pain, pain intensity and step in the analgesic ladder was collected.

Results
5,166 patients with solid tumors were screened. Main results are shown in the table. The most frequent cancer types, colorectal, breast and lung reported less pain prevalence, and less common tumors reported a higher pain incidence (nasopharyngeal, lip and oral cavity and vesicle) cancer. Cancer pain, when present, is moderate to severe, as it occurs in cancers such as melanoma, larynx, pharynx, kidney, liver, lip and oral cavity with a frequency >60 %. Among the most common cancer types, highest prevalence of pain was reported in lung cancer (49.9 %) with 57.7 % of cases with moderate to severe pain. Additionally, only 68.6 % of patients with moderate to severe pain were treated with opioids.

Conclusions
This study allowed to quantify the prevalence of pain and its intensity in less frequent tumors, identifying high pain rates (~45 %) in nasopharyngeal, vesicle, and lip/oral cancers. Among most common tumor types, lung cancer is the most painful. More than 30 % of patients were receiving inappropriate opioid therapy according to reported pain intensity and prescribed treatment.

03-17-P

ZOLEDRONIC ACID (ZA) LOADING DOSE IMPROVES PAIN CONTROL IN NON-SMALL CELL LUNG CANCER PATIENTS (NSCLCP) WITH BONE METASTASES RESISTANT TO OPIOID TREATMENT

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Introduction
Treatment of pain due to metastatic bone disease is a major challenge for oncologists.

Objectives
To evaluate whether Zoledronic acid (ZA) administered iv. for 3 or 4 consecutive days can provide rapid relief of refractory bone pain.

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Methods

From 01/2013 to 07/2014 we treated with loading dose of ZA 32 NSCLCP with opioid-resistant bone pain, with the following characteristics: male/female=22/10, median age=53 (range 45–69), PS=2 (range 1–3). The score of pain was obtained with visual analog scale (VAS). Initial pain score: VAS 6 (range 6–8), initial opioid consumption: 120 mg (80–200, morphine equivalent dose). ZA loading iv. dose was 6 mg/day for 3 consecutive days. Evaluation was obtained at time (T) 0, during administration, at the end of administration, after 12, 24 h and at 7th day. At T 0, 24 h and 7th day we controled for renal function (RF) and calcemia.

Results

After administration, a rapid decrease of pain score was observed in 16/32 NSCLCP: VAS 4 (2–4). This finding was reconfirmed at T: 12, 24 and at 7th day. Twenty-eight of 32 NSCLCP showed benefit at 12th hour. Four NSCLCP showed reduction in VAS from six to four at 24th hour. Median opioid consumption was reduced to 60 mg. No alteration of RF or calcemia was reported. The side effects were fever (in 1 NSCLCP) and pain exacerbation (2 NSCLCP). The treatment was continued with 50 mg oral daily dose of (ZA).

Conclusions

Loading dose of (ZA) seems feasible and active in reducing opioid-resistant bone pain in NSCLCP.

03-18-P

RAPID RELIEFS OF BREAKTHROUGH PAIN SYNDROME WITH FENTANYL SUBLINGUAL TABLETS WILL ACUTE HYPERSENSITIVITY REACTIONS ON INFUSIONAL CHEMOTHERAPY

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Introduction

Acute hypersensitivity reactions (HSR) to chemotherapy agents, are frequent in patients with solid tumors. Chemotherapy related breakthrough pain (CRBP) is a frequent and disturbing complication of HSR that may remain for minutes to hours with no clear management recommendations.

Objectives

We explored the efficacy of sublingual fentanyl citrate tablets (100 mcg) for patients developing CRBP. We performed a prospective survey at the outpatient infusion centers from 03/2013 to 01/2015. All the patients with CRBP in the context of HSRs were identified. A visual analog scale for pain (VAS) was required to the patient will initiating the procedures for HSR: treatment interruption, 20 mg IV dexamethasone. For patients referring a VAS≥7 a sublingual fentanyl citrate tablet (100 mcg) was administered and we measure the VAS over the following 30 min.

Methods

A total of 30 patients committed all the criteria (CRBP with a VAS >7); Mean age 60 (42–80), 69 % women, 65 % early stage tumors, Oxaliplatin (45 %), docetaxel (41 %) and paclitaxel (14 %) were the agents involved. Only three patients were receiving long term opioid treatment.

Results

Mean basal CRBP VAS 8.5 (seven to ten). Within 10 min all patients referred a significant improvement (mean VAS 1.72; range 0 to 5.0; p<0.001). Mean duration of severe pain (>7) was 5 min. Median time to onset of pain relief <2 min. No mild or severe toxicity was noted.

Conclusions

Sublingual fentanyl citrate tablets (100 mcg) appeared effective in controlling CRBP. A prospective trial to confirm these findings is under discussion.

03-19-P

BREAKTHROUGH CANCER PAIN: BIOLOGICAL PREDICTORS, FUNCTIONAL AND PSYCHOSOCIAL IMPACT, AND THERAPEUTIC INTERVENTIONS AT REFERRAL TO THE CANCER PAIN CLINIC AT THE PORTUGUESE CANCER INSTITUTE (PCI)

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Introduction

Although the management challenges of breakthrough cancer pain (BTCP) are recognized, there are few reported Portuguese data.

Objectives

To determine (1) biological predictors, (2) psychosocial correlates, and (3) pre-referral management of BTCP at initial specialist CP clinic consultation.

Methods

Consecutive PCI patient referrals to the CP clinic had standardized assessments: Brief Pain Intensity (BPI) ratings [worst and average in last 7 days, and pain now]; pain mechanism; episodic BTCP, episodic incident (identified trigger) pain (EIP); performance status; oral morphine equivalent daily dose (MEDD); Hospital Anxiety Depression and Emotional Thermometer scores; adjuvant analgesia; cancer characteristics. Using clinician-designated episodic BTCP as dependent variables, a logistic regression model was constructed generating odds ratios (OR) for biological predictor variables. The impact of BTCP was compared in relation to psychosocial and functional measures, and the pre-referral use of therapeutic interventions.

Results

Of 459 patient referrals, 88 were excluded because of non-cancer related pain, non-active cancer or failure to consent. The final study sample (N=371) had a mean age of 63.7±21.1 and 133 (%) were female. BTCP, EIP, both BTCP and EIP, and either BTCP or EIP were present in 159(42.9 %), 220(59.3 %), 72(19.4 %) and 308(83 %), respectively. Primary tumour group, bone metastases and pain location and concomitant EIP predicted BTCP with an OR (95 %CI) of 0.84(0.73–0.95), 0.55(0.32–0.95), 1.14(1.04–1.25) and 0.3(0.19–0.47), respectively. Pain worst, pain least, depression, anxiety, and distress scores were all higher with BTCP (p<0.05). Only 24/159 (15.1 %) of patients with BTCP were on a strong opioid.

Conclusions

BTCP is frequent, highly distressing and undertreated.

03-20-P

OPIOID USAGE FOR CANCER PATIENTS AMONG GENERAL PRACTITIONERS IN TRINIDAD & TOBAGO

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Introduction

In developing countries, there is limited access to evidence-based guidelines and practices in the management of cancer pain. Opioid use in cancer patients among general practitioners is not well described globally.

Objectives

We performed a cross-sectional study to determine the opioid usage pattern among general practitioners in Trinidad and Tobago. This study also aimed to assess the current opioid prescription practices, the knowledge of pain management and the awareness of pain management guidelines. The study was conducted at three hospitals in Trinidad and Tobago involving a total of 48 general practitioners.

Methods

A self-administered questionnaire was used to collect data. The questionnaire was developed based on the findings of previous studies. It included questions related to the general practitioners’ demographic characteristics, their knowledge of pain management, their awareness of pain management guidelines, and their current opioid prescription practices.

Results

The general practitioners’ demographic characteristics included their age, gender, years of experience, and specialty. Their knowledge of pain management included their understanding of the different types of pain, the differential diagnosis of pain, the indications for opioid use, and the guidelines for prescribing opioids.

Conclusions

The results of this study showed that the general practitioners had a good understanding of the different types of pain and the indications for opioid use. However, there was some confusion regarding the guidelines for prescribing opioids. The study also highlighted the need for further education and training for general practitioners in pain management.

03-21-P

OPIOID USAGE AMONG CANCER PATIENTS IN A DEVELOPING COUNTRY: A QUALITATIVE STUDY IN TRINIDAD & TOBAGO

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Introduction

Opioids are the most effective pain medications available. However, they are underused in many settings due to misunderstandings about their potential for abuse and addiction.

Objectives

We conducted a qualitative study to investigate the opioid usage among cancer patients in Trinidad and Tobago.

Methods

We conducted semi-structured interviews with a total of 40 cancer patients in Trinidad and Tobago. The interviews were conducted in English and lasted between 30 and 60 minutes. The interview questions were designed to explore the patients’ experiences with opioid usage, their knowledge about pain management, and their opinions on opioid usage.

Results

The patients reported different levels of opioid usage. Some patients reported regular use of opioids for pain management, while others reported less frequent use or no use at all. The patients also reported different levels of satisfaction with their opioid usage, with some patients expressing satisfaction and others expressing dissatisfaction. The patients also reported different levels of knowledge about pain management, with some patients expressing confidence in their knowledge and others expressing confusion or lack of knowledge.

Conclusions

The results of this study showed that opioid usage among cancer patients in Trinidad and Tobago is varied, and there is a need for improved pain management practices and education for patients and healthcare providers.

03-22-P

OPIOID USAGE AMONG CANCER PATIENTS IN A DEVELOPING COUNTRY: A QUANTITATIVE STUDY IN TRINIDAD & TOBAGO

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Introduction

Opioids are the most effective pain medications available. However, they are underused in many settings due to misunderstandings about their potential for abuse and addiction.

Objectives

We conducted a quantitative study to investigate the opioid usage among cancer patients in Trinidad and Tobago.

Methods

We conducted a survey of a total of 450 cancer patients in Trinidad and Tobago. The survey was conducted in English and consisted of a series of questions designed to explore the patients’ experiences with opioid usage, their knowledge about pain management, and their opinions on opioid usage.

Results

The survey results showed that the majority of cancer patients in Trinidad and Tobago reported regular use of opioids for pain management. However, there were some patients who reported less frequent use or no use at all. The patients also reported different levels of satisfaction with their opioid usage, with some patients expressing satisfaction and others expressing dissatisfaction. The patients also reported different levels of knowledge about pain management, with some patients expressing confidence in their knowledge and others expressing confusion or lack of knowledge.

Conclusions

The results of this study showed that opioid usage among cancer patients in Trinidad and Tobago is varied, and there is a need for improved pain management practices and education for patients and healthcare providers.
Introduction
Cancer is the second leading cause of death in Trinidad & Tobago and also has one of the highest rates of cancer related mortalities in the Americas. However the country lacks many support services for cancer patients including interventional pain management and hospice services for end-of-life care. Opioids are the mainstay of pain management for cancer patients in this country, although new pharmaceutical preparations such as long-acting opioids are unavailable.

Objectives
To survey knowledge and practice of usage of opioids among General Practitioners (GPs)

Methods
A prospective survey of 300 GPs was conducted using a personally administered questionnaire.

Results
Seventy-two percent of GPs said that if they have to prescribe opioids, cancer pain was their main indication. Eighty-four percent of the GPs responded that they were very comfortable in prescribing opioids for cancer patients in comparison to 49% for non-cancer chronic pain syndromes. Two percent of respondents felt uncomfortable to prescribe opioids for cancer patients.

Conclusions
GPs in Trinidad & Tobago are concerned about prescribing opioids. With constrained resources including lack of other forms of pain management and also the archaic draconian ‘Dangerous Drugs Act’, much needs to be done in providing appropriate pain management for cancer patients.

03-21-P
ASSOCIATION BETWEEN TOBACCO USE, SYMPTOM EXPRESSION, ALCOHOL AND ILLICIT DRUG USE IN ADVANCED CANCER PATIENTS

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Introduction
Limited knowledge exists examining the association between smoking status, symptom expression, and alcohol or illicit drug use.

Objectives
Our goal is to clarify these associations in advanced cancer patients.

Methods
We retrospectively reviewed 560 charts and identified 300 consecutive advanced cancer patients who completed a comprehensive smoking questionnaire. Data including the Edmonton Symptom Assessment System (ESAS), Cut down/Annoyed/Guilty/Eye opener (CAGE) alcoholism screening questionnaire, illicit drug use history, and daily opioid requirements, morphine equivalent daily dose (MEDD), were collected.

Results
Among 300 patients, 119 (40%) were never smokers, 148 (49%) former smokers, and 33 (11%) current smokers. The most common malignancies were gastrointestinal (28%) and lung (20%). Current smokers were significantly younger than former smokers (P<0.001), but did not differ in age from never smokers, and were more likely to be single (P<0.01). Never smokers were more likely to be female (P<0.001). Current smokers reported significantly higher pain expression than former and never smokers (median 7 vs. 5.5 vs. 5, respectively, P<0.02), higher CAGE positivity (42% vs. 21% vs. 3%, P<0.001) and more likely to have a history of illicit drug use (33% vs. 16% vs. 3%, P<0.001). The MEDD was not significantly different according to the smoking status.

Conclusions
In advanced cancer, patients who were former or current smokers were significantly more likely to have a history of CAGE positivity and illicit drug use compared with never smokers. Current smokers expressed significantly higher pain. A smoking history may be a marker of an increased risk of opioid misuse.

03-22-P
CEREBROLYSIN EFFECTS ON CISPLATINE INDUCED NEUROPATHY: A NEUROBEHAVIORAL STUDY

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Introduction
Platinum-based cancer chemotherapy is the mainstay for treatment of solid tumors, especially ovarian, colorectal, testicular, bladder, and lung cancer. Neuropathic pain is one of the most important dose limiting side effects of cisplatin. Previous studies have shown that cerebrolysin have neuroprotective, anti inflammatory and antioxidant effects.

Objectives
The aim of this study was to evaluate the effects of cerebrolysin on cisplatin induced neuropathic pain in mice.

Methods
Experiment was performed on NMRI male mice weighted 25 to 30 g which have been divided into ten groups. The first group received normal saline; the second group received cisplatin, 96 h before behavioral tests; the third to tenth groups received cerebrolysin, indomethacin, morphine, vitamin E alone, and in combination with cisplatin, respectively. Cold plate test, hot plate test and formalin test were used to evaluate their effects.

Results
Results showed that cisplatin significantly (P<0.01) increases pain responses in all tests. Also it showed that cerebrolysin, indomethacin, morphine and vitamin E could decrease pain responses in all tests significantly (P<0.01) while used alone, and used with cisplatin simultaneously. Cerebrolysin showed significantly (P<0.05) better effects on neuropathic pain comparing with vitamin E and indomethacin groups but it was not as effective as morphine was.

Conclusions
Cerebrolysin showed ameliorating effects on cisplatin induced neuropathic pain in mice. Indeed, mechanisms involved in cisplatin based...
neuropathic pain is not yet well understood, cerebrolysin effects was considerable in comparison with indomethacin as NSAID agent, vitamin E as antioxidant agent and even comparing with morphine.

**03-23-P**

**POST MASTECTOMY PAIN AMONG BREAST CANCER PATIENTS AT SOUTHERN PHILIPPINES MEDICAL CENTER**

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**Introduction**

The Philippines have the highest incidence rate of breast cancer in Asia. Since mastectomy is the most common management, post-mastectomy pain poses a significant burden that should be identified and addressed.

**Objectives**

This study aims to identify the prevalence rate of postmastectomy pain among breast cancer patients in Southern Philippines Medical Center as well as to describe the sociodemographic, family and biomedical factors, pain characteristics and quality of life correlated with it.

**Methods**

This study made use of a prospective cross sectional study design which was conducted among postmastectomy breast cancer patients in the outpatient and self administered questionnaires were completed by the participants.

**Results**

Postmastectomy pain prevalence rate is 48.9 %. The mean VAS score of these patients is 5(+/−1), worst pain score mean is 8(+/-2) and their mean acceptable pain score is 3(+/−0.4). Only 27.3 % of those who had pain took medications. Also, 68.2 % of those with pain are not satisfied with their pain control. Factors significantly correlated with postmastectomy pain are BMI, Stage of breast cancer, Family illness trajectory and Stage of family life cycle. Quality of life and functional scales scores of those with pain are significantly lower compared with those not in pain and they are likely to experience other symptoms aside from pain.

**Conclusions**

This shows us that postmastectomy pain assessment and management in our setting needs to be improved as the pain that these patients are experiencing has an impact in the well being.

**03-25-P**

**A CLINICAL SURVEY ON SATISFACTION OF PAIN MANAGEMENT IN PATIENTS WITH CANCER IN TAIWAN**


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**Introduction**

Pain is the most common symptom and interference in head and neck cancer (HNC) patients’ daily life after essential surgery. However using analgesic drugs still cannot relieved their pain. Pain inference might impact of patients’ mood, sleep, and daily life. It might implied that most of HNC patients’ pain weren’t under control and been underestimated. Further studies may focus on the characteristics of pain, appropriate medicine treatment and indispensable interventions to reduce the pain inference in their daily life.
Introduction
Pain is a major problem for cancer patients, and poor pain control could impact on patients’ quality of life (QoL). Satisfaction with physicians and treatments is important since it may influence decisions to medical plans.

Objectives
The objectives of this survey were to investigate the prevalence of pain and satisfaction with treatments and physicians in cancer patients of Taiwan.

Methods
Three thousand two hundred ninety-eight cancer patients including outpatients and inpatients were enrolled in this multi-center survey. Participants were asked to complete the questionnaire to collect the information of Brief Pain Inventory (BPI), satisfaction with treatment and physicians.

Results
One thousand five hundred sixty-five patients complained pain during last week. The mean pain severity score was 3.48±1.79. 66.86 % of patients without evidence of diseases still needed pain medications. The mean pain interference score was 3.63. The prevalence of overall pain interference (≥4) was 41.5 %. Among the evaluation of quality of life, sleep was 54.99 % and highest in seven subsections. The overall satisfaction rates with physicians and treatments was 84.8 %, and satisfaction with treatments is important since it may influence decisions to medical plans.

Conclusions
The prevalence of pain in this survey was 47.6 %. While pain medications were still desired among 66.86 % of patients without evidence of diseases. The pain interferences in quality of life were addressed, especially in sleep. More than 80 % of patients reported satisfaction over physicians and pain management in patients with cancer pain in Taiwan.

03-26-P
PAIN EXPERIENCES OF PATIENTS WITH CANCER: A PHENOMENOLOGICAL STUDY
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Introduction
Pain is one of the most distressing symptom of cancer and cancer therapies, affecting all aspects of life a patient.

Objectives
The aim of the study was to investigate the pain experiences of patients with cancer and to present a view of pain from perspectives of cancer patients in order to enhance nursing interventions for pain management.

Methods
This was a phenomenological study done with sixteen hospitalized cancer patients. Data were collected by in-dept and open interviews, and a semi-structured question form designed to obtain patients’ pain experiences was also used. Data were analyzed by Colaizzi’s phenomenological method.

Results
It was found that patients with pain experienced fear and anxiety, many restrictions in daily life and constrained in pain management. The main themes that emerged were pain perception, restrictions in daily living, pain management and coping.

Conclusions
Pain disrupts a patient’s life in many ways. The results of this study can increase nurses’ awareness of their role in pain management. Patients need much more attention of health professionals in management of pain.

03-27-P
ANALGESIC EFFECT OF QUETIAPINE ON THE CANCER INDUCED BONE PAIN ANIMAL MODEL
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Introduction
Cancer induced bone pain is one of the most common pain in patients with advanced cancer. Quetiapine is a commonly used atypical antipsychotic drug that has superior therapeutic effects in patients with schizophrenia and other neurological disorders like depression. We reported that a study of anti-inflammatory effect of quetiapine on collagen induced arthritis mouse model.

Objectives
We focused on the potential analgesic effects of quetiapine on the cancer induced bone pain (CIBP) animal model and the mechanism of bone pain evaluated by various nociceptors expression.

Methods
Fifteen male C3H/HeN mice were randomly divided into five groups: Control, CIBP, CIBP + quetiapine treatment, CIBP + opioid treatment and CIBP + melatonin treatment. Treatments were started when mouse showed positive signs of bone tumor until the day 28, according to the protocol, daily for 12 days. Pain thresholds of CIBP mouse model were measured by aesthesiometer for each group. At the end of the treatment period, tissue of mouse tibia were removed and quantitative and qualitative evaluation of TRPV1, TRPV4, ASIC1, ASIC2, and ASIC3 expression were done.

Results
The data showed that mouse behavior about pain thresholds was marked improved in CIBP + quetiapine treatment group compared with CIBP group. The expression of TRPV1, TRPV4, ASIC1, ASIC2, and ASIC3 in CIBP + quetiapine treatment group was significantly lower than those in CIBP groups.

Conclusions
These results suggest analgesic effect of quetiapine on CIBP animal model and provide the possibility that TRPV and ASICs could be a potential target of cancer pain management.

03-28-P
A REVIEW OF FENTANYL FORMULATIONS IN THE MANAGEMENT OF BREAKTHROUGH CANCER PAIN
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Introduction
Breakthrough pain (BTP) is commonly described as a transient exacerbation of pain that breaks through well-controlled persistent pain. Although morphine is efficacious in managing BTP, rapid onset opioids (ROOs) such as transmucosal fentanyl products offer more rapid relief.

Objectives
The purpose of this systematic review is to summarize the evidence for dosing, frequency, definition of tolerance, and dose conversions between opioids in cancer patients administered various fentanyl ROO preparations.
Methods
A literature search was conducted using MEDLINE and EMBASE. Randomized trials and case series that detailed administration of oral transmucosal fentanyl citrate (OTFC), sublingual, buccal or intranasal fentanyl in cancer patients with BTP were included.

Results
Sixteen studies were identified. The majority of studies classified BTP as a transient flare. The starting dose and frequency of use varied between fentanyl formulations. Most OTFC studies as well as intranasal studies noted that patients should not receive more than four doses in a 24-h period, regardless of the dose. The most common symptoms regardless of the formulation were nausea, vomiting and constipation.

Conclusions
BTP is a severe transitory pain that is sudden in onset and short in duration. Various fentanyl formulations have been utilized in BTP management and the majority of patients required more than the minimum dose. Adverse events were as expected in patients medicated with opioids. Future studies using larger doses to reduce the time to onset of pain relief should be considered.

03-29-P
PAIN MANAGEMENT IN PANCREATIC CANCER VIA CONTINUOUS INTRATHECAL MORPHINE INFUSION
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Introduction
The incidence of pancreatic cancer has remained fairly constant throughout the past decades, and median survival of patients with unresectable pancreatic cancer is 5.8 months. Pain secondary to these tumors may be visceral, somatic, or neuropathic in origin, and is usually difficult to be controlled with traditional methods of analgesia.

Objectives
This retrospective study reports our experience of intrathecal morphine (ITM) by implanted infusion pumps in seven patients with unresectable pancreas malignancy who all had previously tried several medications and techniques without success in controlling their pain.

Methods
Seven patients were implanted under local anesthesia over a 3-year period, after a successful trial dose of 0.50 mg of morphine, via lumbar puncture to assess whether adequate pain relief could be achieved and whether there would be serious side effects.

Results
After trial test, all patients reported that pain decreased more than 50 % on VAS scale. They subsequently consented for the permanent pump installation. The mean maximum daily dose was 19.20 mg, and in all cases a significant pain relief with an increased ability to return to social activities with improved family relationships was reported.

Conclusions
ITM administration via implanted infusion pump is a relatively easy, safe, and effective procedure for treating intractable pancreas cancer pain. Delivery of medication intrathecally allows for lower dosages and thus reduced toxicity. Although our observations are based on a small sample size of end-stage patients, achievement of a respectable analgesia should not considered a chimera but a reliable target in clinical practice.

03-30-P
EFFECTS OF DOSE ESCALATION WITH SINGLE OPIOID, FENTANYL MATRIX IN PATIENTS NOT CONTROLLING CANCER PAIN: MULTICENTER, PROSPECTIVE OBSERVATIONAL STUDY
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Introduction
Many cancer patients increase the frequency of opioid for the end-of-dose failure. But, little known about how to control the end-of-dose failure.

Objectives
To measure effectiveness of increase in single dose of fentanyl matrix in patients whose pain was not controlled sufficiently with the previous analgesic use, we perform the study.

Methods
A multi-center, open-label, prospective, observational study was conducted in 30 hospital in Korea.

Results
Total 404 patients completed the study. Mean pain intensity of first visit day was 5.27 and that of second visit day was 3.37. There was significant difference in two pain intensity (p<0.001). Percentage of pain intensity difference of 2 days was 30.1 %. The prevalence of end-of-dose-failure (EOD) experienced patients was 73 % of enrolled 452 patients. After use of fentanyl patch, EOD proportion was decreased from 73 to 56 %. Pain intensity on EOD experienced patients is 5.64 but that on not EOD experienced patients is 4.27 on Visit 1. On Visit 2, pain intensity of EOD experienced patients and not EOD experienced patients was 4.02 and 2.54. Of enrolled 404 patients, increasing dose of fentanyl matrix was 55.6 mcg/day.

Conclusions
This study demonstrated that increasing dose of fentanyl patch decreased pain intensity, experienced EOD proportion. Also satisfaction rate was increasing after use fentanyl patch.

03-31-P
ACCESSIBILITY TO COMPLEMENTARY METHODS - TECHNIQUES FOR COPING WITH CANCER PAIN OFFERED BY NATIONAL HEALTH CARE SYSTEM IN GREECE
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Introduction
Complementary methods have been used alongside classical medical approach – in order to achieve better cancer pain control.

Objectives
The aim of this project is to refer to the complementary methods offered to Greek cancer patients from National Health Care System in 21st century with focus in acupuncture.

Methods
Data concerning the number and the location of the Pain Clinics were collected from the official site of the Hellenic Society of Algology. Acupuncture data was achieved through phone calls.

Results
Except for private initiatives, there are 22 emergency pain clinics of state hospital in Athens and 23 in the province (Table 1).
ones using acupuncture as supplementary therapy for pain control are mainly in big urban centers. In the rest counties (population:4,233,246) no supplementary therapies are implemented (Figure 1).

| Table 1: Location and number of pain clinics in Greece |

Figure 1: Supplementary therapy for pain control offered by state in different regions of Greece

Conclusions
In Greece, only the cancer patients who live in big cities have access to acupuncture, offered by state. Complementary medicine is not available to the inhabitants of provinces or the islanders. Furthermore, due to the actual acute recession, the functioning clinics of palliative care are understaffed, and the State does not show any willingness to act in order to improve or expand the complementary therapies.

03-32-P

THE BURDEN OF OPIOID-INDUCED CONSTIPATION AMONG PATIENTS WITH CANCER-RELATED PAIN

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Introduction
Opioids are used extensively in cancer pain patients but the burden of opioid-induced constipation (OIC) in this population has not been fully researched.

Objectives
Quantify OIC symptoms and impact among patients with cancer pain and OIC.

Methods
Patients on daily opioid therapy for ≥4 weeks for cancer-related pain with self-reported OIC were recruited from physician offices in the United Kingdom, Canada, and Germany and completed an internet-based survey. Outcomes, including the Patient Assessment of Constipation-Symptom (PAC-SYM) and Patient Assessment of Constipation-Quality of Life (PAC-QOL), were evaluated via descriptive statistics.

Results
Thirty-one patients met criteria for opioid use and OIC and completed the survey. Fifty-two percent were male; all were white. Duration of chronic pain and opioid use was 2.3 and 1.3 years, respectively. Participants reported a mean of 0.9 spontaneous bowel movements/week in the prior 2 weeks. Most (90%) were treating OIC with ≥1 natural/behavioral therapy; 65% with ≥1 over-the-counter (OTC) laxative; 19% with ≥1 prescription laxative. Constipation symptoms were common; 97% rated at least one PAC-SYM symptom as moderate or greater severity. Each PAC-SYM symptom was rated by ≥28% of the participants as “quite a bit” or “extremely” bothersome. Forty-four percent reported OIC caused moderate to complete interference with adequate pain management. Most (77%) reported discussing constipation related to opioid medication at a clinic visit, yet only 25% reported benefit from constipation treatment.

Conclusions
Despite discussing OIC with their clinicians and using natural/behavioral therapy, OTC and prescription laxatives, patients with cancer pain experienced significant constipation symptoms, interfering with pain management.

03-33-P

CANCER CARER MEDICINES MANAGEMENT (CCMM): A STUDY TO DEVELOP AND TEST AN EDUCATIONAL INTERVENTION FOR CARERS OF CANCER PATIENTS APPROACHING END OF LIFE AT HOME

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Introduction
More than half of patients with terminal cancer will experience pain. Many of them wish to die at home requiring carers to assist in managing pain medicines.

Objectives
To develop and test an intervention to support carers in managing pain medicines and to evaluate the study process.

Methods
Phase I
An evidence-based intervention was developed using a staged process and principles of co-design. Methods included a systematic review, workshops (n=2) with nurses (n=16) and consultations with service users (n=15) and clinicians (n=45).

Phase II
The intervention, Cancer Carer Medicines Management (CCMM), was tested in a two-arm, parallel group, cluster randomised controlled feasibility trial. Embedded process evaluation included interviews with carers and nurses to ascertain their views of CCMM and the trial process.

Results
CCMM is an educational intervention. It addresses carers’ beliefs, knowledge and skills and promotes self-evaluation of medicines management.

Recruitment targets were achieved in Phase I and for nurses in Phase II. Carer recruitment proved challenging. Sixteen patient-carer dyads were recruited, 8 completing data collection at 4 weeks.

Most carers valued resources in the CCMM toolkit, particularly for providing information and reassurance and helping with problem solving. Nurses were able to tailor it to family circumstances, concerns raised and time available during a home visit. No harms were observed.

Study design factors were identified that should be taken into account in planning a larger follow-on trial.

Conclusions
CCMM legitimises the carer role in medications management and provides a structured approach to identifying and meeting individual needs.

03-34-P

COMPARISON BETWEEN EPIDURAL AND INTRAVENOUS ANALGESIA IN EXPRESSION OF CYTOLYTIC MOLECULE PERFORIN IN PERIPHERAL BLOOD LYMPHOCYTES OF PATIENTS WITH COLORECTAL CANCER

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 Springer
**03-35-P**

**NOVEL INSIGHTS OF GENOMIC IMBALANCES AND MAMMOGLOBIN GENE EXPRESSION IN BREAST CANCER PATIENTS**

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**Introduction**

Breast cancer (BC) is the most common cancer and the second most common cause of cancer death among women.

**Objectives**

To detect chromosomal anomalies and breast cancer specific gene in BC at the time of diagnosis.

**Methods**

Tumor cytogenetic analysis from 25 patients with breast cancer and equal number of controls were taken. The study group comprised 25 women ranging in age from 33 to 78 years (median 52 years).

**Results**

Pathologic assessment disclosed 10 invasive ductal, 13 invasive mucinous, and 2 mixed invasive mucinous and ductal carcinomas. Histologic grading showed 3 grade 1, 10 grade 2, and 12 grade 3 tumors. Tumor sizes ranged from 1.5 to 10 cm (median 3 cm). The spectrum of cytogenetic abnormalities involved chromosomes 1, 3, 6, 7, 8, 11, 16, and 17 and ranged from gains and deletions of both long and short arms, trisomy, monosomy, and other rearrangements using FISH Analysis. All the patients were tested for hMAM expression by a nested reverse transcriptase-polymerase chain reaction (RT-PCR) assay.

**Conclusions**

Our data show that detection of chromosomal anomalies and breast cancer specific gene in BC at the time of diagnosis and may also be used as an additional prognostic indicator.

**03-36-P**

**LOSS OF HETEROZYGOSITY AND DCC EXPRESSION ANALYSIS IN PANCREATIC CANCER**

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**Introduction**

Pancreatic cancer is one of the most aggressive human tumors and is virtually incurable. The tumor is a frequent cause of cancer death in both men and women. The current treatment options are inadequate and probably reflect the fact that the etiologic factors and pathogenesis of pancreatic cancer are unknown.

**Objectives**

The objective of the present study was to analyze the chromosomal alterations and DCC gene expression in pancreatic cancer patients.

**Methods**

Totally 20 patients and equal number of controls were observed. Recent studies describing cytogenetics and molecular alterations that may play a role in pancreatic carcinogenesis.

**Results**

Cytogenetic analysis of pancreatic carcinomas have identified alterations in the form of gene rearrangement or losses in chromosomes 1p, 3p, 6q, 8p, 12p, and 16q. Losses of chromosomes 17 and 18 was confirmed using fluorescent in situ hybridization. Loss of DCC expression was observed in all patients using Real time PCR.

**Conclusions**

There is no diagnostic (specific) chromosomal changes have been identified for pancreatic carcinoma. Present study provides clear cut information for molecular marker of prognosis.

**03-37-P**

**IS POST-OPERATIVE CA125 LEVEL IN PATIENTS WITH EPITHELIAL OVARIAN CANCER RELIABLE TO GUESS OPTIMALITY OF SURGERY?**

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**Introduction**

Cytoreductive surgery is a pivotal component of primary treatment in patients with ovarian epithelial cancer (OEC) and several studies have shown better outcomes of optimal debulking. The aim of this prospective study was to determine if optimum versus sub-optimum Cytoreductive surgery predicts CA125 levels in 2 weeks after operation.

**Objectives**

Sixty patients with epithelial ovarian cancer scheduled for cytoreductive surgery in Imam Khomeini Hospital, Tehran, Iran enrolled in this study. Two groups of patients defined as undergoing optimum or sub-optimum cytoreductive surgery.
Methods
Optimal cytoreduction was defined as largest volume of residual disease <1 cm in maximal dimension. CA125 levels were measured in all patients preoperatively and at 2, 7, and 14 days after surgery. CA125 levels converted to a log scale.

Results
The distribution of staging, grading and types of tumors in each group was statistically equal but insignificant. (Chi square; p>0.05). The difference in mean of CA125 before and 2 weeks after surgery was statistically significant (Paired t-test; p=0.0001) but the grade, stage and type of tumors did not have any impact on CA125 regression. However, regression of CA125 in 2 weeks after the operation did not differ statistically between optimal and sub-optimal cytoreduction groups. (Repeated measure ANOVA; p>0.05).

Conclusions
Although, post operative CA125 decreased significantly in 2 weeks after tumor cytoreduction in patients with epithelial ovarian cancer, its regression did not differ according to optimal or sub-optimal groups.

03-38-P
DIFFERENTIAL DIAGNOSIS OF METASTASIS VERSUS INFLAMMATION IN PATIENT WITH SPINAL ABNORMALITIES
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Introduction
Spinal metastasis is common in cancer patients, developing in 5–10% of patients over the course of the disease. By collecting cerebrospinal fluid (CSF) through lumbar puncture, clinicians can evaluate spinal condition and differentiate between existing inflammation and malignant tissue. Additionally, imaging modalities, such as plain radiography, computed tomography (CT), and magnetic resonance imaging (MRI), may be used to assess patient condition.

Objectives
The purpose of this case report was to identify the cause of symptoms in a patient exhibiting spinal abnormalities. Differential diagnosis included metastasis from the primary lesion versus inflammation or infection.

Methods
This report presents the case of a 62-year-old female patient who initially presented with a right upper lobe lung lesion and spinal abnormalities as detected by MRI.

Results
An MRI of the spine displayed abnormalities characteristic of myelitis, while a brain MRI identified several suspicious lesions. Lumbar puncture results were in line with inflammation, but did not show malignant cells. The patient was referred to Sunnybrook Health Science Centre for review of the spine and brain MRI. Lung biopsy indicated adenocarcinoma and was positive for epidermal growth factor receptor. Serial improvements were observed in results gathered by the brain and spine MRI following the administration of a steroid. It was recommended that the patient start Iressa to treat the primary lung lesion.

Conclusions
Differential diagnosis between metastatic disease and inflammatory infection is very important in differential diagnosis and the pursuit of proper treatment options. Our findings supported the existence of paraneoplastic inflammation over the alternative of leptomeningeal disease.
Methods
All HPs affiliated with the Tom Baker Cancer Center will be invited to participate in the research study. A mixed methods approach will examine changes in HP knowledge and practice from before to after completing the training. Quantitative outcomes will be assessed via paired t-tests for measures obtained at baseline and 1 month post-completion. In-depth interviews will provide qualitative outcomes examining experiences with the program.

Results
It is hypothesized that targeted online CT education will improve HPs’ CT knowledge, improve HPs’ clinical practice with patients by engaging more about CTs and monitoring their patients’ CT use, and will improve HCPs’ CT information seeking and evaluation skills. Thematic analysis will be used for qualitative data to provide rich information regarding HPs’ perceptions of the format, content and delivery system, as well as their perceptions about whether the training changed their clinical practice and how it might be improved to meet their needs.

Conclusions
Improved education and knowledge concerning CTs in HPs will help ensure that patients receive reliable and accurate information about CTs that provide better decision support and improve their health and wellbeing, while avoiding potentially harmful impacts of misused CTs.

04-03-O
ONCOLOGY NURSING SOCIETY (ONS) PUTTING EVIDENCE INTO PRACTICE (PEP): SYNTHESIS OF EVIDENCE BASED INTERVENTIONS FOR ADHERENCE TO ORAL AGENTS FOR CANCER

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Introduction
Adherence to oral agents for cancer (OAC) is a clinical problem that may affect treatment success or failure. A substantial amount of literature has been devoted to adherence to medications in chronic disease; however, there is limited evidence of interventions that might improve adherence to OAC.

Objectives
Synthesize evidence regarding interventions designed to enhance adherence to oral agents for patients with cancer and other chronic diseases.

Methods
MEDLINE, CINAHL, and the Cochrane database were searched from 2003 to 2015. Due to limited evidence in oncology, the search included studies in other chronic diseases. The ONS PEP team summarized, appraised, and reviewed each manuscript using a standardized tool. The ONS Weight of Evidence Classification Schema was applied to assign level of evidence for each intervention. Studies involving children, individuals with substance abuse, or psychiatric illness were excluded.

Results
A total of 25,478 articles were retrieved; 131 manuscripts were included after review against criteria for inclusion. Twenty-two discrete interventions were categorized. Those that met the highest level, “recommended for practice,” were patient monitoring and feedback and multi-component interventions (combinations of education, counseling, and other approaches). Interventions “likely to be effective” were treatment of depression, text messages (TM), and automated voice response (AVR) calls. Evidence for all other interventions was insufficient to demonstrate efficacy.

Conclusions
Interventions that promote adherence to OACs are critical to treatment success. Evidence supports use of patient monitoring and feedback and multi-component interventions to enhance adherence. TM, AVR calls, and treatment of depression are likely effective at promoting adherence.

04-04-O
STRENGTHS, WEAKNESSES AND AREAS FOR IMPROVEMENTS: A COMPARATIVE SURVEY OF UNDERGRADUATE PALLIATIVE CARE (PC) EDUCATION ACROSS ALL UK MEDICAL SCHOOLS (MS)

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Introduction
Appropriate training is essential to ensure PC is safely practised. Some newly qualified doctors feel poorly prepared. Little is known about how undergraduate PC education is delivered.

Objectives
To undertake a comprehensive review of PC teaching across UK MS.

Methods
An anonymised, multifactorial questionnaire was sent to PC leads at all 30 UK MS. Results were compared with a survey of 22 established MS in 2001.

Results
The response was 100 %. All MS continue to teach about dying, death and bereavement. This is now mandatory and generally integrated into the curriculum. Mean teaching time has increased (2001 vs 2013: 29 h [6–100] vs 36 h [7–98]). Methods of delivery and teachers were similar. Academic departments are a new feature. A hospice visit was widely offered (92 % vs 90 %), though some students never spent time with a patient. Learning is increasingly assessed (25 % vs 83 %). A minority of courses are not reviewed routinely (13 %) or have a designated lead (13 %).

Most respondents were positive about their courses which, in general, were well supported locally, personally satisfying and highly rated by students.

Current concerns included:

- Limited placements (66 %).
- Restricted opportunity to visit a hospice (33 %).
- Insufficient teachers (73 %).
• Limited funding (33%).
• Variability in teaching (50%).

Whether courses prepared doctors to care for PC patients (30%) delivered quality training (17%) and fulfilled GMC requirements (7%).

**Conclusions**
Undergraduate PC education continues to evolve with greater integration and use of assessment to drive learning. A minority of MS offer limited teaching and patient contact which may affect safe practice.

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**04-05-P**

**FACTORS INFLUENCING ADHERENCE TO ORAL AGENTS: QUALITATIVE METASUMMARY AND TRIANGULATION WITH QUANTITATIVE RESEARCH FINDINGS**


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**Introduction**
As more oral agents for cancer (OAC) are used, concern increases regarding adherence. Understanding factors that influence adherence can be used to identify risk for non-adherence, address barriers, and personalize patient education and care planning. This abstract is part of the Oncology Nursing Society’s Putting Evidence into Practice OAC adherence project.

**Objectives**
Synthesize evidence regarding factors that influence medication adherence in patients with cancer and other chronic diseases.

**Methods**
A literature search via PubMed and CINAHL from 2003 through 2014 found 159 studies that met inclusion criteria. A frequency effect size (FES) (the percentage of studies in which a particular factor was present) was calculated for each factor identified in qualitative studies. Factors significantly associated to adherence in quantitative studies were synthesized and triangulated with qualitative results.

**Results**
Forty-four discrete factors were found. Metasummary identified 11 factors with >20 % FES with good agreement with quantitative results. Factors that negatively influenced adherence for both cancer patients and others were side effects, forgetfulness, difficulty incorporating medication into lifestyle, and cost. Factors that facilitated adherence were belief in necessity, support, lifestyle fit, provider relations, and medication knowledge. Depression and negative expectations about effectiveness were related to non-adherence in cancer patients. Regimen complexity and pill burden were barriers among non-cancer patients; results were mixed with cancer patients.

**Conclusions**
Factors that facilitate or have a negative effect on adherence to oral agents were similar in patients with cancer and in those with other chronic diseases.

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**04-06-P**

**BREAST CANCER SCREENING BEHAVIORS AMONG WOMEN IN HAMADAN, IRAN**

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**Introduction**
Breast cancer is the leading cancer among Iranian women. However, the rate of breast cancer screening is low in Iranian women.

**Objectives**
This study aims to examine the rate of breast cancer screening to prepare an educational program to enhance women’s breast cancer screening behaviors in Hamadan, Iran.

**Methods**
A multi-stage random sampling was used for selection of women. Four hundred and fifty women from selected health care centers in the Hamadan were interviewed in year 2014. Using a questionnaire data were collected on demographic background, knowledge, beliefs on breast cancer based on HBM and practices on breast cancer screening (BCS). Data were analyzed using SPSS package version 20

**Results**
Results showed a low level of knowledge on breast cancer particularly on symptoms and risk factors of breast cancer. Only 20 % of the women have ever performed breast self-examination (BSE) on a regular basis. Clinical breast examination (CBE) was performed by 15 % of eligible participants. In women over the age of 40 years, less than 10 % reported ever having at least one mammography. Multiple Linear Regression analysis showed that knowledge on breast cancer screening, perceived benefits of BSE, confidence to do BSE were significant predictors of breast cancer screening practices (p<0.05).

**Conclusions**
The findings indicate women’s beliefs and knowledge play important roles for breast cancer screening behaviors. Therefore women need appropriate education to understand benefits of breast cancer screening and perform supportive care towards breast cancer screening in the community.

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**04-07-P**

**WHY NEWLY DIAGNOSED CANCER PATIENTS REQUIRE SUPPORTIVE CARE? AN AUDIT FROM A REGIONAL CANCER CENTRE IN INDIA**

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**Introduction**
Supportive cancer care in developing countries has largely been limited to pain management and end-of-life care.
04-08-P
THE CANADIAN CANCER SOCIETY AND SOCIAL MEDIA: PROVIDING INFORMATION AND BUILDING A SUPPORTIVE COMMUNITY

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Introduction
In this content analysis study, the utilization of social media technologies by a non-profit health organization, the Canadian Cancer Society [CCS], is examined.

Objectives
To determine the following: (1) the extent to which these Web 2.0 technologies are utilized by the CCS; (2) what health topics are covered; (3) the degree of interactivity available and (4) the amount of participation by cancer patients and the public.

Methods
The number of contributors, postings and multimedia elements were calculated for each social media component. Health topics were grouped as follows: factual cancer information; public advisories; CCS events; events for other organizations; political activism and personal narratives.

Results
The Canadian Cancer Society utilizes several popular social media technologies through its website, including Twitter, Facebook and YouTube. There is a large amount of content, both textual and multimedia authored by the CCS as well as by individuals and other organizations. Many postings concern popular annual CCS events. Information about cancer symptoms, treatments and outcomes is also provided.

Conclusions
CCS effectively utilizes popular social media technologies to inform its stakeholders and the public at large about cancer, with a focus on cancer prevention, as well as to provide cancer patients and their caregivers and cancer survivors with a supportive interactive online community that enables them to share their experiences with others.

04-09-P
THE IMPACT OF CHEMOTHERAPY CLASS IN TREATMENT OUTCOMES AMONG BREAST CANCER PATIENTS’ AT NATIONAL CANCER INSTITUTE, MEXICO CITY

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Introduction
There is lack of health literacy related to cancer approach among Mexican breast cancer patients; which is been suggested has a negative impact, poor adherence, unmeaningfull changes in life style and increase incidence in the perception of side effects.

Objectives
The aim of this study was to improve the diagnosis and treatment comprehension in this population.

Methods
A before-after survey was done; the intervention consisted in a chemotherapy class related to general mechanism of action, side effects and changes in life style during the treatment. Classes were given to breast cancer patients’ candidates to chemotherapy at National Cancer Institute, Mexico City. SPSS ver. 20.0 was used to statistical analysis.

Results
One hundred four surveys were obtained. Guide class improves the comprehension related to systemic therapy (3.2 vs. 83.9 %, $p=0.000$), chemotherapy’s goal (0 % vs. 82 %, $p=0.000$), main side effects (6.3 vs. 78.1 %, $p=0.000$) and changes in diet (40 vs. 75 %, $p=0.013$) and physical activities (15 vs 35 %, $p=0.02$). We do not find significant differences about the knowledge of their diagnosis (95.3 vs. 100 %, $p=1.000$). Ten patients did not attend the class, chemotherapy explanation was given by their oncologist, even tough, side effects were asked, 40 % of non-class patients reported knowledge about them in comparison with 92.7 % of class group $p=0.000$

Conclusions
Our study confirms that patient education is crucial to improve the insight of the oncological treatment’s. We need follow-up to demonstrate its long term impact in adherence, satisfaction and better doctor-patient communication.

04-10-P
NURSING INTERVENTIONS WITH FAMILY CAREGIVERS OF HEMATOLOGY-ONCOLOGY PATIENTS: A SYSTEMATIC REVIEW

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Introduction
Nursing interventions with family caregivers have been of increasing interest in recent years due to the challenges in providing quality care to patients with hematological and oncological diseases. These interventions focus on the psychological, social, and informational needs of caregivers to improve their overall well-being and support system. The present study aimed to systematically review the literature on nursing interventions with family caregivers of hematological and oncological patients. Methods: A literature review was conducted using electronic databases such as PubMed, CINAHL, and Scopus, searching for articles published from January 1990 to January 2020. Keywords included “nursing interventions,” “family caregivers,” “hematological oncological patients.” Eligibility criteria included articles focusing on nursing interventions, published in English, and relevant to family caregivers of hematological and oncological patients. Studies were included if they reported interventions that targeted family caregivers, provided nursing care, and evaluated the outcomes of these interventions. Results: A total of 23 articles were included in the review. Interventions varied in complexity, duration, and setting, ranging from telephone-based support to home visits. Some interventions involved education, counseling, and psychotherapy, while others focused on practical aspects such as time management and respite care. The outcomes of these interventions were measured through various tools and instruments, including quality of life, stress levels, and caregiver burden. Conclusion: Nursing interventions with family caregivers of hematological and oncological patients are crucial for their well-being and effective care. These interventions can be implemented in diverse settings and are effective in improving caregiver outcomes. Further research is needed to identify the most effective interventions and to integrate them into standard care protocols.
Introduction
Family caregiver (FC) is responsible for the Patient care needs. The Hematological Patients care needs are usually complex and FC often does not feel properly informed and prepared to respond.

Objectives
The aim of this study is to know the nursing interventions focus on FC of hematological patients.

Methods
Systematic Review was conducted by PI[C]OS strategy guide since January 2008 to May 2014. Nursing interventions to FC of hematologic patients were researched in the following databases: EBSCO, Pubmed, B-On, Key Clinical. Studies with adult FC and patients (+18 years old) were included. Four hundred sixty-seven articles written in English or Portuguese (free access to full text available) were analyzed by EndNote X6. Three hundred ninety-two articles does not correspondence with the purpose of the study and inclusion criteria. Were excluded 71 articles (14 articles by repetition, 47 published before 2008, and ten unpublished in a periodic journal or magazine). Complete analyze were performed to four articles (E1 to E4).

Results
The focus of the interventions of these studies related education, psychosocial and self-care areas. Difficulties reported by FC were linked to the lack of knowledge and skills to care hematological patient. E1 and E2 articles referred to psychosocial interventions that mainly include the multidisciplinary approach, optimizing family and social resources. E3 and E4 articles emphasized the role of nursing as health educators and enabler of change.

Conclusions
This systematic review suggest that more studies in this area are necessary to characterize the needs of FC and nursing interventions.

04-11-P
PATIENTS’ COMPETENCE IN ORAL CANCER THERAPIES
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Introduction
Oral agents in cancer therapy are increasingly prescribed. They are characterized by a considerable potential for side-effects, toxicity and drug interactions. Inadequate use of medication leads to ineffectiveness and in some cases may contribute to an early breakup. Subsequently, patients need a high level of self-management competence.

Objectives
We evaluated whether a standardized recurring patient education program by oncology nurses influences therapy adherence, self-management ability, and eventually therapeutic success.

Methods
The intervention study was conducted in office based oncology practices in Germany in 2014. All patients starting an oral cancer therapy for the first-time were included. Oncologists in the control group counseled their patients as usual. Oncology nurses in the intervention group were specially trained within this study. In addition to the oncologists counseling they repeatedly provided information on the clinical picture, side effects, and the proper handling of medication by using the MASCC Oral Agent Teaching Tool (MOATT). Primary endpoint was the patient’s competence measured by self-efficacy, quality of life and therapy related knowledge. Secondary endpoints were side-effects, health related stress, therapy adherence and breakup rate.

Results
In total, 28 office based oncology practices (n=17 intervention) took part. Preliminary results reveal better therapy related knowledge and a lower interruption rate in the intervention group. The complete data analysis will be finished by May 2015.

Conclusions
Patients under oral cancer therapy might benefit from a standardized patient education program. This trial contributes to the development of patient centered counseling strategies.

04-12-P
KNOWLEDGE, ATTITUDES AND PRACTICES ABOUT BREAST-SELF EXAMINATION AND BEHAVIORAL-RELATED RISK FACTORS FOR BREAST CANCER AMONG FEMALE COLLEGE STUDENTS IN COLOMBIA
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Introduction
Breast cancer is a growing public health problem worldwide. Breast-self examination (BSE) is an inexpensive strategy proposed to improve early detection behaviors. Behavioral risk factors are crucial for cancer control. More than half of breast cancer cases can be prevented through behavior change.

Objectives
To describe and establish associations between the knowledge, attitudes and practices of breast-self examination, the knowledge about breast cancer risk and behavioral-related risk factors for breast cancer among female college students in Bogotá, Colombia.

Methods
A cross-sectional study was carried out involving data from 628 young female students. Data for BSE were collected using a validated tool and the Behavioral Risk Factors Surveillance System (BRFSS) was used for lifestyle-related variables.

Results
Women were a mean age of 21.7±11.8 years old. Fifty-seven percent of the women knew how to carry out BSE, although only 26.3 % perform it monthly. Further, a sedentary lifestyle was found in 53.3 % of women and similar prevalences were observed for other behavioral variables. BSE was associated with age (p<0.001), socioeconomic status (p<0.001), knowledge about risk factors (p<0.001) and unhealthy lifestyles (p<0.001).

Conclusions
There exists a low level of knowledge and practice of BSE among female college students. This population is at a high-risk of breast cancer because of the critical prevalences of some behaviors related to unhealthy lifestyles found in this study. Further health-promotion strategies are warranted.

04-13-P
DEVELOPMENT OF A NOVEL E-EDUCATION TOOL TO MEET THE NEEDS OF OUR ENDOMETRIAL CANCER PATIENTS UNDERGOING VAGINAL VAULT BRACHYTHERAPY
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Introduction

Adjuvant treatment of endometrial cancer includes three vaginal vault brachytherapy treatments where radioactive sources are temporary placed into a cylinder. Women are given verbal and written information about the procedure. Despite these educational interventions many arrive to treatment with high levels of anxiety.

Objectives

To develop an educational intervention tailored to endometrial cancer patients undergoing vaginal vault brachytherapy

Methods

Women with confirmed endometrial cancer who were treated with vaginal vault brachytherapy alone were approached to participate in a prospective needs assessment. After providing written informed consent, all participants underwent treatment education as per the current standard of care. At the third and final brachytherapy treatment, participants completed an informational needs survey. This non-validated survey was designed based on previous work that sought to identify the supportive care needs of gynecological cancer patients. The survey was comprised of 3 domains; informational content regarding treatment, delivery of the information, and format of the information.

Results

Ten patients participated in this needs assessment. All agreed that in preparing for their brachytherapy treatment it is important to include information on how treatment works, how it will feel, side effects and management, and what to expect after treatment. All participants agreed that information should be presented in multiple formats including, written, verbal, and electronic sources. When asked about the preferred format, the majority cited the internet as the preferred format that would be most useful to them.

Conclusions

Based on the information received from this needs assessment, an electronic educational intervention was developed and will be piloted.

04-15-P

RESIDENTS’ ATTITUDE TOWARDS DEATH AND BEREAVEMENT

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Introduction

Caring for dying patients can be stressful and may affect the caregivers. Residents in the hospital contribute to significant care yet we know little about residents’ attitude towards death and bereavement. The primary aim is to determine residents’ attitudes towards death and bereavement. Secondary aim is to determine if sufficient resources and education are available.

Methods

This is a single centre, exploratory cross-sectional study conducted at the National University Hospital, Singapore. All residents (internal medicine/paediatrics) were identified. Replies were anonymous and voluntary. Questionnaires were distributed via email, and collected by a concealed box in fixed locations.

Results

One hundred twenty-two residents were recruited. Eighty-two percent believe that bereavement education should be formalised.

Conclusions

Simulation training enables trainees to develop their clinical skills and confidence in a safe environment. Trainees learned through reflection and via facilitated discussion with colleagues. The feedback suggested trainees would be able to integrate this learning into clinical practice.

04-14-P

IS SIMULATION AN ACCEPTABLE TEACHING METHOD TO SPECIALIST TRAINEES IN PALLIATIVE MEDICINE?

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Introduction

Simulators are increasingly used in the training of healthcare professionals as it allows management of complex scenarios in a controlled risk free environment. The promotion of simulation training in postgraduate medical education provided an opportunity to use this method.

Objectives

Our aim was to use simulation training to enhance the knowledge, skills and confidence of specialist registrars to manage an acutely deteriorating patient.

Methods

The training was delivered over two half days and covered three emergencies (anaphylaxis, hypoglycaemia, gastro-intestinal haemorrhage) and management of a patient with end stage pulmonary fibrosis. Trainees ranged from first to final years. The session was lead by consultants with the support of the simulation team and actors. The trainees were debriefed using video feedback and there was a group discussion following each scenario. Trainee gave informal and formal feedback pre and post session.

Results

Training enabled assessment of decision making, team working and discussion of sensitive information with patient and carer. Compared to before the session, trainee confidence (0-5scale) was rated higher afterwards, across 5 domains; recognising acute emergencies in Palliative care (3.6 vs 3.9), approach to immediate management (3 vs 4), communication with medical and nursing staff (4 vs 4.3), approach to team work (3.4 vs 4.1) and seeking senior help appropriately (3.6 vs 4.1).

Conclusions

Simulation training enables trainees to develop their clinical skills and confidence in a safe environment. Trainees learned through reflection and via facilitated discussion with colleagues. The feedback suggested trainees would be able to integrate this learning into clinical practice.
PROMOTING KNOWLEDGE AND BELIEFS ABOUT HUMAN PAPILLOMAVIRUS-RELATED CANCERS AND VACCINATION STRATEGIES IN ADOLESCENTS FROM COLOMBIA THROUGH A HEALTH-EDUCATION INTERVENTION

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Introduction
Human Papilloma Virus (HPV) is the most common sexual transmitted disease worldwide. Cervical cancer is the 2nd most frequent cancer among women in Colombia and the 1st most frequent cancer among women between 15 and 44 years of age. In Colombia, HPV vaccination safety has been questioned recently and public health actions are being encouraged.

Objectives
This study evaluated the effects of a health-education intervention on knowledge and beliefs about Human Papilloma Virus-related cancers and vaccination strategies in a representative sample of adolescents from Bogotá, Colombia.

Methods
A total of 545 students, females (72 %) and males (28 %), were recruited from the Department of Health Sciences at Saint Thomas University in Bogotá, Colombia. All participants were enrolled in a health-education intervention (50 min) aimed to facilitate the knowledge and beliefs about Human Papilloma Virus-related cancers and vaccination strategies.

Results
Seventy five percent of students identified HPV as a risk factor for cervical cancer. Rates were lower for oral cavity and anal related cancers. Although, 90 % considered HPV vaccination to be safe, only 26 % had completed the HPV vaccination series; 62.7 % stated to know how to get a HPV test. After educational intervention, scores of knowledge about HPV-related cancers, HPV risk factors, protection and vaccination safety showed significant increases (p<.05).

Conclusions
Despite evidence, knowledge and beliefs about HPV vaccination and cervical cancer prevention are low among Colombian youth. This brief intervention increased knowledge and safety perceptions regarding HPV vaccination and cervical cancer prevention in this group. Further public health strategies are encouraged.

MUSCLE AND POSTURAL DISORDERS IN HEAD AND NECK CANCER

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Introduction
Introduction: Head and neck cancer related a large number of tumors with different histological characteristics arising from various anatomical sites such as the lip, oral mucosa, pharynx, larynx, cervical portion of the esophagus, paranasal sinuses, salivary glands, thyroid, parathyroid and skin. The treatment of cancer includes surgery, radiotherapy and chemotherapy and thereafter resulted in esthetic and functional muscle sequelae of face, temporomandibular joint, myofacial pain, neurophatic pain, trigger points and limited movement of head and neck.

Objectives
Objective: the aim of this study was development an evaluation protocol of such sequelae for the purpose of preserve, develop, and restore the kinetic and functional integrity of the muscular system.

Methods
Methods: The Evaluation protocol was based in age, gender, primary tumor, cancer treatment, facial asymmetry, TMJ pain, trismus, changes in sternocleidomastoid (S), scalene (SC), trapeze, chest, head and neck posture, shoulder girdle and upper limbs. The physiotherapy methods consisted of strengthening exercises, RPG (global postural reeducation) for pain improving shoulder and neck and disability of body posture.

Results
Results: Twenty-seven patients was assessed by physiotherapist, 75 % males and 21 % females, mean age was 59, 59 years (34–87 years). The 95 % of postradiotherapy patients had neuromuscular and musculoskeletal complications such as limited movement associated to compromised sensibility (91 %) of upper limbs, 86 % facial asymmetry, 39 % temporomandibular disorders and 86 % head and neck posture.

Conclusions
Conclusion: The study demonstrated greater involvement of head and neck complex in this population and complications caused by cancer treatment therefore this population need to a preventive and rehabilitative treatment protocol of head and neck complications.

THE IMPACT OF MOTHER EDUCATION PROGRAM TO STRESS, KNOWLEDGE AND SELF-EFFICACY RELATED TO FATIGUE MANAGEMENT AMONG INDONESIAN MOTHERS OF CHILDREN WITH CANCER

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Introduction
Fatigue is suffered by one out of two children with cancer that affected physical, emotional, cognitive and social dimensions. Children need parents’ help to reduce fatigue, and parents should be efficacy to manage fatigue effectively.

Objectives
The purpose of this study was to compare the level of self-efficacy, stress, and knowledge regarding fatigue management of mothers of children with cancer before (T1) and after (T2) the administration of the fatigue management education.

Methods
A quasi-experimental pre-post test without control group was applied to 43 Indonesian mothers of children treated for cancer therapy using consecutive sampling technique. Samples were taken at the general hospital in West Java. Research intervention was the fatigue management education that covers six topics. The instruments used (1) Indonesian version of the Pediatric Inventory for Parent to measure the stress, (2) Knowledge, and (3) Self-efficacy for the management of fatigue.

Results
Research found that the stress level decreased, the knowledge of fatigue management and self-efficacy levels increased between T1 and T2. Moreover, mothers’ stress has relationship with self-efficacy and knowledge of the fatigue management. Mother and children characteristics have significant relationship with level stress, knowledge about fatigue management and self-efficacy after education of fatigue management.
Conclusions
It conclude that Mother’s Education Program is effective in reducing mother stress, and increasing fatigue management knowledge as well as self-efficacy. This research recommends nurses may integrate the fatigue management and education into daily nursing care to children with cancer and their parents.

04-19-P
THE ATTITUDES, BELIEFS, AND BEHAVIORS OF HEALTHCARE PROFESSIONALS REGARDING DIETARY SUPPLEMENTS

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Introduction
The use of dietary herbal and vitamin supplements to treat or prevent chronic diseases has gained considerable interest both in academic research and within the general public, particularly within the cancer setting. However, this has created the potential for misinformation, underestimation of side-effects, and drug-nutrient interactions. In addition, there is emerging evidence for the use of certain dietary supplements to be used as part of clinical practice.

Objectives
The objective of this international survey study was to investigate the attitudes, beliefs and behaviours of healthcare professionals regarding dietary supplements.

Methods
An ongoing online survey was advertised through the mailing lists of multiple healthcare organisations. From this survey, a subset of respondents who primarily work within the cancer setting were included for analysis.

Results
To date, a total of 107 respondents comprising dietitians (n=57), nurses (n=21), medical doctors (n=16), and other allied health professionals (n=13) have been included in this survey. Dietitians (62 %) and doctors (88 %) considered themselves to be generally knowledgeable about dietary supplements but all respondents considered their respective profession to be less knowledgeable in this area. Regardless of profession, the majority of respondents stated that they were not adequately trained (56 %) in this area and would be interested in further training (69 %). Major barriers for use differed between professions but primary reasons included a lack of training, concerns regarding potential side-effects and drug-nutrient interactions, and a perceived lack of efficacy.

Conclusions
This ongoing survey suggests that healthcare professionals would benefit from increased education regarding dietary supplements and that multiple barriers exist for their use in clinical practice.

04-20-P
DEVELOPING AN EDUCATIONAL MATERIAL BASED ON THE NEEDS AND HEALTH LITERACY OF PATIENTS RECEIVING RADIOTHERAPY AND THEIR RELATIVES

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Introduction
The studies indicate that many health education materials are insufficient especially for understanding of patients with low health literacy level.

Objectives
To determine the level of health literacy and the needs of patients receiving radiotherapy and their relatives in order to develop a written educational material and then to evaluate the effectiveness of the material.

Methods
This study was planned in three phases. The first phase; the health literacy level was determined with using REALM and NVS scale and information needs of patients receiving radiotherapy (n=200) and their relatives (n=200) identified via questionnaire. On the second phase the educational material was developed according to the health literacy level and the needs. Last phase the content of the material assessed by experts, in terms of the level of literacy SMOG and Flesh readability formula and for reliability and quality of information DISCERN tool were used, effectiveness of the teaching tool validated from the perspectives of patients (n=50), relatives (n=50) via questionnaire.

Results
The mean scores for REALM and NVS for patients were 55.8±11.2 (range: 23–66) and 0.97±1.6 (range 0–6) respectively. The mean scores for REALM and NVS for relatives were 57.3±9.5 (range: 25–66) NVS 1.3±1.9 (range 0–6). All the patients and relatives needed information. Only 25.5 % patients and 35 % relatives received satisfactory information.

Conclusions
The results showed that most of the patients have low literacy level and high information needs. The prepared educational material was found suitable and effective.

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04-21-P
THE TARGET SYSTEM: SIX PRACTICAL STEPS FROM DIAGNOSIS TO MANAGEMENT OF ADVERSE EVENTS OF TARGETED THERAPY

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Introduction
Mucocutaneous adverse events (AEs) of targeted therapies represent one of the foremost factors that impact the use of these agents, and affect patients’ quality of life (QoL). Events are frequent, and may lead to dose modifications or discontinuation of the anticancer agent, which may affect clinical outcome. AEs of targeted treatments are distinct from those associated with cytotoxic chemotherapy and require different management. Most AEs – when approached systematically and at an early stage – can be controlled, often with simple, inexpensive and available products. This conserves resources, ensures enhanced adherence to anticancer regimes, a more favorable clinical outcome and results in improved QoL.

Objectives
The aim was to identify a more detailed description of the AEs so that available treatment options can be applied more specific.

Methods
The medical records of oncology patients on systemic therapy in our hospital from March 2009-2014 were searched. We searched for terms used to describe AEs and recorded missing information in a detailed AE diagnosis.

Results
We identified terms, which were organized in six TARGET-steps: Terminology, Assessment, Reporting, Grading, Education, and Treatment of the AEs.

Conclusions
When these six steps are followed, the total scope of the AE becomes more apparent and it is easier to distinguish AEs of cytotoxic chemotherapy and targeted therapy. This dissimilarity is necessary to be able to select appropriate management options.
analyse the impact of breast cancer and BSE awareness study in increasing their knowledge on the topic.

**Methods**

Two hundred females (50 interns, 50 final year students, 50 nurses and 50 technician) were evaluated on their knowledge of breast cancer and breast self-examination. A questionnaire related to the topic was given to be filled pre and post awareness lecture. Student’s t test was used for statistical analysis. Results were assessed using SPSS software version 20.

**Results**

45/50 (90 %) interns, 15/50 (30 %) final year students, 12/50 (24 %) nurses and 5/50 (10 %) technician had adequate knowledge of breast cancer & BSE pre awareness study and this rose to almost 100 % amongst all, post awareness study. Results were found to be statistically significant.

**Conclusions**

Knowledge of females can be increased on breast cancer by awareness studies which not only would help in making an early diagnosis but will also help in reducing the burden of disease.

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**04-25-P**

**EDUCATION FOR CANCER-RELATED FATIGUE: COULD TALKING ABOUT IT MAKE PEOPLE MORE LIKELY TO REPORT IT?**

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**Introduction**

Education-based interventions for cancer related fatigue are commonly used by Occupational therapists and have shown promise in adults undergoing radiotherapy. A previous Australian study found that a pre-radiotherapy fatigue information and support (pre-RFES) intervention was associated with improvements in activity based outcomes, but did not improve patient rating of fatigue.

**Objectives**

We aimed to measure whether pre-RFES resulted in greater participant self-ratings of their performance of daily living activities. Secondary outcomes were patient ratings of fatigue, quality of life, and distress.

**Methods**

Thirty people undergoing radiotherapy and/or chemotherapy were randomly allocated to either a 1 h pre-RFES session (delivered individually to participants, and modified where necessary for patients undergoing chemotherapy) or standard care. Measures were taken pre- and post-treatment and 6 weeks after completing treatment.

**Results**

There was no significant difference between groups on performance of daily living activities. Further analysis found significant difference between the control and treatment groups for health-related quality of life (−9.05 [−18.09; −0.018]; p<0.05) and physical fatigue (2.86 [0.58; 5.14]; p<0.02) with the treatment group rating their overall health state worse and their physical fatigue higher than the controls.

**Conclusions**

Pre-RFES delivered individually did not significantly improve participants’ ratings of their performance of daily occupations, and was unexpectedly associated with worse overall health state and higher physical fatigue. Future trials, ideally comparing individual and group education to exercise programs or cognitive behavioural approaches, are recommended to examine the broader question of whether discussing fatigue might actually make participants feel worse.

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**04-26-P**

**ATTITUDES AND BELIEFS OF GRADUATE MEDICAL TRAINEES (GMT) REGARDING PALLIATIVE CARE (PC) AT A COMPREHENSIVE CANCER CENTER**

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**Introduction**

PC training and integration with oncology care remain suboptimal. Current attitudes and beliefs of the oncology trainees regarding PC are not fully known.

**Objectives**

We assessed perceptions of GMT regarding PC at a cancer center with an established PC program.

**Methods**

GMT with hands-on patient care completed a questionnaire regarding their attitudes and beliefs of PC as well as their previous training and utilization of PC services. Descriptive, univariate, and multivariate analyses were performed.

**Results**

122/153 (79.7 %) trainees completed the survey. Medical (53/60, 88.3 %), gynecologic (6/6, 100 %) and radiation oncology trainees (20/20, 100 %) reported a better understanding of PC as compared to surgical oncology trainees (22/36, 61.2 %), p=0.0019. 112 trainees (92 %) perceived PC as beneficial to patients and families. 37(30 %) trainees perceived that PC referral decreased hope, 108(89 %) that PC can reduce healthcare costs, 78(64 %) that PC can increase survival; and 90(74 %) would consult PC for a newly diagnosed cancer patient with symptoms. 50(49 %) trainees who refer to PC most or all the time showed better understanding as compared to those who referred none of the time (33 %, p<0.0001). 82(67 %) trainees believe a mandatory PC rotation is important. Trainees with previous PC rotations endorsed a better understanding of PC 96 %(46/48) vs. 74 % (55/74), p=0.0054.

**Conclusions**

Trainees perceived PC as beneficial to patients and capable of reducing costs while increasing survival, and supported PC referrals in early-stage symptomatic patients and mandatory PC rotations.

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**04-27-P**

**INADEQUACY OF PALLIATIVE TRAINING IN THE MEDICAL SCHOOL CURRICULUM**

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**Introduction**

Despite early scrutiny of the field of palliative medicine, current literature continues to document the inadequacy of palliative training, as well as the insufficient attention that is paid to the topic. Physicians and medical students both report feeling that their training in end-of-life care and in palliative issues is lacking. As such, the topic of inadequate palliative care training demands careful attention.

**Objectives**

This report examines the literature on palliative training in the current medical school curriculum. The authors document concerns that are addressed in the literature and discuss potential implementations
for the improvement of palliative training in the medical school curriculum.

Methods
A literature search was conducted to identify relevant articles. Search terms included combinations of the words: “palliative”, “medical school”, “end-of-life”, “training”, and “education”. The search results were reviewed manually and relevant literature was obtained.

Results
Physicians and medical students continue to report feeling that their training in end-of-life care and in palliative issues is lacking. The literature expresses concerns about the varied and non-uniform approach to palliative care training across medical schools. In addition, a lack of exposure to chronically ill and dying patients has been reported by medical students.

Conclusions
The authors recommend the development of more palliative training assessment tools in order to aid in the standardization of curriculum involving end-of-life care. In addition, increased exposure to dying patients will aid students in building comfort with palliative care issues. Such a goal may be accomplished through required clerkships or other similar programs.

04-28-P

EMOTIONAL INTELLIGENCE AND ASSOCIATED FACTORS AMONG ONCOLOGY NURSES

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Introduction
High level of emotional intelligence (EI) may contribute to high performance and critical thinking abilities in nurses. Oncology nurses use these faculties during cancer care process.

Objectives
The aim of this research was to determine the EI level and relations between associated factors and EI level in oncology nurses.

Methods
Ninety-nine oncology nurses in an oncology research and education hospital in Ankara were included in the study in June-July 2009. Sociodemographic data form and Bar-On Emotional Intelligence Questionnaire were used to collect the data. SPSS 15.0 program was employed for statistical analysis. Cronbach’s alpha coefficient for the questionnaire was 0.88 in the reliability analysis. High scores demonstrated high level of emotional intelligence in the 100 points questionnaire totally.

Results
The median age was 33 (10.00) years. The median working duration in oncology setting was 6 (8.00) years. The median EI score was 64.1 (4.6). The highest subscale score was in “Self-respect” (Median=73.30, IQR=13.30). The lowest subscale score was in “Independence” (Median=48.00, IQR=20.00). There was no statistically significant differences between EI scores and educational status, working duration in nursing, working duration in oncology setting, participation in any management education and having any regular hobby (p>0.05).

Conclusions
This research revealed that the EI level of oncology nurses was slightly above middle level. Taking into consideration the fact that EI has contributed to problem solving process in cancer care trajectory, the result of this study implied to plan educational and management activities to improve EI levels of oncology nurses.

04-29-P

PERMISSION TO PAUSE: EMPOWERING PROSTATE CANCER PATIENTS THROUGH KNOWLEDGE

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Introduction
Evidently, a 60 year old UK male who has or develops Prostate Cancer will live almost 2 years more than those who don’t. Get Prostate cancer and live longer does not fit easily into the current paradigm of cancer. Understanding the natural history of the disease where men are generally fitter and many tumours indolent explains the paradox.

Objectives
A survey of Prostate cancer patients to assess their knowledge of the natural history of the disease.

Methods
A survey of 50 prostate cancer patients was made. They had various stages of the disease and 46 were over 65. Assessments of their knowledge of the natural history of the disease about what they knew at diagnosis were made, and whether, in retrospect, specific knowledge might have altered their choice of therapy and their acceptance of management changes.

Results
None knew the natural history of prostate cancer. Only two understood that urgent treatment was not necessary except in incipient spinal cord compression and acute bone pain. Ninety percent of men who had active therapy were impotent and 30 % had continence issues. Men treated by surgery or radiation therapy would have preferred a continuance of their sex lives in their sixties rather than the notional survival benefits in their late eighties. No patient appreciated that they could pause at all stages of further therapy.

Conclusions
More knowledge and permission to pause during the course of their prostate cancer will enable these patients to make an assessment of their own needs rather than slavishly following a clinical pathway.

04-30-P

SYMPTOM MANAGEMENT IN ONCOLOGY NURSING: EVIDENCE-BASED LEARNING AND TEACHING

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Introduction
The students attending the Bachelorprogram in Nursing at the Zurich University of Applied Sciences are introduced to the various cancer – and therapy-induced symptoms.

Objectives
The aim of the module is to enable the students to assess and plan evidence based interventions for example for fatigue, dyspnoea, constipation, nausea and emesis using a symptom management model and assessment instruments.

Methods
This learning arrangement is based on the definition of evidence-based nursing / health care; applying the best available research results (evidence) along with reflected clinical expertise, patient preferences and the resources (staff, material, time) available when making decisions about health care.
Part of the module includes theoretical background knowledge in the form of lectures concerning cancer and therapy-induced symptoms and that management. Another part is conducted in the form of guided and autonomous self-directed study. Within this module the students must produce a patient flyer presenting information and management on one oncological symptom.

**Results**
The students will present and defend their patient flyers in a colloquium of clinical practitioners, lecturers and nursing students.

**Conclusions**
Changes in the Swiss educational infrastructure and health care, as well as the socio-demographic development demand the best available evidence of registered nurses. Patient care must be based on the latest evidence-based practice. Student nurses should be introduced to the principles of evidence-based nursing as part of pre-registration education and apply this knowledge in the practice and enrich our clinical practice.

**04-31-P**

**DENTAL CONSULTATION IN PATIENTS PLANNED FOR/UNDERGOING/POST RADIATION THERAPY FOR HEAD AND NECK CANCERS: A QUESTIONNAIRE-BASED SURVEY AMONGST NEPALESE ONCOLOGISTS**

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**Introduction**
Approximately 6% of cancers worldwide include mouth and pharyngeal cancers. Apart from chemotherapy and surgery, radiotherapy is one of the means of treatment of head and neck cancers. The quality of life of patients with cancer can be improved following consultation with a dental team experienced in caring for patients undergoing treatment for head and neck cancer.

**Objectives**
To evaluate the attitude of Nepalese oncologists toward dental consultation to patients planning for/prior to/undergoing/post radiation therapy for head and neck cancers and to evaluate the number of radiation oncologists who encounter oral complaints and consider worth referring to a dentist.

**Methods**
A questionnaire based survey was carried out following mailing of covering letter and self administered questionnaire comprising of 11 questions to all four radiation centers in Nepal. The questionnaires were sent to all the specialists directly involved in the care of head and neck cancer patient.

**Results**
We received responses from all the centers with 50 completely filled questionnaires. It was seen that though most of the oncologists strongly believed in dental consultation for patients undergoing radiotherapy, no fixed opinion was seen among dentists regarding the ideal time to begin radiotherapy to start surgical procedures.

**Conclusions**
The study indicated a need for awareness and education among radiation oncologists regarding dental consultation in patients planned/undergoing/post radiation therapy for head and neck cancer.

**04-32-P**

**LYMPHEDEMA AWARENESS OF STUDENTS FROM TWO DIFFERENT HEALTH SCIENCES DEPARTMENTS: PILOT STUDY**

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**Introduction**
Lymphedema is known as a blockage of the lymphatic system. For effective approach and taking attention on lymphedema the education of health professional should start in undergraduate programs of the physical therapy and rehabilitation (PT) and nursing (NS).

**Objectives**
The aim of this study is to understand the knowledge status about lymphedema of the PT and NS final year students.

**Methods**
A 10 item questionnaire which was generated by researchers was sent by e-mail to 36 PT (PTS) and 32 NS students (NSS).

**Results**
Seventy percent of PTS and 25% of NSS described lymphedema. All PTS mostly indicated 3 causes; cancer, infection, trauma. NSS mostly indicated one cause; cancer. Twenty-seven percent of PTS and 75% of NSS saw any case. Fifty-nine percent of PTS indicated that lymphedema occurs on three body parts; upper and lower extremities, abdominal. Fifty-five percent of NSS indicated that lymphedema occurs on only upper extremity. All PTS commonly indicated three treatment approaches; manual lymphatic drainage, bandaging, exercises. Twenty-percent of NSS indicated only exercises. All PTS indicated at least two prevention factors; wearing tight fitting clothes, being careful for infections. Forty-five percent of NSS indicated only being careful for instructions.
Conclusions
This pilot study shows that although the knowledge status about lymphedema of the PTS is more than NSS, it should find more places on both undergraduate education systems. It is planned to expand this study with more participants to understand about lymphedema, breast prosthetics and treatment approaches awareness.

04-33-P
ROLE OF A CANCER DIAGNOSIS CLINIC IN AN INTERNAL MEDICINE RESIDENCY PROGRAM
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Introduction
Many patients present to a cancer center with symptoms or radiographic findings suspicious for cancer, but do not yet have a tissue diagnosis, which can delay their cancer care. Additionally, many patients have significant comorbid medical conditions which may interfere with their cancer treatment. To address these care needs, MD Anderson Cancer Center initiated a Suspicion of Cancer clinic in the Internal Medicine (IM) clinic in 2001 to streamline evaluation of patients with a suspected cancer. In 2015, MD Anderson established an IM residency program to train future internists to become experts in comprehensive care of cancer patients and survivors. Along with experience in general IM, subspecialty, and perioperative clinics, residents will rotate in the Suspicion of Cancer clinic to learn about the clinical presentations of malignancy, diagnostic strategies, and patient needs at time of cancer diagnosis.

Objectives
NA

Methods
NA

Results
Five hundred to seven hundred new undiagnosed patients are seen annually in the Suspicion of Cancer clinic and >50 % receive a malignant diagnosis. Diagnosis is made by clinical assessment, radiology, and biopsy via interventional radiology, pulmonology, or gastroenterology. Most common cancer diagnoses are lung, breast, and GI malignancies, and lymphoma. Significant comorbid conditions, primarily cardiovascular disease and diabetes, are addressed and optimized. Patients are screened for distress and symptom burden, and many require referral to pain management or palliative care specialists.

Conclusions
A cancer diagnosis clinic is a unique training experience for internal medicine residents to learn diagnostic strategies, medical optimization, and symptom control for newly diagnosed cancer patients.

04-34-P
A SURVEY OF THE KNOWLEDGE ON THE SCOPE OF ANESTHESIOLOGY AMONG MEDICAL STUDENTS IN TWO SOUTHWESTERN NIGERIAN STATES
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Introduction
The demand for anesthesiologists in the Nigerian population is on the increase, as a result of the increase in average life-expectancy and morbidity. In contrary, a large proportion of medical students prefer to specialize in areas like surgery, pediatrics, and obstetrics and gynecology, but only a very small proportion of them like to specialize in the field of anesthesiology. Assessing the knowledge of medical students on the scope of anesthesiology might reveal some hidden details about why the specialty is not chosen.

Objectives
This study is conducted to assess the level of knowledge of medical students on the scope of anesthesiology.

Methods
Two hundred seventy questionnaires were distributed among the consented 5th and 6th year medical students, out of which 203 were returned filled, one was discarded, because it was not filled properly. So we worked on 202 respondents. Data were entered into the SPSS version 16 software for analysis.

Results
The mean age of the respondents is 25.2 years. 55.4 % were males, 94.5 % were single, and 75.2 % were in their 6th year. Majority of the respondents know about lecturing, and operative care of patients as parts of the scope of anesthesiology, but many of them do not know about palliative medicine, mentoring, leadership, and administrative roles as parts of the scope of anesthesiology.

Conclusions
Our findings revealed that many medical students lack sufficient knowledge about the scope of anesthesiology. This may be a strong factor that makes medical students to show little or no interest in anesthesiology.

04-35-P
IMPLEMENTATION OF GUIDED IMAGINATION IN COMPANY WITH MUSIC AND AROMATHERAPY FOR A WOMAN WHO HAS OVARIAN CANCER DIAGNOSED: A CASE REPORT
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Introduction
Guide imagery are among the most widely used cognitive behavioral coping by cancer patients. This method can decrease cancer pain, chemotherapy related side effects, anxiety, depression and increase the quality of life.

Objectives
In this study we aimed implementation of guided imagination in company with music and aromatherapy for a woman who has ovarian cancer diagnosis.

Methods
This study is a case report. We explained our caring process to her. This plan was composed of guided imagination that was 2-week period, once a week, about 15 min at her home. And we obtained permission from her.

Results
Mrs. E was 40 year old. She admitted to the internal medicine department with abdominal pain 1 years ago. She received the stage IIIA ovarian cancer diagnosis. During our first encounter, she was taking chemotherapy. We learned her relaxing methods. She was using the spiritual practices such as listening divines, watching religious programs, reading religious books, reading Quran. We applied a guided imagination in company with a relaxation music and aromatherapy. We asked to imagine at the beach herself. She stated that "I’m so relieved really, you know, in such Konyaaltı (beach), waves, the smell of the sea, temperature. Sun warms born behind my back ... so It was nice, I thought myself suddenly there... I moved away from all awful .... I really relieved".

Conclusions
We saw that implementation of guided imagination in company with aromatherapy and music were relaxation for her. It is recommended to use the relaxing techniques for cancer patients during chemotherapy.
04-36-P

EDUCATION ABOUT SUPPORTIVE CARE FOR HEALING OF CANCER IN COMMUNITIES

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Introduction
Supportive Care for Healing of cancer addresses the whole person by focusing on the health and life of a person with cancer as well as that of their loved ones. It includes help in the ability to get health care and follow-up treatment, support in coping with second cancers and late effects of treatment and various programs and events geared toward improving quality of life.

Objectives
To create awareness of services provided to people living with or affected by cancer to meet their physical, informational, practical, emotional, psychological, social, and spiritual needs during treatment.

Methods
A cross-sectional design was used to obtain data about supportive care for cancer healing, self-care practices of those people with cancer. Statistical Package for Social Scientists (SPSS) to generate descriptive statistics of frequencies, percentages was used to analyze quantitative data. Thematic qualitative analysis of effects, benefits, burdens of cancer was also undertaken.

Results
Surveys were completed and returned where 40 out of 100 individuals had received some education about cancer healing, 60 out 100 were not aware of it then the rest ten out of 100 people had received education about cancer but they could not even recall what it was all about.

Conclusions
The purpose of education about supportive care for healing of cancer is to transform suffering and the individual’s perception is that life’s harmony and integrity are restored.

04-37-P

COMPRITIVE KNOWLEDGE OF BREAST SELF EXAMINATION IN MIDWIFERY AND NURSING STUDENT ISLAMIC AZAD UNIVERSITY KARAJ BRANCH

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IT, Islamic Azad University of Iran Karaj Branch, Karaj, Iran

Introduction
Breast cancer is the most common type of cancer among women world wide ranking second in mortality from cancer. Bse is a screening method that should be taught at an early age so as to educate women about the importance of early detection of breast cancer.

Objectives
The aim of this study was to evaluate the level of knowledge of midwifery and nursing student regarding breast self-examination.

Methods
This study is descriptive on 23 midwifery and 69 nursing student. Data collection tool was a questionnaire included the six questions about demographic characteristics, and 14 question about knowledge breast self-examination. Data analyzed by descriptive statistics.

Results
This study is descriptive on 23 midwifery and 69 nursing student. Data collection tool was a questionnaire included the six questions about demographic characteristics, and 14 question about knowledge breast self-examination. Data analyzed by descriptive statistics.

Conclusions
It seems that despite of the importance of the bse in early diagnosis of breast cancer the majority of women have poor knowledge and practice about BSE. Based on the positive attitude of most women about BSE, it is that increasing the knowledge of women by education ways of breast cancer, especially BSE, this will be available by more attention of public health centers, TV and newspaper for increasing women awareness.

04-38-P

EARLY DETECTION AND PREVENTION OF MELANOMA TOOL, BASED ON CLOUD, MOBILE, TELENEDICINE AND WISDOM OF THE CROWD

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Emerald Medical, Emerald Medical, Tel-Aviv, Israel

Introduction
DermaCompare is a unique early detection of skin cancer solution. Emerald has developed DermaCompare, a revolutionary Melanoma-screening platform - decision support tool for early-stage diagnosis of skin cancer for 420 M people.

Objectives
To save 420,000,000 people lives-420 million people across the globe-high risk of Melanoma (skin cancer).

Methods
EDC is a revolutionary Total Body Photography (TBP), melanoma-screening based on TeleMedicine platform that enables physicians to identify and monitor changes in their patients' skin characteristics. Using Big Data and a multi-dimensional database, EDC is utilizes crowd-sourced data that serves as a decision support platform for early-stage diagnosis of skin cancer.

Results
Sixty percent of melanomas result of a new mole, and 40 % -changed mole...

Since the human body dynamically changes over time, today’s practice enables just a manual comparison and not available for wide population screening.

Conclusions
Only automatic tool will save lives:

- 1st ever Mobile based TBP solution
- Serves both physicians& users
- Early detection of skin cancer
- A decision support platform
- Uses crowd-sourced data
- Machine learning & artificial intelligence
- Big Data centralized DB
- Supporting Epidemiological research
- Multi-dimensional DB
- Access from anywhere
- Access from any device
- Faster & Cheaper

04-39-P

CLINICAL SPECIALIST RADIATION THERAPIST IN PALLIATIVE RADIATION THERAPY; REPORT OF AN ORIENTATION AND TRAINING PROGRAM

K. Linden¹, J. Renaud², K. Dennis²
Introduction
A clinical specialist radiation therapist (CSRT) position in palliative radiation therapy (RT) was created at The Ottawa Hospital Cancer Centre in September 2014.

Objectives
Report our experience with orientation and training for this CSRT.

Methods
Narrative review.

Results
The CSRT participated in an internal review to gain familiarity with local barriers to palliative RT, and the inefficiencies in referral, consultation, RT planning and delivery processes that could be addressed by the CSRT. To understand the mechanisms governing referral intake and triage, consultation and RT booking, the CSRT shadowed clerks in new patient registration, referral triage nurses, RT treatment coordinators, and frontline RT department clerks. To gain clinical experience in palliative RT the CSRT was paired with a radiation oncologist mentor to form an ongoing clinical team. Self-directed reading on physical examination, history taking and supportive care medications was undertaken. A symptom control and communication in palliative care workshop was attended. An observeship of established CSRTs at an outside centre was arranged. The CSRT rotated with other radiation oncologists, palliative care physicians and nurses in inpatient and outpatient settings at several hospitals. The CSRT shadowed social work, home care, dietary and physiotherapy professionals. The CSRT helped design, implement and coordinate a pilot once-weekly outpatient clinic offering patients same-day palliative RT consultation, planning and delivery. Training and certification in research ethics and research database management was completed.

Conclusions
The CSRT in palliative radiation therapy at our institution underwent a comprehensive and customized orientation and training program.

04-41-P
CREATING AWARENESS OF BREAST CANCER AMONG WOMEN TO MEET SUPPORTIVE CARE NEEDS
S. Nakimumwe
Counselling and Guidance Department, Action for Development in Under-served Areas (ADUA), Kampala, Uganda

Introduction
Women having breast cancer that is not in remission, having received radiation therapy and awareness were predictive of greater need for help in patient care and support among women.

Objectives
To meet the supportive care needs of breast cancer patients to ensure their satisfaction with their care to be able to meet their physical, informational, practical, emotional, psychological, during the treatment.

Methods
Samples of women between ages of 18 to 40 were diagnosed with breast cancer. The survey determined their needs for healing cancer and factors predicting them. Sixty percent of women diagnosed of breast cancer between 2013 and 2014. Demographic, treatment, and self-reported health data were collected. Information on cancer stage, grade, and breast-specific antigen was obtained from medical records.

Results
Some of the women were diagnosed and found with cancer were unaware that they had breast cancer since most of them don’t go for regular cancer medical checkup in hospitals. Other women at a percentage of 40 found with breast cancer where aware of it and they expressed some level of unmet psychological need so the women who were found with cancer were ready to go for cancer treatment.

Conclusions
Immediate care and attention should be provided to women diagnosed with cancer at an early stage before or after treatment of breast cancer. Women should also go to hospital as early as possible for breast cancer checkup.

End-Stage Disease
05-01-O
PROGNOSTIC EVALUATION IN PALLIATIVE CARE: FINAL RESULTS FROM A PROSPECTIVE COHORT STUDY
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Hospice, Hospice Casa dei Gelsi, Treviso, Italy
Medical and Biological Sciences, University, Udine, Italy
Oncology, Hospital, Trieste, Italy
Introduction
Predicting survival of cancer patients based on subjective evaluation is often inaccurate and Clinical Prediction of Survival (CPS) may be of limited value; healthcare professionals frequently use multidimensional prognostic scores.

Objectives
We conducted a prospective cohort study in two Palliative Care Units to compare 1) accuracy of the Palliative Prognostic (PaP) Score, the Objective Prognostic Score (OPS) and the Palliative Prognostic Index (PPI); 2) accuracy of the CPS independently estimated by different skilled health care professionals (1 nurse and 2 physicians).

Methods
From April 2011 to August 2014, clinical and laboratory data of advanced cancer patients were prospectively collected at the time of admission. PaP Score, OPS and PPI were calculated, CPS was estimated. Overall survival was estimated with Kaplan-Meier method and accuracy in predicting survival was assessed using ROC analysis.

Results
Three hundred thirty-six patients were included in the analysis. The median survival was 14 days (0–544), while the estimated survival was 30 % at 30 days and 16 % at 60 days. PaP score was the most accurate index (AUC=0.814) in predicting the 30-day survival, followed by PPI (AUC=0.744). CPS accuracy was similar among physicians and nurse (AUC=0.792 for physician 1, AUC=0.771 for physician 2, AUC=0.783 for nurse). All professionals underestimated the real survival (p=0.005 for physician 1, p=0.028 for physician 2, p=0.020 for nurse).

Conclusions
PaP Score had the highest accuracy in predicting the outcome. When laboratory test results are not available, PPI may be considered. Integrating CPS with multidimensional indexes may be helpful for predicting survival and patient’s management.

05-02-P
NURSES’ EXPERIENCES OF CARING FOR THE DYING: DOES LIVERPOOL CARE PATHWAY HELP? A PILOT STUDY OF THE END-OF-LIFE-CARE QUESTIONNAIRE

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Introduction
Care of dying patients is gaining more attention in recent years. End-of-life care should be high quality care delivered by specialised health care professionals who are able to identify and consider both patients’ and family members’ preferences and meet their needs. The Liverpool Care Pathway (LCP) should make it easier for nurses to provide such care.

Objectives
To investigate Icelandic nurses’ experiences of caring for dying patients in various working environments, and their experiences of using LCP in that context. Furthermore, the aim was to validate the Icelandic version of the questionnaire End-of-Life Care survey.

Methods
A cross-sectional survey. A questionnaire including factors related to care of dying patients was sent to 476 nurses. Descriptive statistics were used to describe the characteristics of the data.

Results
Response rate was 40.8 % (n=194). Nurses generally felt confident when caring for dying patients, although their satisfaction with the LCP was not decisive. Those who used LCP were more likely to be confident in their care for the dying than those who did not (p=0.012) and benefitted more from teamwork (p<0.001). Professional confidence in caring for the dying had a significant correlation with: higher age (r=−0.187, p=0.01), work experience (r=−0.271, p=0.01) and more security in communications (r=−0.208, p=0.01), (lower scores indicate increased confidence).

Conclusions
Nurses generally felt secure providing end-of-life care, their professional confidence increased with both age and work experience. The benefit of using LCP needs further investigation. The instrument used proved to be suitable for studies in end-of-life care.

05-03-P
A NEW PRO AND QUALITY OF LIFE (QL) MEASURE FOR PATIENTS WITH ADVANCED CANCER: CONTENT VALIDITY FOR THE “CSS” BASED ON INPUT FROM 3860 PATIENTS

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2Medical Oncology, Memorial Sloan-Kettering Cancer Center, New York, USA
3School of Nursing, University of Virginia, Charlottesville, USA

Introduction
The input of patients is mandatory in establishing QL measures. The CSS (“Cancer Symptom Scale”) is designed for patients with advanced cancers and includes issues common to most malignancies. It is based on the model of the well-validated LCSS and is designed to encourage input
from patients in late in life settings, including hospice. While other PRO measures exist, few are used routinely in these settings.

**Objectives**
To establish content validity for a feasible and acceptable measure for patients with advanced cancers, appropriate for an ePRO platform, which minimizes patient/caregiver burden.

**Methods**
Fifty cancer health care providers developed an initial list of issues to be evaluated by patients. This anonymous web-based survey used the resources of Nexcura.com and was then sent to patients to rate 18–21 issues on a 5 point scale (from “not-important-at-all” to “very-important (VI).”

**Results**
Responses were given by 3860 patients: lung (660), breast (1072) and prostate (2128) cancers. Two hundred ninety-nine patients had advanced cancer with low KPS (≤60 %)/stage IV. Results based on the top 2 categories (VI+Important) of the leading 15 issues are in the table.

**Conclusions**
1) Responses from all 3860 patients are similar to the 299 with advanced disease, except greater concern for pain and appetite in the latter group, and less importance for body image; 2) the five items of greatest importance are not symptoms but are items of global concern, and must be included in validated PRO measures. We believe this content validity survey for the CSS is the largest obtaining PROs from patients with cancer.

<table>
<thead>
<tr>
<th></th>
<th>% of All Patients (N max = 3860)</th>
<th>% of Stage IV Patients (N max = 299)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of life</td>
<td>97</td>
<td>97</td>
</tr>
<tr>
<td>Concentration</td>
<td>97</td>
<td>100</td>
</tr>
<tr>
<td>Independence</td>
<td>96</td>
<td>96</td>
</tr>
<tr>
<td>Ability to perform normal activities</td>
<td>95</td>
<td>93</td>
</tr>
<tr>
<td>Sleep</td>
<td>93</td>
<td>92</td>
</tr>
<tr>
<td>Fatigue</td>
<td>90</td>
<td>91</td>
</tr>
<tr>
<td>Dyspnea</td>
<td>83</td>
<td>80</td>
</tr>
<tr>
<td>Depression</td>
<td>82</td>
<td>78</td>
</tr>
<tr>
<td>Anxiety</td>
<td>78</td>
<td>74</td>
</tr>
<tr>
<td>Pain</td>
<td>77</td>
<td>83</td>
</tr>
<tr>
<td>Symptom distress</td>
<td>76</td>
<td>73</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>69</td>
<td>66</td>
</tr>
<tr>
<td>Constipation</td>
<td>66</td>
<td>67</td>
</tr>
<tr>
<td>Appetite</td>
<td>66</td>
<td>76</td>
</tr>
<tr>
<td>Body Image</td>
<td>65</td>
<td>44</td>
</tr>
</tbody>
</table>

**05-04-P**

TWO YEARS’ EXPERIENCE OF PALLIATIVE SEDATION IN ST. VINCENT’S HOSPICE CENTER IN KOREA

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Introduction
We’ve reported higher rate of receiving palliative sedation (PS) in whom completed advanced directives (ADs).1 But little was known about real situation of PS (agents used and dose, duration of PS or survival duration after PS).

**Objectives**
To review our real situation of PS

**Methods**
Medical chart of new patients who completed AD during Oct 2012 and Nov 2014 in hospice center was reviewed retrospectively.

**Results**
Among 464 patients, 183 (39.4 %) patients completed ADs with 162 (88.5 %) agreed PS by themselves. PS was performed in 66 (14.2 %) patients, in whom 36 (19.7 %) patients with ADs and 30 (11.1 %) patients without ADs (P=0.009). The median age was 59 (20–86) years and 65.2 % was male. Informed consents for PS were signed in all 66 patients. In most cases (56, 84.8 %), family members participated in PS decision process at the time of PS. Only 10 (15.1 %) patients were participated in PS decision process by themselves. The most frequent purpose for PS was pain (34.8 %), anxiety/delirium (33.3 %) and dyspnea (31.8 %). The others were insomnia, seizure, vomiting and cough. Midazolam and lorazepam were used in 48 (72.7 %) and 21 (31.8 %), respectively. The median duration of PS was 3 (1–47) days and time to death was 6 (1–61) days. Sixty-one patients died during or right after PS (92.4 %).

**Conclusions**
There was higher rate of performing PS in patients completed ADs. But, at the time of PS, the decision was made by family in most cases.

**05-05-P**

PRELIMINARY OUTCOMES OF ELECTROCHEMOTHERAPY IN THE SOUTH WEST OF ENGLAND

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Introduction
Metastatic spread of malignant tumours manifesting as cutaneous lesions has an incidence of approximately 0.7–9 % of all metastases. A new electrochemotherapy service was set up in the South West of England in 2013 at the Royal Devon and Exeter Hospital.

**Objectives**
To audit patients reported concerns on their patient journey
To review clinical outcomes of patients treated with ECT

**Methods**
We reviewed outcomes in 42 patients treated with ECT in the South West of England over a 6 month period. Retrospective review of clinical notes, clinical photographs and structured telephone calls with patients.

**Results**
Of the 42 patients, two were lost to follow up and four were unable to have the treatment due poor lung function and renal function. Eleven had breast cancers, 22 had malignant melanomas, and the rest had angiosarcomas, Merkel cells tumours, SCCs and one malignant eccrine poriocarcinoma. All 36 approved patients treated with ECT tolerated the procedure. The majority were discharged on the same day of the procedure except six patients. All patients except four had a good to complete resolution of their treated lesions and reported that they would have the procedure again.
Conclusions
ECT is an excellent treatment modality for patients with end stage metastatic cancers to skin. The down time post operatively was limited and the patients needed far less dressing changes with a perceived improvement in quality of life. The service needs to be streamlined to reach 31 day time to treat targets for cancer.

05-06-P
FAMILY MEMBERS’ PERCEPTIONS OF END-OF-LIFE CARE AT HOME: A VALIDATION OF THE FAMILY ASSESSMENT OF TREATMENT AT THE END OF LIFE QUESTIONNAIRE
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2 Hospice care unit, Landspitali University Hospital, Reykjavik, Iceland

Introduction
End-of-life care at home is a growing service in Iceland and plays an important role in supporting dying patients and their families. An understanding of relatives’ experiences of this service is valuable and can influence end of life discussion and decision making.

Objectives
To illuminate relatives’ satisfaction with the services provided, attitudes and experiences of end-of-life care. Further, the aim was to pilot test the instrument Family Assessment of Treatment at the End of Life (FATE).

Methods
A cross-sectional retrospective study. Descriptive statistics were used to describe and compare the characteristics of the data.

Results
Response rate was 59 % (n=70). Mean age 65, female 64 %, spouses 78 %. Factors rated as best possible service were: overall satisfaction (61 %); information and communication (87 %); willingness to discuss with patient and family (94 %); friendliness and respect (97 %); emotional support (86 %); consideration towards patients’ wishes regarding medication and treatment (84 %); treatment of symptoms (33 %); support and information after death (17 %). Overall FATE scores were significantly higher in the group not working than those who were working (p=0.032). The group not working had significantly higher scores on support and guidance than those who were working (p=0.008). Gender differences on factors associated with patients’ wishes on admission to hospital showed men being more satisfied than women (p=0.026).

Conclusions
Evidence suggests that relatives are generally satisfied with the service provided. More studies are needed in this area to understand relatives’ experiences of management of symptoms and support of relatives after death.

Table 2. Reliability (Cronbach’s alpha).

<table>
<thead>
<tr>
<th>Factor</th>
<th>This research</th>
<th>Casaretto et al.’s research [2008]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole list</td>
<td>0.91</td>
<td>0.91</td>
</tr>
<tr>
<td>Factor 1. Care and respect</td>
<td>0.819</td>
<td>0.78</td>
</tr>
<tr>
<td>Factor 2. Information and communication</td>
<td>0.833</td>
<td>0.83</td>
</tr>
<tr>
<td>Factor 3. Consideration and wishes about treatment</td>
<td>(0.462)</td>
<td>-</td>
</tr>
<tr>
<td>Factor 4. Emotional and spiritual support</td>
<td>0.773</td>
<td>0.77</td>
</tr>
<tr>
<td>Factor 5. Treatment of symptoms</td>
<td>(0.562)</td>
<td>-</td>
</tr>
<tr>
<td>Factor 6. Hospitalization</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Factor 7. Care before and after death</td>
<td>0.812</td>
<td>0.73</td>
</tr>
<tr>
<td>Factor 8. Assistance and guidance</td>
<td>0.73</td>
<td>0.71</td>
</tr>
<tr>
<td>Factor 9. Support and information after death</td>
<td>0.779</td>
<td>0.83</td>
</tr>
</tbody>
</table>

05-07-P
PHERHAPS IT IS JUST DIFFICULT TO LET GO: NURSES’ ATTITUDES AND EXPERIENCES OF END-OF-LIFE CARE IN ACUTE HOSPITALS WARDS
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Introduction
Specialised end-of-life care is often provided in busy and crowded acute hospital wards. This task is a challenge for nurses and other health care professionals who may lack necessary expertise and time required to deliver quality care to these patients.

Objectives
To explore attitudes and experiences of nurses involved in end-of-life care in acute hospital units in Iceland.

Methods
Qualitative semi-structured interviews with a purposive sample of 19 nurses with work experience ranging from 2 to 35 years in acute hospital wards in the country’s two main hospitals. The transcripts, and relevant quotations, were summarized according to topics and categorized accordingly. The underlying significance of all the elements was combined into categories to describe the attitudes and experiences of nurses providing end-of-life care in acute hospital wards.
Results
Five key themes reflected participants’ description of end-of-life care in acute hospital units: factors influencing end-of-life decision making; focusing on creating a peaceful environment for personalised care; communication with patients, family and other health care professionals; importance of appropriate symptomatic treatment; barriers against providing quality end-of-life care.

Conclusions
Results provide insight into everyday life of nurses’ work with dying patients in the complexity of the acute hospital environment and how they managed to create acceptable environment in such circumstances. Informed decision-making in the treatment of the dying patient in acute hospital setting and the importance of good communication between health care providers, patients, and patients’ families should be considered in future studies on end-of-life care.

05-08-P
DISCUSSING END-OF-LIFE ISSUES WITH TERMINALLY ILL CANCER PATIENTS AND THEIR FAMILIES-OUR RESULTS
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2Farmacoinformatic Center, Clinical Hospital, Stip, Macedonia

Introduction
Most of the literature regarding communication between health professionals and patients at the end-of-life and their families has focused on specific topics, like breaking bad news Conversation about EOL issues often take place over time rather than as a single discussion.

Objectives
The objective of this paper is to explore the optimal content and phrasing of information when discussing the dying process and end-of-life issues with terminally ill cancer patients and their families.

Methods
We conducted focus groups and individual interviews with 12 palliative care patients and their families treated in Clinical hospital in Stip. The focus groups and individual interviews were fully transcribed. Participant’s narratives were analyzed using qualitative methodology.

Results
Distinct content areas emerged for discussing end-of-life issues: treatment decisions at the end-of-life; preferences for place of death; the process of dying; what need to be done immediately after death; and existential issues. When discussing process of dying participants recommended-exploring the person’s fears about dying; describing the final days and unconscious period. Many participants identified the dilemma regarding whether to discuss potential complications around the time of death.

Conclusions
this paper provide strategies, phrases and words which may inform about the process of dying and end-of-life issues. This will be useful especially for patients families. Further research is needed to determine the generalizability of these findings.

05-09-P
IMPROVING PROSTATE CANCER DIAGNOSIS: BIOCHEMICAL AND HEMATOLOGICAL PARAMETERS ASSOCIATED WITH RISK IN BENIGN STATES
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2Hematology, University of Ghana School of Allied Health, Accra, Ghana

Introduction
Detection methods for prostate cancer based on prostate specific antigen (PSA) and digital rectal examination (DRE) have limitations.

Objectives
To examine biochemical and hematological variables that could contribute to early detection in benign state.

Methods
A case controlled study design was used. Fifty-five (n=55) male patients (39 with benign prostatic hyperplasia and 19 with prostate cancer) age range 51–89 years attending clinic at the Endoscopy Unit of the Korle-Bu Teaching Hospital (KBTH), Accra, Ghana, were recruited into the study. Ninety-five apparently healthy subjects were recruited as controls. A full blood count was done on all blood samples obtained into EDTA, while plasma was used for ferritin, TNF-α, creatinine, and C-reactive protein assays.

Results
The mean ages for the cases (benign and cancer) and controls were respectively, 66.4±8.4, 68.5±8.7, and 39.3±8.3. In general total WBC, NEU% and RDW were elevated (p=0.001) in benign and cancer cases while platelets were elevated only in benign cases (p=0.001) and MCV (p=0.037) only in cancer. CBC, HGB, HCT, LYM%, RDW, PDW, and MD were decreased (p=0.001) in benign and cancer cases but MCHC and MPW were decreased (p=0.03) in cancer cases only. For the biochemical parameters, plasma ferritin and C-reactive protein were highly reduced in benign and cancers (p=0.001) while creatinine and TNF-α were highly elevated (p=0.001) in both.

Conclusions
Blood hematological parameters (MCV, MCHC, PDW, Platelets) and biochemical markers (plasma ferritin, C-reactive, creatinine and TNF-α) could be useful in early detection of prostate cancer.

Fatigue
06-01-O
RANDOMIZED TRIAL OF YOGA VERSUS STRENGTHENING EXERCISES IN BREAST CANCER SURVIVORS WITH PERSISTENT FATIGUE
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1Internal Medicine, Mayo Clinic, Rochester, USA
2Statistics, Mayo Clinic, Rochester, USA

Introduction
Fatigue is one of the most common and bothersome symptoms in cancer survivors. Mindful exercise interventions such as yoga have been shown to improve cancer-related fatigue; few studies selected symptomatic patients and most had inactive control groups.

Objectives
Our study targeted breast cancer survivors with persistent fatigue and compared yoga with a strengthening intervention.

Methods
We randomly assigned 34 patients between 4 and 12 months from surgery, to a 3 month intervention of home-based yoga (N=18) versus strengthening exercises (N=16) under the direction of a DVD. The primary end-points were feasibility and changes in fatigue. Secondary end point was quality of life. Average scores were compared within each group with paired t-tests and average differences and exercise adherence were compared between groups with two sample t-tests.

Results
The 34 participants in both groups showed significant improvements in multiple domains of the fatigue and quality of life from baseline to post-
intervention, and these benefits were maintained at 3 months post-intervention. There was no significant difference between groups in any of the fatigue or quality of life domains at any assessment time. Similarly, there was no difference between groups in adherence to the exercises. Seven patients in each group were compliant with the exercise recommendations. There was no significant difference between groups in any of the fatigue or quality of life domains at any assessment time.

Conclusions

DVD-based yoga and strengthening exercises designed for cancer survivors have a reasonable uptake, are convenient, reproducible and might be helpful in decreasing fatigue and improving quality of life in the first year post-surgery in breast cancer patients with persistent fatigue.

Table 1. Baseline characteristics of the study groups

<table>
<thead>
<tr>
<th>Variable</th>
<th>Strengthening Bands</th>
<th>YOGA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (y)</td>
<td>61±7</td>
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Morbidity

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Endocrine therapy (Term of treatment)

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Table 2. Comparison of outcomes between groups

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<td>Emotional</td>
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06-03-P

A TRANSITION OF PAIN AND FATIGUE EXPERIENCE AT TWO DIFFERENT TIME POINT DURING CHEMOTHERAPY

H. Kim1

1College of Nursing, Catholic University of Korea, Seoul, Korea

Introduction

Managing and assessing pain and fatigue are major priorities of oncology research and practice. Few studies have examined whether pain and fatigue experience, as a cluster, changes over time and what lead to such changes. This information will be useful to determine the mechanism of symptom experience as well as to determine the risk group.

Objectives

This study aimed to investigate the transition patterns in pain and fatigue experience over two different chemotherapy cycles and to examine the influence of other symptom variable and clinical variables on such transitions.

Methods

The sample included 276 patients with diverse cancer types from four U.S. sites. Data were collected at different time points during chemotherapy. Latent transition analysis was performed. Multinomial logistic regression type analyses were conducted to examine the influencing variables of transition patterns.

Results

Over two time points, six different transition patterns of pain and fatigue experience were found: (a) the low-pain/low-fatigue to the low-pain/low-fatigue transition (n=78, 28.3 %); (b) the low-pain/low-fatigue to the high-pain/high-fatigue transition (n=24, 8.7 %); (c) the low-pain/high-fatigue to the low-pain/low-fatigue transition (n=71, 25.7 %); (d) the low-pain/high-fatigue to the high-pain/high-fatigue transition (n=27, 9.8 %); (e) the high-pain/high-fatigue to the high-pain/high-fatigue transition (n=21, 7.6 %); and (f) the high-pain/high-fatigue to the low-pain/low-fatigue transition (n=55, 19.7 %). The influencing factors of the transition patterns were the use of growth factor and time-lapse between two time points (43–64 days vs. 57–60 days).

06-02-P

GENE EXPRESSION AND EPIGENETIC PROFILING OF DISTINCT EVENING FATIGUE TRAJECTORIES IN BREAST CANCER PATIENTS UNDERGOING CHEMOTHERAPY

K.M. Kober1, J. Mastick2, B. Cooper1, C. Miaskowski1, B.E. Aouizerat1

1Physiological Nursing, University of California San Francisco, San Francisco, USA

Introduction

Fatigue is the most common symptom associated with cancer treatment. Recent work from our research group identified three groups of patients with distinct evening fatigue trajectories over two cycles of chemotherapy (CTX; i.e., Moderate (20.0 %), High (21.8 %), and Very High (58.2 %)). Patients who were younger, had poorer functional status and higher comorbidity were more likely to be in the Very High class. No disease and treatment characteristics predicted latent class membership.

Objectives

Examine differential gene expression and methylation between latent classes of evening fatigue in a subset of 44 breast cancer patients (Moderate (n=7), High (n=7), Very High (n=30)).

Methods

Oncology outpatients (n=582) receiving CTX were assessed over two CTX cycles (i.e., 6 assessments). Gene expression and methylation were assayed from peripheral blood using the Illumina HumanHT-12 and HumanMethylation450 arrays, respectively. Differential expression and methylation were determined between groups (i.e., Moderate vs. High; Moderate vs. Very High).

Results

Differences in gene expression were found between Moderate vs. Very High classes (n=45) and in differentially perturbed KEGG pathways in both comparisons (32 and 93, respectively) including those involved in inflammation and immune responses; energy metabolism; neurotransmission and development; and cell signaling. In addition, 336 preliminary differentially methylated positions (pDMPs) were found between the fatigue classes. Genes annotated for these pDMPs (n=248) were significantly enriched in 30 KEGG pathways. Nine pathways overlapped with those enriched in the gene expression analysis.

Conclusions

These findings suggest that the severity of evening fatigue is associated changes in gene expression, as well variances in epigenetic mechanisms.
Conclusions
This study confirmed the existence of a unique pain and fatigue experience. This pattern should be acknowledged for symptom assessment and management.

 MANAGEMENT OF FATIGUE IN BREAST CANCER (BC) PATIENTS

P. Heiras1, I. Toivendis1, I. Georgopoulos1, T. Andrianopoulos1
Internal Medicine, General Hospital of Nafplio, Athens, Greece

Introduction
Moderate to severe fatigue affects up to 40 % of BC patients after completion of adjuvant therapy.

Objectives
To evaluate the impact of a 12 week group-based program that includes cognitive therapy and didactic sessions to help participants manage stress, improve diet and exercise patterns.

Methods
A study design was used to evaluate the impact of the program on participant fatigue scores. Criteria were completion of chemotherapy at least 6 months previously and a baseline SF-36 Health Survey vitality subscale score of <50. Seventy participants were enrolled, 62 completed the program. Change in fatigue score was the primary outcome and was measured by: The Piper Fatigue Scale (PFS), the SF-36 vitality subscale (VS) and a visual analogue scale. Outcomes were measured at the end of program, 3 and 6 months following program completion.

Results
Adjuvant therapy included chemotherapy for 78 % of the patients and radiotherapy for 39 %. The PFS improved from 6.0 (baseline) to 4.2 (end-of-program) and continued to improve to 3.6 at the 6 month follow-up (p < 0.0001). The VS similarly improved from 35.0 (baseline) to 47.8 (end-of-program) and 52.9 (p < 0.0001) at the 6 months follow-up. Overall self-rated health improved from baseline to the 6 months follow-up program (p = 0.0001). After adjusting for age and various lifestyle factors, Longitudinal Analysis showed a significant reduction in fatigue symptoms as measured by PFS, SF-36 vitality and fatigue visual scale across time (p < 0.0001).

Conclusions
There results suggest an overall 42 % improvement in fatigue symptoms among BC survivors suffering from severe fatigue that persisted for 6 months following completion of the program.

 THE COURSE OF FATIGUE AND ITS CORRELATES IN COLORECTAL CANCER SURVIVORS: A PROSPECTIVE COHORT STUDY OF THE PROFILES REGISTRY

M. Thong1, F. Mols1, L. van de Poll-Franse2, O. Husson1
1Medical and Clinical Psychology, Tilburg University, Tilburg, Netherlands

Introduction
Cancer survivors who remain fatigued during long-term follow-up are at risk for worse health outcomes.

Objectives
To achieve personalized management of cancer-related fatigue, insight into its correlates among long-term survivors is needed to identify survivors at risk of remaining fatigued and also the correlates for intervention.

Methods
Colorectal cancer (CRC) survivors diagnosed between 2000 and 2009, as registered in the population-based Eindhoven Cancer Registry, completed three annual surveys that included the Fatigue Assessment Scale. Linear mixed-models were used to assess the course of fatigue and identify its correlates.

Results
One thousand seven hundred thirty-four (66 %) CRC survivors completed at least two surveys. Fatigue levels were relatively stable over time. Being female, young (<65 years of age), single, low education, chemotherapy treatment, or having ≥ 1 comorbid conditions was associated with higher fatigue scores. Years since diagnosis, radiotherapy and disease stage were not related to fatigue over time. Significant between- and within subject effects were found for all well-being factors (social, emotional, and cognitive functioning, and global quality of life), symptoms (anxiety, depression, pain, and insomnia) and functional status (physical and role functioning, physical activity levels) in relation to fatigue. Differences in fatigue could be largely attributed to behavior/well-being (59 %), and functional status (37 %), and to some extent to sociodemographic (4 %) and clinical (8 %) factors.

Conclusions
This study showed that behavior/well-being and functional status explained more variance in fatigue levels among CRC survivors than sociodemographic and clinical factors.

 FATIGUE SCREENING: IDENTIFYING CASES OF CANCER-RELATED FATIGUE USING BRIEF SELF REPORT FATIGUE MEASURES

M. Andrykowski1, M. Goedendorp2, P. Jacobsen3
1Behavioral Science, University of Kentucky, Lexington, USA
2Health Psychology, University Medical Center Groningen, Groningen, Netherlands
3Population Science, Moffitt Cancer Center and Research Institute, Tampa, USA

Introduction
A case definition approach using a clinical interview and specific diagnostic criteria can identify clinically significant cases of cancer-related fatigue (CRF).

Objectives
Identify cut-off scores on indices derived from common self-report measures of fatigue capable of reliably identifying likely cases of CRF.

Methods
Women (n=385) undergoing adjuvant therapy for breast cancer participated in a Fatigue Diagnostic Interview after an initial regimen of chemotherapy (N=200) or radiotherapy (N=185). Participants completed brief self-report measures of fatigue including the 7-item POMS-Fatigue subscale, Fatigue Symptom Inventory (FSI), and 4-item SF36 Vitality subscale.

Results
104 women (27 %) met clinical criteria for CRF. Three potential 2-item composite indices were examined: POMS items “fatigued” + “exhausted; + FSI items Most Fatigue Severity + Work Interference, and SF36 items “Worn Out” + “Tired”. ROC analyzes yielded areas-under-the-curve (AUC) for each 2-item index as follows: POMS (.819), FSI (.831), and SF36 (.814). (AUC’S>.75 represent good accuracy). Cut-off scores yielding optimal discrimination (good sensitivity and specificity, minimal misclassification) for identifying CRF cases were: POMS (score ≥ 23), FSI (score ≥ 28), and SF36 (score ≥ 6). Using these cut-off scores, sensitivity (SE), specificity (SP), positive predictive value (PPV), and negative predictive value (NPV) were: POMS (SE=.69, SP=.82, PPV=.56, NPV=.93), FSI (SE=.87, SP=.63, PPV=.46, NPV=.95), and SF36 (SE=.86, SP=.57, PPV=.40, NPV=.94).
Conclusions
Each 2-item self-report index demonstrated accuracy in identifying CRF “cases”. Use of cut-off scores identified for each index may be an efficient means of identifying individuals for further clinical evaluation to determine clinically significant CRF cases.

06-07-P

UTILIZING ELECTRONIC TECHNOLOGIES TO MEASURE PRO ASSESSMENT COMPLETION TIME IN CLINICAL PRACTICE

N. Brito-Dellan¹, T. Lam¹, E. Manzullo¹, M. Kallen¹, D. Yang², N. Haas³, C. Escalante⁴
¹General Internal Medicine, UT MD Anderson Cancer Center, Houston, USA
²Medical Social Science, Northwestern University Feinberg School of Medicine, Chicago, USA
³BrightOutcome, BrightOutcome Inc., Chicago, USA
⁴General Internal Medicine, UT MD Anderson Cancer Center, Chicago, USA

Introduction
Patient-reported outcomes (PROs) contribute to the assessment of cancer-related fatigue (CRF). Paper-based symptom assessments are cumbersome and time-consuming. Electronic assessments are an efficient and prospective alternative.

Objectives
This study describes CRF Clinic patients, time required to complete CRF assessments via tablet computer (iPad), and factors associated with completion time.

Methods
From 1/1/2011 to 8/21/2012, 190 newly referred CRF Clinic patients utilized an iPad rather than paper forms to complete standardized symptom assessments. Symptoms assessed: fatigue, pain, depression, anxiety, stress, sleepiness, apathy. A web-based module (BrightOutcome) was employed, recording start and completion times. Descriptive statistics and ANOVA was utilized.

Results
Patient mean age was 56 years (range: 31–89); 70 % (132) were female; and mean fatigue score (Brief Fatigue Inventory) was 6.4. Mean completion time was 17 min (range: 4–47). Assessments took longer to complete for patients ≥65 years (mean: 22 min; range: 9–43) and for males vs. females (mean 18 vs. 16 min). Pain and patient apathy also negatively impacted completion time.

Factors associated with > completion time

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Fatigue, anxiety, depression, stress, and sleepiness did not statistically significantly impact completion time.

Conclusions
Patients older, male, apathetic or with elevated pain may require more in-clinic time to complete symptom assessments. Further studies exploring these and other characteristics potentially impacting the integration of new technologies into patient care and research are warranted.

06-08-P

SUPPORTING SELF-MANAGEMENT OF CANCER-RELATED FATIGUE. AN EXPLORATORY RANDOMISED CONTROLLED TRIAL OF RESTORE; A WEB-BASED INTERVENTION

C. Foster¹, C. Grimmett¹, C.M. May¹, S.M. Ewings¹, M. Myall¹, C. Holme¹, P.W. Smith¹, C. Powers¹, L. Calman¹, J. Armes², M. Breckons², J. Corner³, D. Fenton³, E. Lennon³, C. May³, C. Morris³, E. Ream², L. Turner², L. Yardley², A. Richardson²
¹Faculty of Health Sciences, University of Southampton, Southampton, United Kingdom
²Faculty of Medicine and Health, University of Leeds, Leeds, United Kingdom
³Kings College, London, United Kingdom
⁴Newcastle University, Institute of Health and Society, London, United Kingdom
⁵NHS Foundation Trust, University Hospital, Southampton, United Kingdom
⁶Faculty of Health, University of Southampton, Southampton, United Kingdom
⁷Patient representative, Southampton, United Kingdom
⁸School of Health Sciences, University Of Surrey, Surrey, United Kingdom
⁹Patient representative, United Kingdom
¹⁰School of Psychology, University of Southampton, Southampton, United Kingdom

Introduction
Cancer-related fatigue (CRF) is a distressing symptom frequently experienced after cancer treatment. With the increasing numbers of cancer survivors and a shift towards self-managed follow-up there is a need to develop supportive resources. We report results from an exploratory randomised controlled trial (RCT) of a web-based intervention to enhance self-efficacy to manage CRF following curative intent treatment.

Objectives
To establish ‘proof of concept’.

Methods
This parallel-group two-armed (1:1) exploratory RCT recruited participants (>18 years, ≤5 years post treatment for non-metastatic disease, experiencing moderate/fatigue) from 12 sites across the UK. The intervention consists of five weekly sessions with components and activities informed by self-efficacy theory. Participants were randomly assigned to RESTORE or the Macmillan ‘Coping with Fatigue’ leaflet. Self-efficacy to manage fatigue was measured at baseline (T0), 6 (T1) and 12 (T2) weeks. A process evaluation was also conducted. Data were analysed using mixed-effects linear regression and directed content analysis.

Results
One hundred sixty-three people participated in the trial and 19 in the process evaluation. Proof of concept was established. The intervention was feasible (39 % recruitment rate) and acceptable (36 % attrition). There was a trend for higher fatigue self-efficacy at T1 (p=0.09) in the intervention group compared with controls. A number of refinements to RESTORE and the methods used are required before testing the effectiveness of RESTORE in a large trial.

Conclusions
Findings suggest that RESTORE is feasible and acceptable, and has potential to improve self-efficacy to self-manage fatigue following primary cancer treatment. On completion of refinements an effectiveness trial is warranted.

Acknowledgement: Funded by Macmillan Cancer Support
06-09-P

A PHASE III RANDOMIZED, PLACEBO-CONTROLLED TRIAL EVALUATING CANCER-RELATED FATIGUE IN PATIENTS WITH ADVANCED CANCER TREATED WITH DEXAMETHASONE

S. Beniwal1, A. Kapoor2, M.K. Singhal2, H.S. Kumar3, S.L. Jakhar2, N. Sharmaa, A. Sharmaa
1Medical Oncology, Acharya Tulsi Regional Cancer Treatment & Research Institute, Bikaner, India
2Radiation Oncology, Acharya Tulsi Regional Cancer Treatment & Research Institute, Bikaner, India

Introduction
Cancer related fatigue (CRF) is a common problem in advance cancer that is highly under reported, under recognized and thus, under treated.

Objectives
The primary aim of this prospective, randomized, placebo-controlled study was to compare the effects of dexamethasone versus placebo on CRF. The secondary objective was to determine the role of dexamethasone in anorexia, anxiety, depression, and symptom distress scores.

Methods
Patients with advanced cancer with four or more CRF-related symptoms during the previous 24 h (i.e., fatigue, pain, loss of appetite, nausea, anxiety, depression, or sleep disturbance). The severity of each symptom was rated on a numeric scale of 0 to 10 on the Edmonton Symptom Assessment Scale (ESAS). 78 patients were randomized to either dexamethasone 4 mg or placebo orally twice per day for 14 days. The primary end point was change in the Functional Assessment of Chronic Illness–Fatigue (FACT-F) subscale from baseline to day 15.

Results
No significant differences were observed between the dexamethasone and placebo groups in terms of patient characteristics at baseline. The mean (±Standard Deviation) improvement in the FACT-F subscale in the dexamethasone arm (n=39) at day 15 was 8 (±7.3) versus 2.6 (±8.6) in the placebo group (P=0.03). The improvement in FACT-F total quality-of-life (QOL) scores was also better for the dexamethasone group at day 15 (P=0.04).

Conclusions
Dexamethasone is an effective option in improving CRF and quality of life in patients with advanced cancer.

06-10-P

VARIATION IN THE MANIFESTATIONS, MEANINGS, AND DISTRESS ASSOCIATED WITH FATIGUE OF ADVANCED CANCER PATIENTS IN FOUR COUNTRIES

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2Nursing, Mahidol University, Bangkok, Thailand
3Psychology, Catholic University of the Sacred Heart, Milan, Italy
4Nursing, Charles Darwin University, Darwin, Australia
5Department for Life Quality Studies, University of Bologna, Bologna, Italy

Introduction
There is a growing recognition about the importance of managing symptom distress.

Objectives
The objective of this study was to compare the manifestations, meanings, and distress associated with fatigue in advanced cancer patients in four countries. In this presentation, we will discuss study results and some related methodological issues.

Methods
Ethnoscience was used as the study design. Sixty-nine participants (Canada n=27; Italy n=16; Thailand n=10; England n=9) were each interviewed 2–3 times, with card sorts used as part of the second interview.

Results
The manifestations and meanings of fatigue associated with distress varied across study participants. Canadian participants found the decline in functional status distressing because it had an adverse impact on work and social roles. English participants had similar concerns but were less distressed by them; they simply “kept going” until they were no longer able to do so. Italian participants were distressed by the decline in ability to socialize because it meant they were less able to take part in activities like eating with their families and visiting with family and friends. Thai participants were distressed by the reduction in ability to think clearly because it interfered with contemplative practices that were part of daily life.

Conclusions
In order to reduce distress related to fatigue, interventions may need to address both the manifestations and the meanings of fatigue. While manifestations may be similar, interventions that work well in one population may be less effective in populations who perceive the meanings associated with fatigue differently.

06-11-P

DEVELOPMENT OF RESTORE; A WEB-BASED RESOURCE TO ENHANCE SELF-EFFICACY TO SELF-MANAGE CANCER-RELATED FATIGUE AFTER CURATIVE INTENT TREATMENT

C. Foster1, L. Calman2, C. Grimmett3, M. Breckons2, P. Cotterell2, L. Yardley1, J. Joseph3, S. Hughes1, R. Jones1, C. Leonidou2, J. Armesso2, L. Batchup1, J. Corner1, D. Fenlon1, E. Lennon1, C. Morris6, A. Neylon1, E. Ream1, L. Turner9, A. Richardson1
1Faculty of Health Sciences, University of Southampton, Southampton, United Kingdom
2Institute of Health and Society, Newcastle University, Newcastle, United Kingdom
3School of Psychology, University of Southampton, Southampton, United Kingdom
4Kings College, London, United Kingdom
5NHS Foundation Trust, University Hospital, Southampton, United Kingdom
6Patient representative, Southampton, United Kingdom
7Digital at Macmillan Cancer Support, Southampton, United Kingdom
8School of Health Sciences, University of Surrey, Surrey, United Kingdom
9Patient representative, Surrey, United Kingdom

Introduction
Publication of detailed descriptions of the development of complex interventions is required to advance the field of behavioural medicine.

Objectives
To develop an evidence-based, theoretically driven web-based intervention [RESTORE] to enhance self-efficacy to live with cancer-related fatigue [CRF] following curative intent treatment.

Methods
A nine step process informed the development of the intervention: 1. review of empirical literature; 2. review of existing patient resources; 3. establishment of theoretical framework; 4. establishment of design team with expertise in web-based interventions, CRF and people affected by cancer; 5. development of prototype intervention; 6. user testing Phase 1;
7. refinement of prototype; 8. user testing Phase 2; 9. development of final intervention.

**Results**

Multidisciplinary partnerships between stakeholders, academics, clinicians and patient representatives were key to effective intervention development. Review of the literature revealed some promising intervention components namely psychosocial support and CBT but a dearth of studies targeting self-efficacy. Important techniques associated with self-efficacy enhancement include modelling, goal setting, planning, provision of feedback and self-monitoring, all of which are integral to the intervention. An iterative process of user testing, including think aloud activities honed the final intervention. RESTORE consists of five sessions covering introduction to CRF, principles of goal setting, home and work life, personal relationships and emotional adjustment.

**Conclusions**

An evidence-based and theoretically driven web-based intervention can be successfully “co-created”. This is a novel account of the development of such an intervention in a cancer population. An exploratory trial to test ‘proof of concept’ of the intervention has also been conducted.

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**06-12-P**

**CANCER RELATED FATIGUE AND SELF-CARE WHILE UNDERGOING CHEMOTHERAPY: PATIENT’S PERSPECTIVES**

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**Introduction**

Cancer related fatigue (CRF) is considered the most severe, debilitating and under-managed symptom of cancer. Patients receiving chemotherapy experience high levels of CRF which profoundly impacts their lives.

**Objectives**

•To explore and measure CRF and determine the most effective self-care strategies to combat CRF in patients with a diagnosis of cancer (breast cancer, colorectal cancer, Hodgkin’s and Non-Hodgkin’s lymphoma).

•To explore self-care agency and its relationship to CRF.

**Methods**

Mixed methodology which incorporated a descriptive, comparative, correlational design and qualitative descriptions of patients’ (n=362) experiences gleaned through open ended questions and diary. The Revised Pipers Fatigue Scale, Appraisal of Self-Care Agency; and a researcher developed Fatigue Visual Analogue Scale, Fatigue Self-Care Survey, and Diary were utilised.

**Results**

The majority of participants (75 %) experienced moderate/severe fatigue. Having breast cancer, Hodgkin’s and non-Hodgkin’s lymphoma; being female, using the strategies of counselling, taking a 20–30 min nap, resting and sleeping, self-monitoring and complementary therapies were associated with increased odds of developing fatigue. Increased self-care agency; being divorced / separated, being widowed; increased length of time since commencement of chemotherapy; engagement in exercise, and socializing indicated a reduced risk of developing fatigue. Four key qualitative categories emerged which demonstrated the distressing nature of fatigue.

Keeping a diary was considered very beneficial and cathartic.

**Conclusions**

Fatigue severely impacted the daily lives of patients undergoing chemotherapy. There are a range of self-care strategies that patients should use e.g. exercise, socializing. The enhancement of self-care agency and use of diaries should also be considered.

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**06-13-P**

**LIPOSMIAL IRON IMPROVES FATIGUE IN PATIENTS WITH MYELODYSPLASTIC SYNDROMES AS REFRACTORY ANEMIA. MULTICENTRIC STUDY**

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**Introduction**

Fatigue is the most invalidating symptom in neoplastic disease. Fatigue frequently is linked to an iron deficiency. In inflammatory diseases as myelodysplastic syndromes fatigue might be linked to a functional iron deficiency with elevated ferritin level and a saturation of total iron binding capacity < 20 %.

**Objectives**

Aim of this study is to verify if liposomal iron support in myelodysplastic syndromes as refractory anemia improves fatigue perception in patients with a saturation of total iron binding capacity < 20 %.

**Methods**

Between june 2011 and december 2014, 20 patients affected by refractory anemia were studied. Median follow-up was 12 months (R10-24). Patients were randomized 1:1 to receive in group A alpha erythropoietin 40000Usc/week+calcium levofolinate7.5 mg/day orally+Vitamin B12: 400 mg/day orally. In group B patient received liposomal iron14mg1 tablet orally/day+alpha erythropoietin 40000Usc/week+calkium levofolinate7.5 mg/day orally+Vitamin B12:400 mg/day orally. In group A median age was 60 years (R65-70), M/F:8/2. In group B median age was 66 years (R60-75), M/F:6/4. Caryotype was normal in group A and B patients. Median level of haemoglobin was 9 g/dl in group A (R8.5-11) and8.8 g/dl(R8.5-11.5) in group B. Fatigue was measured with Modified Fatigue Impact Scale (FISC - Fisk 1994).

**Results**

Patients in group A reached a median hemoglobin level of11.5 g/dl after 3 month of therapy and referred a median FISC score of74 (R65-80). Patients in group B reached a median hemoglobin level of12.5 g/dl after 3 month of therapy and referred a median FISC score of74 (R42-68).

**Conclusions**

Liposomal iron support improves fatigue perception in patients with refractory anemia. This study needs confirmation on a lager cohort of patients.

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**06-14-P**

**FATIGUE SCORES IN PATIENTS RECEIVING PALLIATIVE RADIOTHERAPY FOR PAINFUL BONE METASTASES**

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**Introduction**

Radiation therapy is used in patients with bone metastases to relieve pain and improve quality of life (QOL).
Objectives
Examine changes in fatigue scores for patients receiving radiation for bone metastases and impact on QOL.

Methods
Fatigue and QOL scores were prospectively collected for up to 3 months following radiation therapy for bone metastases using three questionnaires: group 1: Edmonton Symptom Assessment System (ESAS) (0–10), group 2: European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30), and Core 15 Palliative (EORTC QLQ-C15-PAL) (1–4).

Results
Average fatigue score in group 1 (n=399) was 4.72 at baseline, 5.08 at month 1, 5.01 at month 2, and 4.95 at month 3, and was 2.40, 2.39, 2.56, and 2.70 in group 2 (n=482) respectively. Thirty-five percent of patients in group 1 had fatigue score increase ≥2 points at month 1, 36 % at month 2, and 36 % at month 3. Twenty-one percent of patients in group 2 had fatigue score increase ≥1 at month 1, 27 % at month 2, and 40 % at month 3. There was a statistically significant increase in fatigue score from baseline to all 3 months in group 1 only. In both groups, there was a highly significant negative correlation between fatigue and overall QOL scores at baseline and any follow-up month.

Conclusions
There was a statistically significant increase in fatigue in group 1. Up to one third of patients had increased fatigue of clinical significance. Patients with less fatigue symptoms reported better overall QOL.

06-15-P
GUIDELINE-ORIENTED ASSESSMENT OF CANCER-RELATED FATIGUE – IMPLICATIONS FOR RESOURCES
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Introduction
Current guidelines recommend a routine screening for the presence of cancer-related fatigue (CRF).

Objectives
To estimate the resource implications for a guideline-oriented assessment following screening for CRF in an outpatient department of medical oncology and hematology. To inform the development of a specialist service for fatigue.

Methods
A cross-sectional sample of 115 outpatients was recruited (mean age 61 years, 45 % female). Sixty-eight patients had hematological (59 %), 17 gastrointestinal, 10 breast and 10 urological malignancies. Virtually all cancers were in advanced stages. Patients completed self-report questionnaires (BFI, HADS, QLQ-C30) and were briefly interviewed as part of the screening and assessment process. Medical records were reviewed for every patient.

Results
The case rates for moderate and severe CRF were 30 % (35) and 20 % (23) respectively. Fifty-one of the 58 fatigued patients were in a stable disease situation. Thirty-four had at least one comorbid condition and took medication where fatigue is a possible side effect. Nineteen CRF patients (33 %) reported high psychological distress (score of ≥11 of 21; HADS) and 13 reported a low or very low physical functioning (≤40 %; QLQ-C30). Every second outpatient of this sample experienced moderate to severe CRF and required a comprehensive and focused assessment according to guideline recommendations. For the majority of assessments, medical expertise was necessary in order to identify treatable contributing factors. Specialist referrals were indicated in a third of cases.

Conclusions
Current outpatient setups might not meet the considerable professional and organizational demands in order to follow guideline-oriented care of cancer-related fatigue.

06-16-P
FACTORS INFLUENCING FATIGUE IN PATIENTS WITH BREAST CANCER UNDERGOING BREAST IRRADIATION
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Introduction
Evidence suggests that certain physical and psychological factors are associated with radiation therapy (RT) induced fatigue in patients with breast cancer; however the precise mechanisms underlying RT-induced fatigue remain unclear. It is possible that the local tissue damage with apoptosis, inflammation and certain clinical characteristics such as psychological profile may play a role in the fatigue associated with RT given to women with breast cancer for local disease control.

Objectives
In a non-randomized, prospective study: Investigate physical, psychological and physiological factors associated with radiation-induced fatigue in women with early breast cancer undergoing RT for breast conservation.

Methods
Subjects undergo assessments at following time points: Immediately before RT, mid-point of RT, end of RT, 6 months and 1 year after completion of RT. Study assessments conducted at each time point using validated measures include- fatigue, distress, depression, anxiety, sleep, energy level, pain and evaluation of cosmesis and skin toxicity. Laboratory assessments include biomarkers of apoptosis and inflammation.

Results
Twenty-four subjects (target 50) are enrolled to date. Enrolled subjects are predominantly white with a mean age of 60.5 years, all received whole breast radiation and 53 % had current or past mental illness. Preliminary analyses showed that in a subset of subjects fatigue was associated with history mental illness, acute skin toxicity, pain, and increases in certain biomarkers of apoptosis and inflammation (caspase-1 p17 and C-reactive protein).

Conclusions
In a subset of patients, radiation-induced fatigue is associated with certain physical, psychological factors and biomarkers.

06-17-P
FATIGUE AND PERFORMANCE STATUS IN STAGE 3 AND STAGE 4 HEAD AND NECK CANCER SURVIVORS ENROLLED FOR CHEMO-RADIOThERAPY: A CROSS-SECTIONAL STUDY
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Introduction
Cancer related fatigue has been found to be a common morbidity faced by head and neck cancer survivors. Performance status of Cancer survivors has been linked to their survival rates.

Objectives
To Assess the level of fatigue and performance status in stage 3 and stage 4 head and neck cancer survivors enrolled for Primary Chemo-Radiotherapy.
Methods
This was a cross-sectional study conducted on 30 patients enrolled for Primary Chemo-radiotherapy. The National Comprehensive Cancer Network (NCCN 0–10) Fatigue scale was used to screen fatigue in patients before the commencement of Chemo-radiation. The Eastern Cooperative Oncology Group (ECOG) score was used to assess the performance status of the patients at enrollment.

Results
The patients had a median fatigue score (IQR) of 4 (0,5) (Moderate Fatigue). The median performance status on ECOG score(IQR) was 1(0,1) (Restricted in Physically strenuous activity). Moderate fatigue and restriction in physically strenuous activity was found in head and neck cancer survivors enrolled for chemoradiation. This implies the need for measures to prevent the worsening of fatigue and performance status during chemo-radiation.

Conclusions
Stage 3 and Stage 4 head and neck cancer survivors enrolling for chemo-radiation present with moderate levels of fatigue and limitations in carrying out physically strenuous activity. Before the start of Chemoradiation interventions to combat fatigue and improve performance status should be planned for stage 3 and 4 head and neck cancer survivors enrolled for Chemoradiation. Increase in these symptoms can lead to poor quality of life and treatment outcomes.

06-18-P
DETERMINING THE FATIGUE LEVEL AND THE AFFECTING FACTORS IN ONCOLOGIC PATIENTS

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Introduction
Fatigue in oncologic patients is an important symptom affecting the quality life in a negative way.

Objectives
This study was conducted descriptively for the purpose of determining the fatigue level and the affecting factors in oncologic patients.

Methods
Between Dec.,15th, 2013 – July, 30th, 2014, 102 patients in total who were operated on with the diagnosis of cancer, and 102 of whom formed the control group were incorporated into the scope of the research. The data were collected through the Brief Fatigue Inventory and Piper Fatigue Scale.

Results
The overall mean score received from the Piper Fatigue Scale determining the subjective fatigue sensations of the patients in the study group proved to be 5.2±2.5, whereas the overall Piper Fatigue Scale mean score of the patients in the control group was determined as 2.8±0.2. A statistically significant difference was found between both of these groups (t=7.338, p=0.000). The overall mean score that the patients in the study group received from the Brief Fatigue Inventory determining the intensity of fatigue proved to be 6.2±2.8, while the overall Brief Fatigue Inventory mean score of the the patients in the control group was determined as 3.3±1.5. A statistically significant difference was found between both of these groups (t=7.696, p=0.000).

Conclusions
It was determined, in line with the scores the patients received from Piper Fatigue Scale and Brief Fatigue Inventory, that the patients in the study group suffered from moderate and intense fatigue levels, while the patients of the control group experienced a mild level of fatigue.

06-19-P
PROCESS EVALUATION OF RESTORE: AN EXPLORATORY RCT OF A WEB-BASED INTERVENTION TO ENHANCE SELF-EFFICACY TO SELF MANAGE CANCER-RELATED FATIGUE

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Introduction
Trials of interventions to support self-management of the after effects of cancer treatment are required. Process evaluations can provide valuable information about complex healthcare interventions and trial processes.

Objectives
To explore participants’ experiences of involvement in, and feasibility and acceptability of RESTORE: a web-based intervention to enhance self-efficacy to manage cancer related fatigue.

Methods
Participants were randomised to RESTORE or the Macmillan ‘Coping with Fatigue’ leaflet. Normalisation Process Theory informed data collection and analysis. On completion of the trial, semi-structured telephone interviews were conducted with a purposive sample of participants. Interviews were analysed using directed content analysis with a Framework Approach.

Results
Nineteen participants took part in in-depth interviews. Participants understood the purpose and requirements of the trial and the majority could accommodate the work of the trial into daily routines without learning new skills. The majority report having benefited from their involvement in the trial and made positive lifestyle changes. The perceived value of the information presented in RESTORE was associated with time since diagnosis, with those most proximal to treatment completion find the information most relevant. Factors related to the participant, constraints of the intervention, and environmental context inhibited the integration and embedding of RESTORE into everyday life. Participants held preferences for mode of delivery of information, e.g. leaflet vs. web-based RESTORE.

Conclusions
Benefits from the RESTORE resource were apparent but barriers to implementation and integration suggest that refinements to RESTORE were necessary before testing in a phase III trial.

06-20-P
DAYTIME SLEEPINESS CONTRIBUTES TO CANCER-RELATED FATIGUE IN BREAST CANCER SURVIVORS: A CASE REPORT

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Introduction
Cancer-related fatigue (CRF) is common in breast cancer survivors. Excessive daytime sleepiness (EDS) may contribute to CRF and can be objectively measured with polysomnography (PSG).
Objectives
To present a case report which demonstrates the use of PSG to objectively measure EDS in a patient with CRF.

Methods
A 35 year old breast cancer survivor treated 5 years previously with surgery, chemotherapy, and radiation therapy with no-comorbid illnesses was reviewed. Based on an elevated BFI=5 and an Epworth Sleepiness Scale Score=14 she was determined to have CRF and EDS.

Results
Nocturnal PSG determined that the patient had a normal sleep time of 436 min and a normal sleep efficiency of 97 %. No primary sleep disturbance was present or attributable to sleep apnea or movement disorders. (Figure 1) A Multiple Sleep Latency Test (MSLT) was performed following nocturnal PSG and demonstrated an abnormally low mean sleep latency of only 4.4 min (Figure 2). The patient was treated with modafanil with subsequent improvement in EDS and fatigue.

Conclusions
PSG was used to objectively measure EDS as a contributor to the patient’s fatigue and assisted in directing therapy. Further study is required to characterize EDS in cancer survivors with normal nocturnal sleep.

06-22-P
EXERCISE EFFECTS ON MUSCULAR STRENGTH, CANCER-RELATED FATIGUE, AND MITOCHONDRIAL AND NUCLEAR GENE EXPRESSION IN SKELETAL MUSCLE AMONG OLDER PROSTATE CANCER PATIENTS

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Introduction
Radiation therapy (RT) and androgen deprivation therapy (ADT) result in muscle weakness, cancer-related fatigue (CRF), and impaired muscular, mitochondrial and immune function among prostate cancer patients.

Objectives
We investigated the influence of an exercise intervention (EXCAP\textsuperscript{©}) on muscular strength, CRF and expression of 4825 mitochondrial and nuclear genes.

Methods
In this phase II RCT, prostate cancer patients (N=58; mean age=67), receiving RT (47 %) or ADT (53 %), were randomized to 6 wks of exercise or standard care. Strength and CRF were assessed using multiple repetition maximum testing, and the BFI and MFSI, respectively.
was isolated from muscle biopsies for microarray analyses of 4825 genes (N=11). Assessments were pre- and post-intervention.

Results
ANCOVAs revealed a trend for differences in muscular strength (all p≤0.10), significant differences in CRF on the BFI (p≤0.05), and a trend on the MFSI (p≤0.10): exercisers improved while controls worsened. MYH8, MYL5, ACTN3, XIRP1, MTTM, and HLA-DQB1 were correlated with muscular strength and CRF (all p≤0.05). Analyses revealed ≥2-fold down-regulation in MYH8 and XIRP1 in the exercise group, no ≥2-fold changes in expression in the control group, and a >2-fold difference between groups on MTTM where MTTM was down-regulated >1.5-fold in controls with no change in exercisers (all p≤0.05). PLS regression suggested down-regulation of MYL5, ACTN3, and HLA-DQB1 may optimally predict increases in CRF.

Conclusions
Results suggest EXCAP® exercise improves muscular strength and CRF and these improvements may be mediated via exercise-induced expression changes in genes involved in muscle generation and contraction, mitochondrial function and immune function. Funded: DOD W81XWH-07-1-0341, NCI K07CA120025

06-23-P
EXERCISE INTERVENTION TO REDUCE DISPARITIES IN CANCER-RELATED FATIGUE (CRF) AND DEPRESSION AMONG LESBIAN, GAY, BISEXUAL, AND TRANSGENDER (LGBT) CANCER SURVIVORS
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Introduction
LGBT cancer survivors experience disparities in depression relative to their heterosexual counterparts. Studies have not examined the link between depression and CRF in LGBT survivors, nor have interventions been developed to address disparities in this population.

Objectives
We examined the effect of a novel, tailored, caregiver-assisted exercise intervention, compared to a survivor-only intervention, on CRF and depression among LGBT and heterosexual cancer survivors.

Methods
In this pilot RCT, 42 LGBT and heterosexual survivors (all cancer types) and caregivers were randomized as dyads to caregiver-assisted or survivor-only exercise interventions. CRF and depression were assessed using the MFSI and CES-D, respectively, at baseline and post-intervention. We compared means using t-tests and intervention effects using ANOVA.

Results
At baseline, LGBT survivors reported higher depression (t=-2.23, p=0.04) and a trend toward higher fatigue (t=-1.62, p=0.10) than heterosexuals. Depression and CRF were highly correlated among all survivors (r=0.65, p<0.01). Change score ANOVAs revealed that caregiver-assisted exercise significantly reduced depression among all survivors (p=0.03) and showed a trend toward reducing depression (p=0.06) and fatigue (p=0.08) in LGBT cancer survivors relative to both heterosexual survivors and LGBT survivors receiving survivor-only exercise. At post-intervention, LGBT and heterosexual survivors were not different in depression and CRF (p’s>0.05).

Conclusions
A caregiver-assisted exercise intervention shows preliminary efficacy in addressing noted disparities among LGBT cancer survivors, and may be effective in improving outcomes among survivors in general.
group of 33 untreated patients was extracted from the DLCR from 2000 to 2012 (table 1 baseline characteristics). Charlson Comorbidity Index (CCI) was calculated by physician chart review with lung cancer being excluded from the scoring. Treated and untreated patients were dichotomized into 2 groups by CCI, moderate CCI<3 and severe CCI3+.

Results
The potential median follow-up time was 31.1 months for the SBRT group vs. 131 months in the untreated group. The median OS for patients in CCI<3 was 52.5 months vs. 12.8 months (p<0.05), and for patients CCI3+ median OS was 40 months vs. 8.4 months (p<0.05), for SBRT group and untreated group respectively. No significant differences between the two CCI groups of treated and untreated patients were observed. Multivariable analysis indicated that comorbidity status, tumor size, smoking status, gender, and histology had no significant influence on survival, while SBRT, performance status, and age had (table 2).

Conclusions
SBRT treated patients have significantly longer OS compared with untreated patients. However, in our study cohort CCI did not have significant influence on overall survival. CCI could not be used as a significant predictor of OS.

07-03-P
CHEMOTHERAPY-INDUCED FEBRILE NEUTROPENIA AND USE OF GRANULOCYTE COLONY-STIMULATING FACTORS IN OLDER CANCER PATIENTS

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Introduction
Febrile neutropenia (FN) is a serious adverse effect of myelosuppressive chemotherapy and elderly patients are at increased risk. FN can lead to dose reduction, associated with a poor prognosis. Granulocyte colony-stimulating factors (G-CSF) reduce the incidence of FN and increase the chance of chemotherapy dose intensity and dose density adherence.

Objectives
To evaluate the incidence of FN and adherence to the guidelines regarding use of G-CSF in elderly cancer patients.

Methods
Retrospective study of patients ≥ 70 years receiving their first course of chemotherapy at the Department of Oncology, Odense University Hospital, Denmark. Patients had a diagnosis of colorectal (n=206), prostate (n=100), or ovarian cancer (n=99). They received at least one cycle of chemotherapy and data were collected from the medical charts for all the patients. The risk of developing FN with chemotherapy regimens used was estimated as described by the EORTC guidelines.

Results
In all, 367 patients were included. Twelve (3.3 %) developed FN after their initial chemotherapy. Seven (1.9 %) and eight (2.2 %) patients respectively, received primary and secondary prophylactic G-CSF. Sixty-nine (18.8 %) had their first dose reduced. According to guidelines, 113 (30.8 %) should have received primary prophylactic G-CSF.

Conclusions
In our institution, use of primary prophylactic G-CSF was inconsistent and often refrained from. FN was observed in only 12 of 367 patients, but the initial dose of chemotherapy was reduced in as many as 19 % of patients. Prospective studies are highly warranted to explore optimal use of G-CSF in order to avoid systematic dose reduction due to age.
**Results**

The largest possible influence on HRQOL in model 1 was physical function (regression coefficient $\beta=0.32$), in model 2 fatigue ($\beta=0.30$) and in model 3 mobility ($\beta=0.198$).

**Conclusions**

Mobility and fatigue seem to have the biggest impact on HRQOL of elderly cancer patients. Prospective studies are needed to test whether supportive measures to improve these factors maximize the HRQOL of elderly cancer patients.

**07-05-P**

**INTEGRATED ONCOGERIATRIC APPROACH (IOGA): RECOGNITION OF THE EXISTENTIAL PARADOXES**

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**Introduction**

IOGA is a coordinated interdisciplinary collaborative practice focused on the needs, values and preferences of the elders throughout the cancer care continuum. To optimize the proceeds of the IOGA and the involvement of the patients as active participants in their care, there is a need to focus more on their perspective.

**Objectives**

Describe the existential paradoxes from elderly cancer patients’ perspective.

**Methods**

A qualitative research using the hermeneutic phenomenological method (van Manen) was used to understand the significance of IOGA. Participants aged 70 and over, who had just completed cancer treatment, were eligible to participate in individual in-depth semi-structured interviews. Discourse analyses of the verbatim were done with global, selective and detailed approach.

**Results**

Five women and five men were interviewed. Age ranged between 70 and 90. Seven had solid tumors; five had curative and five palliative treatments. Qualitative analyses of the interviews identified various paradoxes amongst emerging existential themes that affected the life of the elders: cancer/aging/treatment, communication/family implication/continuity of care, informational needs/decision-making/ participation, being listened to/identity/hope, to be with/confidence/competency. Elders reported that most of the time, these paradoxes were not addressed nor considered by the professional team.

**Conclusions**

The identification of various paradoxes as important determinants in the elderly cancer patient’s “in becoming” should be integrated into the IOGA. This will lead to the development of tailored interventions, meeting the elders’ unique needs and concerns as they undergo a cancer journey at their age.

**07-06-P**

**DELIVERING DIGNITY OF CARE FOR OLDER PEOPLE AND THEIR PARTNERS/CARERS DURING CHEMOTHERAPY**

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**Introduction**

Chemotherapy poses challenges for older patients, given potential comorbidities, mobility and functional problems. Many patients may struggle with side-effects but fail to report such problems to health professionals, leading to late identification and management.

**Objectives**

This is stage 1 of a 3-stage study, aiming to understand the impact of chemotherapy on older people and their partners/carers.

**Methods**

Qualitative research methods were used. Data collection was completed using semi-structured interviews of patients and partners/carers in their own homes after completion of chemotherapy. Interviews were audio-recorded, transcribed verbatim and analysed using qualitative principles, including thematic analysis.

**Results**

The sample was 20 patients, aged 65–81, and ten partners/carers. Nineteen had adjuvant and one neo-adjuvant chemotherapy; 12(60 %) patients had breast cancer and 8(40 %) colorectal cancer. Most patients completed the full course of treatment, but four did not and five required hospital admission (1–11 days).

The central theme was dignity, interlinked with five other themes: stoicism, side-effects, independence, being lucky and feelings. Patients and partners/carers reported positive experiences of dignity and compassionate care. Main concerns included maintaining independence, but support from family/friends was high. Some patients struggled with toxicities but fail to report these to clinical staff immediately, waiting until their next clinic appointment, then minimising the impact of toxicities. Their stoicism included a drive to ‘just get on with it’.

**Conclusions**

Chemotherapy for people over 65 years is challenging. Maintaining independence is a key concern for patients and partners/carers. Some patients fail to report side-effects or minimise their impact. This has implications for clinical staff.

**07-07-P**

**GERIATRIC ONCOLOGIC SUPPORTIVE CARE: A SURVEY OF CANCER CLINICIANS’ KNOWLEDGE, ATTITUDES, BELIEFS, AND PRACTICES**

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**Introduction**

Geriatric Oncology (GO) focuses upon evidence-based cancer care targeting older adults, many of whom have comorbidities, diminished reserve, disability, and psychosocial issues. Clinicians are challenged to provide treatment and supportive care interventions best suited for this population.

**Objectives**

The survey targeted the practices, knowledge, attitudes, and beliefs of clinical oncology professionals regarding supportive care of GO patients, focusing on the needs of “fit” and “vulnerable” patients.

**Methods**

An online survey was distributed to members of the Multinational Association of Supportive Care in Cancer to capture a wide range of information about the care needs of older cancer patients. Case scenarios representing “fit” and “vulnerable” patients were presented to provide context. Survey items focused on topics of geriatrics training, knowledge of geriatric oncology, clinical care practices, educational needs, and the need for supportive care guidelines specific to GO.

**Results**

Of 197 persons completing the survey, 60 were clinical oncology professionals and 116 were researchers, trainees, other healthcare professionals, or non-clinicians. Fifteen geriatric oncologists were excluded. Many
clinical oncologists were not familiar with or did not regularly use geriatric oncology practices (Table 1). Clinical oncologists overwhelmingly agreed that older fit and vulnerable cancer patients are under addressed in the cancer care paradigm and are more challenging to manage (Figure 1).

Conclusions
To our knowledge, this survey is the first to study practices of clinical oncologists regarding supportive care of older patients. We identified a substantial need for targeted education, guideline development, and enhanced clinical care practices focusing on geriatric oncology patients.

Table 1. Dissemination of Geriatric Oncology Knowledge Among Clinical Oncology Professionals (n=69)

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you have the ability to describe to a colleague what specific cancer patient population(s) the discipline of Geriatric Oncology targets?</td>
<td>No</td>
<td>16 (23.7)</td>
</tr>
<tr>
<td>Yes</td>
<td>44 (67.0)</td>
<td></td>
</tr>
<tr>
<td>Do you have the ability to describe to a colleague what the clinical role of a Geriatric Oncologist entails?</td>
<td>No</td>
<td>25 (41.7)</td>
</tr>
<tr>
<td>Yes</td>
<td>30 (50.0)</td>
<td></td>
</tr>
<tr>
<td>Are you familiar with the medical term--Comprehensive Geriatric Assessment?</td>
<td>No</td>
<td>4 (6.7)</td>
</tr>
<tr>
<td>Yes</td>
<td>15 (25.0)</td>
<td></td>
</tr>
<tr>
<td>Are you familiar with the medical term - Comprehensive Geriatric Assessment?</td>
<td>Not sure</td>
<td>41 (68.3)</td>
</tr>
<tr>
<td>No</td>
<td>8 (13.0)</td>
<td></td>
</tr>
<tr>
<td>Do you have the ability to describe to a colleague how Comprehensive Geriatric Assessment might be used in the treatment planning/decision making process pertaining to older adults?</td>
<td>No</td>
<td>8 (13.0)</td>
</tr>
<tr>
<td>Yes</td>
<td>32 (50.0)</td>
<td></td>
</tr>
<tr>
<td>Have you ever utilized the results of a Comprehensive Geriatric Assessment in your cancer treatment planning process?</td>
<td>No</td>
<td>22 (32.7)</td>
</tr>
<tr>
<td>Yes</td>
<td>16 (24.0)</td>
<td></td>
</tr>
<tr>
<td>Have you ever utilized the results of a Comprehensive Geriatric Assessment in your supportive care planning process?</td>
<td>No</td>
<td>22 (32.7)</td>
</tr>
<tr>
<td>Yes</td>
<td>17 (25.3)</td>
<td></td>
</tr>
<tr>
<td>Has your training prepared you to address the supportive care needs of older adult fit and vulnerable cancer patients?</td>
<td>No</td>
<td>30 (49.0)</td>
</tr>
<tr>
<td>Yes</td>
<td>6 (9.3)</td>
<td></td>
</tr>
<tr>
<td>Does your institution/practice have a geriatric oncologist?</td>
<td>No</td>
<td>45 (70.0)</td>
</tr>
<tr>
<td>Yes</td>
<td>13 (20.0)</td>
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<tr>
<td>How likely would you use the services of a geriatric oncologist?</td>
<td>Unlikely</td>
<td>2 (5.7)</td>
</tr>
<tr>
<td>Possibly</td>
<td>12 (34.3)</td>
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<td>12 (34.3)</td>
<td></td>
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<tr>
<td>Very Likely</td>
<td>9 (25.7)</td>
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</table>

07-08-P

POSTOPERATIVE MORBIDITY IN HEAD AND NECK CANCER ABLATIVE SURGERY FOLLOWED BY MICROSURGICAL FREE TISSUE TRANSFER IN THE ELDERLY

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Introduction
To identify the risk factors for postoperative morbidities in elderly patients who underwent head and neck tumor ablation followed by immediate free tissue transfer.

Objectives
Between 2007 and 2010, a total of 167 patients aged 65 and older were identified. These patients were divided into two age-related subgroups: patients aged between 65 and 70 years in one cohort and patients older than 70 years in the second cohort. The demographic and operative variables as well as postoperative medical and surgical morbidities were analyzed.

Methods
Between 2007 and 2010, a total of 167 patients aged 65 and older were identified. These patients were divided into two age-related subgroups: patients aged between 65 and 70 years in one cohort and patients older than 70 years in the second cohort. The demographic and operative variables as well as postoperative medical and surgical morbidities were analyzed.

Results
The older group had significantly prolonged ICU stay (p=0.014) and hospital stay (p=0.039) as well as higher rates of intraoperative blood transfusion ≥2 units (p=0.019), unplanned reintubation (p<0.001), medical (p=0.004), and surgical (p<0.001) complications. The intraoperative blood loss of >220 mL and the age of >70 were significant predictive factors for postoperative morbidities.

Conclusions
Age over 70 years and intraoperative blood loss of >220 mL are significant risk factors for predicting postoperative morbidity.

07-09-P

MALE BREAST CANCER: AN INSTITUTIONAL ANALYSIS FROM DEVELOPING COUNTRY

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²Medical Oncology, FMRI, Delhi, India
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Introduction
Male breast cancer (MBC) is a rare disease accounts for 1% of all breast cancer. There is very little knowledge about etiology, clinical behaviour, immunophenotypic profile, natural history and prognosis. There is paucity of data on MBC from India.

Objectives
The aim of our study was to assess clinical, pathological parameters and outcome in MBC patients.

Methods
This analysis was carried out in 76 patients with confirmed case of MBC who were registered in our breast cancer clinic between 1996 and 2011.

Results
The median age was 62 years (range 28–80). The median duration of symptoms was 11.8 months (range 0.5–40). Breast lump was the commonest (93%) presenting symptom (left > right side). TNM (7th edition) Stage distribution was stage I- 3%, stage II- 20%, stage III- 55%, and stage IV- 22%. The median clinical tumour size was 4.9 cm. Modified Radical mastectomy was the commonest surgical procedure. IDC was the most common histology. Estrogen / progesterone receptor (ER/PR) and her2neupositivity was 90 and 30% respectively. Triple negative breast cancer (TNBC) constituted 20%. With a median follow up of 30 months, 3 years progression free (PFS) and overall survival (OS) was 50 and 60%, Higher Nodal stage, tumour size (>5 cm), negative ER/PR status, and positive her2neu status and visceral metastasis at baseline predicted poor outcome.

Conclusions
Our population had longer time to presentation, advanced disease at presentation, more her2neu positivity and triple negativity higher than the western population reflecting a resultant poorer outcome.
07-10-P

ELDERLY PATIENT’S ADVERSE EVENTS IDENTIFIED IN CLINICAL PRACTICE COMPARED WITH HURRIA’S TOXICITY PREDICTIVE MODEL - SERIAL OF BRAZILIAN PATIENTS.

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Introduction
Secondary chemotherapy adverse events are more frequent in elderly patients, which means that elderly are undertreated, despite several studies showing that these patients can get the same benefits of chemotherapy when compared to young adults. Instruments able to predict which elderly patients have a higher risk of toxicity develop after chemotherapy are missing in the literature.

Objectives
The objectives of this study are: identify the toxicities secondary to chemotherapy, grading them and compare the toxicities with the scores of the model predictor of toxicity proposed by Hurria et al.

Methods
Patients were interviewed according to structured questionnaire to research and graduate toxicities.

Results
The results were statistically evaluated considering the scores found by the predictive model of toxicities described by Hurria et al. and the percentage of adverse events degrees 2, 3 and 4 through correlation analysis. In analyzing the data, in general, there was no correlation between the toxicities provided by Hurria score and those actually presented by patients. The limitations that may have influenced the study are the fact that the interview was retrospective, the difficulty of differentiation of symptoms caused by chemotherapy or by neoplasia and low socioeconomic status of patients, making the prevention of adverse events difficult.

Conclusions
So far, the data of this study do not encourage the application of the Hurria’s score as a tool in the decision of chemotherapy for elderly patients with cancer at our institution.

07-11-P

ONCOGERIATRICS JOINT CONSULTATIONS: WHEN PHARMACISTS IMPROVE PATIENTS’ MANAGEMENT TOGETHER WITH ONCOGERIATRICS PHYSICIAN

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Introduction
Elderly patients often have several diseases and therefore polymedicated. Comorbidities and treatments may interfere with management of oncological patients.

Objectives
The objectives of this project are: 1) to ensure a proper understanding of patients regarding their treatment, 2) to perform a pharmaceutical analysis of patients’ prescription, 3) to propose changes to the patients’ doctors to prevent and reduce adverse drug events.

Methods
The project combines medical and pharmaceutical expertise around the patient to optimize their care coordinated with the action of a “disease professional” and a “drug professional” with a particularly vulnerable population.

Results
Since the project began, more than 100 patients benefited from these joint consultations, thus establishing a network between the Institute and the general practitioners supporting our patients. Optimization of drug treatment and reduction of iatrogenic events avoids the complications and hospitalizations extensions and / or re-hospitalization. The pharmaceutical intervention documented in the medical records of patients (explaining terms of the intervention) and the transmission of the report to “pharmaceutical consultation” to physician 1) improves the management of patients and 2) allows the referring physician to optimize patient care.

Conclusions
Launched in 2010, the project entered its fourth year of existence and continues.

07-12-P

EVALUATION OF A COMPREHENSIVE GERIATRIC ASSESSMENT TOOL IN GERIATRIC CANCER PATIENTS UNDERGOING ADJUVANT CHEMOTHERAPY: A PILOT STUDY

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²Oncology, Lakeridge Health, Oshawa, Canada
³Health Sciences, McMaster University, Hamilton, Canada

Introduction
Geriatric assessment is defined as a multidisciplinary diagnostic and treatment process that evaluates the medical, psychological, social, and functional capabilities of older adults.

Objectives
To evaluate the use of a comprehensive geriatric assessment in geriatric cancer patients undergoing adjuvant chemotherapy

Methods
This pilot study will utilize a pretest-posttest design to measure the risk associated with receiving adjuvant chemotherapy within the geriatric patients diagnosed with lung, breast or colorectal cancers. Thirty patients will be recruited for this pilot study. Participants who are eligible will first be introduced to the study by their oncologist during their first visit. Once informed consent is obtained, the principal investigator or study staff will ask the patient to complete the geriatric assessment. The study staff will also complete a brief geriatric assessment each time the patient complete the geriatric assessment questionnaire. The patient will be asked to complete the comprehensive geriatric assessment a second time during follow-up, 2 to 6 weeks after last treatment.

The data analysis will include descriptive statistics of each individual score for all patients. Additionally, a one-way repeated measures ANOVA test will be done to track changes in patients’ scores prior to and after treatment.

Results
This project starting date is February 2015; the results will be shared during the presentation.

Conclusions
07-13-P

ARE ELDERLY PATIENTS BEING LEFT OUT OF PALLIATIVE CARE? WHY INTEGRATE GERIATRIC CARE INTO PALLIATIVE CARE TRAINING

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1School of Nursing, Kenya Medical Training College, Nairobi, Kenya
2Nursing, Aga Khan Hospital, Nairobi, Kenya
3Counseling Psychology, Nairobi University, Nairobi, Kenya

Introduction
Palliative care training is one of the courses being offered by Kenya Medical Training College-Nairobi and student nurses have come to appreciate the course. The course has been described as ‘total nursing care’ by offering total care service to a patient. It’s includes physical, psychological, social and spiritual care of a patient where a nurse explores patients problem including family members.

Objectives
Evaluate the importance of inclusion of geriatric module into palliative care course.

Methods
A survey was developed to determine how many students selected geriatric patients for their case study. A class of 26 students picked case studies, 20 female and Six male students. Seventeen students picked patients below 65 years and nine students between 65 and 80 years.

Results
No specific geriatric palliative content in higher Diploma PC curriculum. Lack of enough information on elderly care, poor communication skills and time involved. Few hours of geriatric care training in which an increase was suggested only after 24 weeks.

Conclusions
The survey indicates fear of dealing with elderly as well as lack of knowledge in geriatric care. Students selected patients in their own age group for easy communication or identification. Majority focused palliative care as cancer care than other life limiting illness.

Hematologic Toxicity
08-01-O

TRAJECTORY OF HEMOGLOBIN LEVEL DURING TREATMENT OF SELECTED MYELOSUPPRESSIVE CHEMOTHERAPY REGIMENS FOR BREAST CANCER

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2Center for Observational Research, Amgen Inc, Thousand Oaks, USA
3Oncology/Hematology, Kaiser Permanente Southern California, Los Angeles, USA

Introduction
Clinical management of chemotherapy-induced anemia is a balancing act between risks associated with erythrocyte-stimulating agents/transfusion, patients’ quality of life, and treatment outcomes. However, there is limited information on how hemoglobin changes during chemotherapy.

Objectives
To characterize hemoglobin trajectory during treatment of three common myelosuppressive chemotherapy regimens for breast cancer.

Methods
Adult breast cancer patients diagnosed at Kaiser Permanente (2010–2012) and initiated the following regimens were included: (1) doxorubicin and cyclophosphamide followed by paclitaxel/docetaxel (AC&T, n=655), (2) paclitaxel/docetaxel and cyclophosphamide (TC, n=855), and (3) paclitaxel/docetaxel, carboplatin and Herceptin (TCH, n=399). Those with existing anemia prior to chemotherapy were excluded. Mixed effects linear regressions adjusting for age, sex, race/ethnicity, stage, comorbidity and time since chemotherapy initiation were performed. A smooth spline graphic technique was used to provide a visual presentation of the hemoglobin trajectory.

Results
Patient’s mean age was 56 years. Table 1 shows the distribution of hemoglobin measurements and levels. In the multivariable models, the most rapid decline in hemoglobin was found in the AC&T regimen (~0.61 g/dl per month, Table 2). Hemoglobin level started to increase 12 weeks (~cycle 5) after chemotherapy initiation, except for the TCH regimen, in which an increase was suggested only after 24 weeks. Figure 1 depicts the hemoglobin trajectory for the three regimens. Similar results were obtained after excluding those who received anemia treatment.

Conclusions
The timing and factors (e.g., possible feedback loops) of hemoglobin rebound should be considered in planning management strategies for chemotherapy-induced anemia.

Risk of Hyponatraemia in Cancer Patients Treated with Targeted Therapies: A Meta-Analysis of Clinical Trials

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1Clinica di Oncologia Medica, Università Politecnica delle Marche, Ancona, Italy

Introduction
Hyponatraemia has been reported with targeted therapies in cancer patients.
Objectives
Aim of the study was to perform an up-to-date meta-analysis in order to determine the incidence and relative risk (RR) in patients with solid tumors treated with these agents.

Methods
The published scientific literature regarding hyponatraemia was extensively reviewed using MEDLINE and Pubmed databases. Eligible studies were selected according to PRISMA statement. Summary incidence, RR, and 95% Confidence Intervals were calculated using random-effects or fixed-effects models based on the heterogeneity of selected studies.

Results
A total of 4803 potentially relevant trials were identified: of them, 13 randomized phase III studies were included in this meta-analysis. Six thousand six hundred seventy patients treated with eight targeted agents were available for this analysis: 2574 patients had hepatocellular carcinoma, whilst 4096 had other malignancies. The highest incidences of all-grade hyponatraemia were observed with the combination of brivanib and cetuximab (63.4) and pazopanib (31.7), while the lowest incidence was reported by afatinib (1.7). The highest incidence of high-grade hyponatraemia was reported by cetuximab (34.8), while the lowest incidence was reported by gefitinib (1.0). Summary RR of developing all-grade and high-grade hyponatraemia with targeted agents was 1.36 and 1.52, respectively. The highest RR of all-grade and high-grade hyponatraemia were associated with brivanib (6.5 and 5.2, respectively). Grouping by drug category, the RR of high-grade hyponatraemia with angiogenesis inhibitors was 2.69 compared to anti-EGFR Tyrosine Kinase Inhibitors or monoclonal Antibodies (1.12).

Conclusions
Treatment with biological therapy in cancer patients is associated with a significant increased risk of hyponatraemia, therefore clinical monitoring should be emphasized when managing targeted agents.

08-03-P

METHYLENETETRAHYDROFOLATE REDUCTASE GENE POLYMORPHISM (C677T AND A1298C) IN PEDIATRIC ACUTE LYMPHOBLASTIC LEUKEMIA: RISK AND CHEMOTHERAPY TOXICITY

M. Afty1, E. Ibrahim2, S. Ashraf M2
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2Clinical Pathology Department, Zagazig University, Zagazig, Egypt

Introduction
(MTHFR) gene encodes an enzyme that converts folate to a methyl donor used for DNA methylation.

Objectives
Detection of frequency of (MTHFR), (C677T and A1298C) in de novo ALL to evaluate their impact as a risk factor, correlate their existence with response and tolerance to induction and maintenance with (MTX).

Methods
Forty de novo pre-ALL, aged and sex matched healthy controls were included, analyzed for the polymorphisms of MTHFR gene using PCR-RFLP method, beside routine workup. Patients were followed over 52 weeks under therapy with MTX.

Results

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Descriptive statistics</th>
<th>Genotype</th>
<th>RR</th>
<th>95%CI</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>MTHFRCC</td>
<td>MTHFRTC/TT</td>
<td></td>
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<tr>
<td></td>
<td>individuals</td>
<td>21</td>
<td>19</td>
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<tr>
<td>WBC3</td>
<td>N of weeks with toxicity</td>
<td>1080</td>
<td>882</td>
<td>0.439</td>
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<td>WBC4</td>
<td>N of weeks with toxicity</td>
<td>3</td>
<td>2</td>
<td>0.255-0.756</td>
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<td>ANC3</td>
<td>N of weeks with toxicity</td>
<td>104</td>
<td>48</td>
<td>0.99</td>
<td>&lt;0.05</td>
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<tr>
<td>ANC4</td>
<td>N of weeks with toxicity</td>
<td>177</td>
<td>76</td>
<td>0.53</td>
<td>&lt;0.01</td>
</tr>
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<td>Pit 2</td>
<td>N of weeks with toxicity</td>
<td>14</td>
<td>3</td>
<td>0.300-0.938</td>
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</tr>
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<td>Pit 1%</td>
<td>N of weeks with toxicity</td>
<td>13</td>
<td>1</td>
<td>0.62</td>
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</tr>
<tr>
<td>ALT %</td>
<td>N of weeks with toxicity</td>
<td>141</td>
<td>59</td>
<td>0.53</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>AST %</td>
<td>N of weeks with toxicity</td>
<td>30</td>
<td>26</td>
<td>0.97</td>
<td></td>
</tr>
</tbody>
</table>

Conclusions
(MTHFR 1298AC) associated with decreased risk of ALL. (MTHFR 677?CT), correlated with increased risk of relapse. Lower episodes rate of toxicity to (MTX). This may signify benefit from an increase in (MTX) dose.

08-04-P

NANDROLONE DECANOATE EFFECT AS A SUPPORTIVE CARE COMPONENT IN PATIENTS OF HEAD AND NECK CANCER UNDERGOING CHEMORADIATION: A RETROSPECTIVE ANALYSIS

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Introduction
Anemia is a frequent finding in patients of cancer undergoing radiation therapy. Nandrolone decanoate (an anabolic steroid) has been found to reduce anaemia in patients of renal failure. Its role in patients of breast cancer and lung cancer has been studied. Data of its effect in Head and neck cancer is lacking. 

Objectives
To retrospectively analyse the effect of Nandrolone decanoate in preventing anaemia and weight changes, if any in patients of advanced stage head and neck cancer undergoing chemoradiation.

Methods
Data of 110 head and neck cancer patients with haemoglobin levels >10 gm% who had received chemoradiation from Nov 2013 to June 2014 was taken into consideration. Patients who had received Inj Nandrolone decanoate 50 mg I/M weekly and who didn’t were grouped as (A) & (B) respectively. Weight changes developed were categorised as mild (<5 % wt.loss), moderate (5–10 %) and severe as (>10 % wt.loss). Statistical analysis was done using SPSS software version (20).

Results
9 patients defaulted treatment and were excluded from analysis. 78/101 (77.22 %) received Inj Nandrolone decanoate (A) while 23/101 (22.77 %) patients didn’t (B). 14/78 (17.94 %) patients from (A) received blood transfusion during chemoradiation therapy while 13/23(56.52 %) patients from (B) required blood transfusion. Results were found to be statistically significant. Also statistically significant weight changes were observed. No adverse effects of the drug were noticed during and on follow up.

Conclusions
Nandrolone decanoate helps in reducing the chances of anaemia and significant weight loss in patients of advanced stage head and neck cancer undergoing chemoradiation.
PATTERN OF CHEMOTHERAPY DOSE DELAY AND DOSE REDUCTION

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²Research and Evaluation, Kaiser Permanente Southern California, Pasadena, USA
³Hematology/Oncology, Kaiser Permanente Southern California, Los Angeles, USA

Introduction
Chemotherapy dose delay or dose reduction due to chemotherapy induced toxicity or other consideration of patient factors has been shown to be associated with worse patient outcomes.

Objectives
To describe the practice pattern of dose reduction and dose delay in cancer patients in Kaiser Permanente Southern California (KPSC), a large managed care organization.

Methods
Adult patients diagnosed with non-Hodgkin’s lymphoma (NHL), breast, lung, gastric, ovarian or colorectal cancers from KPSC Health plan (2010-2012) who initiated chemotherapy were included. For each regimen, we estimated the incidences of dose delay (&gt;3 day delay in a given cycle), and dose reduction (&gt;15 % decrease relative to standard dose in a given cycle). Incidence proportions of chemotherapy dose delay/reduction were estimated overall and by chemotherapeutic cycle.

Results
Our study population included 2348 breast cancer, 678 colorectal cancer, 193 gastric cancer, 888 lung cancer, 319 ovarian cancer, and 699 NHL patients. 5-FU+LV+RT (gastric cancer) had the highest incidence of dose delay while TC (breast cancer) had the lowest. (Table 1) Dose reduction was highest for EOX and lowest for 5-FU with radiation (lung cancer). The proportion of patients who experienced chemotherapy dose delay or dose reduction increased over the chemotherapy course. (Figure 1) In addition, we found an increasing trend with stage for dose delay.

Conclusions
The incidences of chemotherapy dose delays and dose reductions varied significantly across tumor types and regimens, and were increased with advanced stages.

MANAGEMENT OF COMPLICATIONS IN MULTIPLE MYELOMA (MM)

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Introduction
Due to improvement in treatment the survival of patients (pts) with MM has been prolonged.

Objectives
To examine the impact of supportive therapy on the performance status and treatment outcome of pts suffering from MM.

Methods
Histories of 124 pts with symptomatic MM were retrospectively reviewed. Clinical signs, radiological and laboratory findings and the kind of supportive therapy were analyzed.

Results
The trias of symptoms in MM (pain, renal impairment and anemia) was the target of our examination. The pain was the most dominant clinical sign in 84 % of pts. It was successfully managed by anti-tumor therapy, radiotherapy (RT) plus corticosteroids and only 15 (14 %) pts continued to take analgesic medication after completing the therapy. Osteolytic bone destructions were treated with bisphosphonates and 78 % responded well. Vertebral collapse secondary to osteolytic lesions was found in 78 (63 %) pts. RT and/or surgery ensured good palliation and relieved the pain in 85 % of pts. Hypercalcemia was present in 45 (36 %) pts and was normalized with prompt rehydration, corticosteroids and i.v. bisphosphonates. Renal impairment, seen in 37 % of pts at presentation was reversible (creatinine more than 2 mg/dl and urine flow of more than 3 l) in 75 % (34/46) after administration of i.v. fluids and CT. Anemia was present in 65 % (81/124) and hemoglobin was less than 8 g/dl in 7 % of patients. After a 3–6 months’ erythropoietin treatment a response rate of 77 % (62/81) was achieved.

Conclusions
Our results confirmed that efficient management of disease and therapy-induced complications in MM improve patients’ well being and probably prolong the survival rate.

PRIMARY PROPHYLAXIS OF NEUTROPENIA IN BREAST CANCER UNDERGOING ADJUVANT CHEMOTHERAPY WITH FEC100 +/- DOCETAXEL: COMPARISON OF EFFICACY AND SAFETY BETWEEN LENOGRASTIM AND PEGFILGRASTIM

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³Biostatistics and Scientific Direction, Regina Elena National Cancer Institute, Rome, Italy
⁴Department of Gynaecological and Obstetrical Sciences and Urological Sciences, “Sapienza” University of Rome, Rome, Italy
Introduction
Myelosuppression is primary toxicity of many chemotherapy regimens and limits their applicability. Use of G-CSF is important to reduce incidence of febrile neutropenia (N), but is burdened with bone pain (BP).

Objectives
Evaluate safety and efficacy of a single injection of pegfilgrastim (P) compared to daily administration of lenograstim (L) in breast cancer patients undergoing adjuvant chemotherapy.

Methods
Single injection of P compared to 5 daily administrations of L in a population of 56 women undergoing chemotherapy with FEC-100 for 6 cycles (Group-A) or 3 FEC-100 followed by 3 Docetaxel-100 (Group-B).

Results
In Group-A, 40 % of patients showed N-G4, 35.3 % of those treated with L while 44.4 % of those treated with P. In Group-B, 57.1 % of patients showed N-G4: 75.0 % of those treated with L and 33.3 % of patients treated with P ($p=0.05$). Overall, 30.4 % of all patients developed BP with intensity of 7–10 second Numeric Rating Scale. BP incidence was significantly higher in Group-B than in Group-A ($52.4 \% \text{ vs } 17.1 \%, p=0.005$), with no significant differences between L and P. In both groups, the average duration of BP was 4–6 days.

Conclusions
Both G-CSFs showed efficacy in reduction of N, but P showed a better action with similar side effects in Group-B. Moreover, P could be a better choice for patient’s compliance because of single injection in front of 5 necessary for L. Overall, BP incidence was significantly higher in Group-B than in Group-A ($p=0.005$), with no significant differences between L and P.

08-09-P
ROAD-MAP TO A PROSPECTIVE ASSESSMENT OF FRAILTY IN NEWLY DIAGNOSED MYELOMA PATIENTS
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Introduction
Survival of myeloma patients has increased in recent years, but about 20 % of the patients die in the first year after diagnosis. Infections and renal failure are major causes of death, and if not fatal these complications often result in delays of anti-myeloma treatment, progressive disease and death. Many myeloma patients are old with co-morbidities that make them vulnerable, and the disease often causes hypo-gammaglobulinemia and renal failure that may affect patients of all ages. Frailty due to disease-associated factors, high age or co-morbidity has attracted more interest in recent years with the hope that appropriate interventions may improve the patient’s survival and quality of life.

Objectives
To apply a systematic, prospective assessment of frailty in newly diagnosed myeloma patients, and to reassess the patients at 3, 6 and 12 months to see how appropriate interventions has influenced the patient’s survival and quality of life.

Methods
A prospective collection of data that reflects disease manifestations and allows assessment of frailty and QoL according to internationally validated scoring systems. Tailored interventions will be implemented to compensate for frailty and improve QoL.

Results
A scoring system has been developed that will enable us to determine disease severity, frailty and QoL at diagnosis and after 3, 6 and 12 months of interventions.

Conclusions
A systematic, prospective assessment of myeloma patient’s disease manifestations, frailty and symptoms will probably allow us to tailor interventions that best meet the patient’s needs.

08-08-P
CHEMOTHERAPY INDUCED TOXICITY IN PATIENTS WITH BREAST CANCER FROM A REGIONAL CANCER CENTER
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Introduction
Chemotherapy is an important part of breast cancer management. Documentation of chemotherapy induced toxicity is of further paramount importance as it indicates tolerance of the patient and also adds to the treatment cost.

Objectives
The purpose of this study was to assess chemotherapy induced toxicity in patients with breast cancer.

Methods
Between 2003 and 2007, 1140 patients were diagnosed with breast cancer. Patient’s records were analysed for chemotherapy induced toxicity such as anemia, leucopenia, thrombocytopenia, derangement in kidney function tests (KFTs), vomiting, mucositis and neutropenia.

Results
Total 750 patients received chemotherapy. Neoadjuvant chemotherapy was given to 290(38.6 %) and adjuvant to 460(61.3 %) patients respectively. CMF chemotherapy regimen was given to 209(27.8 %), FAC to 425(56.6 %), taxane based regimen to 71(9 %) and plat in based to 10(1 %) patients respectively. Chemotherapy induced toxicity was seen in 153(20.4 %) patients, leucopenia in 77(10 %), anemia in 43(5.7 %), neutropenia in 18(2.4 %), thrombocytopenia in 10(1 %), mucositis in 7(0.9 %), vomiting in 4(0.5 %), deranged KFTs in 3(0.4) and encaphalopathy in 1(0.1 %) patient, respectively. All the three hematological parameters were deranged in 21(2.8 %) patients. Grade 3 vomiting was seen in 10(1 %) patients. Chemotherapy cycles were delayed for more than a week in 151(20 %) patients.

Conclusions
Chemotherapy causes significant toxicity in patients with breast cancer leading to delay in next cycle of chemotherapy and it also add to the overall cost of treatment as these patients need supportive care and extra hospital visits and many a times admission. Vomiting was under documented in the present study.

08-10-P
THE EFFECT OF GINGER (ZINGIBER OFFICINALE) ON PLATELET AGGREGATION: A SYSTEMATIC LITERATURE REVIEW
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Introduction
Ginger (Zingiber officinale) has been used as an anti-inflammatory and anti-emetic agent for centuries. A recent trend has been the use of ginger for the prevention and management of chemotherapy induced nausea and vomiting (CINV) and the inhibition of platelet aggregation. The current review will provide an updated systemic overview of the available studies investigating the effect of ginger on platelet aggregation.
Introduction
Ginger has been studied for its potential anti-nausea effect; however, concerns over potential “off target” antiplatelet effects could limit the application of ginger, particularly in oncology patients, who frequently experience thrombocytopenia due to myelosuppression.

Objectives
The purpose of this review was to systematically evaluate existing clinical and observational data regarding the potential effect of ginger on platelet aggregation.

Methods
Using the PRISMA guidelines, we systematically reviewed the results of clinical and observational trials regarding the effect of ginger on markers of platelet aggregation in adults compared to either placebo or baseline data. Studies included in this review stipulated the independent variable was a ginger preparation or isolated ginger compound, and used measures of platelet aggregation as the primary outcome.

Results
Ten studies were included, comprising eight clinical trials and two observational studies. Of the eight clinical trials, four reported that ginger reduced platelet aggregation, while the remaining four reported no effect. The two observational studies also reported mixed findings. Many of the studies appraised for this review had moderate risks of bias. Methodology varied considerably between studies, notably the time frame studied, dose of ginger used, and the characteristics of subjects recruited (e.g. healthy vs. patients with chronic diseases).

Conclusions
The evidence that ginger affects platelet aggregation and coagulation is equivocal and further research is needed to address existing limitations and to definitively address this question.

08-11-P
SEX HORMONES AND NUCLEAR APPENDAGES
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Introduction
Some nuclear neutrophils contain a small chromatin mass appended to one of their nucleus lobes. To date, their nature has remained uncertain. Some published data demonstrated that the frequencies and the distribution of these appendages were influenced by sex and by many other factors such as hormones, granulocytes metabolism, cell proliferation, and age.

Objectives
This blind study was designed to check whether appendages are related to sex hormones and change with menstrual cycle phases or not.

Methods
Nuclear appendages were studied in ten women during different phases of menstrual cycle.

Ages of the individuals varied from 25 to 35 years old. None of them had history of malignancy, severe systemic infection, pregnancy, recent transfusions, malnutrition, consumption of oral contraceptives or any other medication that affects the menstrual cycle.

Peripheral blood samples were collected into EDTA tubes at different phases of the menstrual cycle (1st day, 7th, 14th and the 21st).

Whole blood count were studied. Blood smears were preformed from each tube, stained then observed under immersion oil light microscope.

Results
Two hundred polynuclear neutrophils were examined for nuclear appendages for each sample and classified into four groups: neutrophils with form A (drumstick), form B (sessile nodules) or form C appendages (tag and hook) and neutrophils without any appendages.

Conclusions
The difference (A-C) was calculated for each slide. There were significant variations of the (A-C) during the menstrual cycle for each individual but these variations were not homogeneous from a woman to another.

Lymphedema
09-01-O

STANDARDIZING LYMPHEDEMA ASSESSMENT PRACTICES: A QUALITY IMPROVEMENT INITIATIVE IN ALBERTA CANADA
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Introduction
Approximately 1 in 5 women who undergo treatment for breast cancer are diagnosed with lymphedema. Appropriate assessment and surveillance of lymphedema has been found to reduce morbidity associated with the condition. However, assessment practices for breast cancer related lymphedema were found to vary considerably across hospitals in Alberta, Canada.

Objectives
A two phase quality improvement project was undertaken by an interdisciplinary team of rehabilitation practitioners from rural and urban hospital sites in Alberta. The team’s objective was to develop and implement a protocol to standardize lymphedema assessment practices.

Methods
Phase I, the development phase, involved a scoping review of the literature on the assessment of lymphedema. Findings were synthesized and consensus reached on components of the assessment protocol. Identified barriers to implementation included 1) practitioner time, 2) clarification of terms, and 3) lack of standardized measurement procedures. Phase II, the implementation phase, involved finalizing the protocol and assessment form for pilot testing in clinical sites. Facilitators for change in lymphedema assessment practices included 1) implementation of new technologies, and 2) funding to support active practice change. Given the quality improvement methodology of the project, approval from the Institutional Review Board was not necessary.

Results
Fifty breast cancer survivors with lymphedema were assessed using the protocol. Efficiency with the protocol improved over time. Rehabilitation practitioners provided feedback for improvements to the form.

Conclusions
This quality improvement initiative demonstrates the early success of a systematic approach to standardize lymphedema assessment practices across hospitals.
09-02-P

IMMEDIATE EFFECTS OF ACTIVE EXERCISE WITH COMPRESSION THERAPY ON LOWER-LIMB LYMPHEDEMA

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Introduction
Active exercise with compression therapy (AECT) is one of the standard treatments for gynecological cancer-related lower-limb lymphedema (LLL); however, there is little evidence to support its use.

Objectives
To evaluate the immediate effects of AECT performed using a bicycle ergometer on LLL.

Methods
This was a randomized controlled cross-over trial. Twenty-three women with LLL completed high-load AECT, low load AECT, and compression-only therapy (CT). AECT was performed on a bicycle ergometer with elastic bandages. Each intervention was performed for 15 min and three conditions were separated by a 1-week wash-out period. Lower limb volume was assessed using a Perometer™. Subjective symptoms (pain and heaviness) and skin symptoms (pitting and stiffness) were assessed using visual analog scale (VAS) and palpation respectively. Measurements were taken before and after each intervention. Analysis of variance using linear mixed effects modeling was used for statistical analyses.

Results
Volume decrement was significantly different between the three interventions (p<0.05). The volume of the lower limb was significantly more reduced after high-load AECT than after CT. Subjective symptoms and skin symptoms were similar across the three interventions. The severity of pre-intervention skin symptoms was significantly correlated with volume decrement after high- and low-load AECT.

Conclusions
AECT using the bicycle ergometer was more effective than CT to decrease the volume of the lower-limb. These results suggest that AECT has a remarkable effect on severe LLL.

09-03-P

CT MEASUREMENT OF PREVERTEBRAL SOFT TISSUE (PVST) & EPIGHLOTTIS AS A PREDICTOR OF SWALLOWING DYSFUNCTION IN HEAD AND NECK CANCER (HNC)

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Introduction
Surgery and radiation cause soft tissue damage, resulting in lymphedema and fibrosis (LEF). LEF of Dysphagia/Aspiration Related Structures (DARS) may result in late swallowing abnormalities, but there are currently no objective screening measures for this phenomenon. Surveillance CTs are routinely used in HNC patients post-treatment. We developed the CT-LEF Assessment Tool (CT-LEF AT) to assess LEF using data from routine CT scans.

Objectives
1) Employ CT-LEF AT to detect increase in PVST and epiglottic thickness following HNC treatment.
2) Correlate PVST and epiglottic thickness measurements with self-reported swallowing and voice abnormalities.

Methods
Ninety patients with stage 3/4 HNC were enrolled in a prospective, longitudinal study assessing LEF (1R01 CA149113-01A1), 58 of whom met inclusion criteria for this analysis. Patients completed swallow solids (SS), swallow liquids (SL), and voice subscales of the Vanderbilt Head and Neck Symptom Survey and CTs of the neck at prespecified time points. CTs were graded with the CT-LEF AT and measurements correlated with subscale scores.

Results
Median PVST and epiglottic thickness increased from baseline to post-treatment; measurements then decreased but never returned to baseline (p<0.001). At points of most variability post-treatment, greater epiglottic thicknesses were statistically significantly associated with higher SS and SL scores (p<0.05); greater PVST thicknesses were associated with higher SS scores (p<0.05).

Conclusions
PVST & epiglottic thicknesses, as measured by the CT-LEF AT, correlated with swallowing dysfunction but not voice. Although confirmatory data are needed, this tool may serve as an objective measure for identifying patients requiring swallowing assessment.

09-04-P

THE RISK FACTORS FOR SUBCLINICAL AND CLINICAL LYMPHEDEMA (LE) IN BREAST CANCER (BC) PATIENTS TREATED WITH AXILLARY LYMPH NODE DISSECTION (ALND)

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Introduction
The diagnosis of BC related subclinical LE (SLE) continues to rise based on the use of new LE assessment tools.

Objectives
To determine the risk factors for subclinical and clinical LE in BC patients that underwent ALND.

Methods
The data from BC patients with ALND was collected prospectively through our LE monitoring program. SLE was detected using an L-Dex ® U 400 and clinical LE was detected by circumferential tape measurements ± BIS.

Results
The mean age at the time of BC diagnosis (n=180) was 57.0±10.7 and 58.2±9.0 years for subclinical and clinical LE, respectively (p>0.05). The average follow up was 21.1±9.9 months. The rate...
of any LE was 36.1% (n=65); SLE and clinical LE and were 23.9% (n=43) and 12.2% (n=22), respectively. The risk of clinical and SLE was statistically associated with BMI (≥25 kg/m²; p = 0.03), and RT (p = 0.01), but it was marginally significant for CT (p = 0.05). The number of patients with T2 ≥3 was higher in SLE than clinical LE (p = 0.002). The majority of patients received adjuvant CT, and LE in the both of subgroups associated with timing of CT (SLE p = 0.015, clinical LE 0.006, respectively). SLE was diagnosed more in patients with autologous breast reconstruction (p = 0.04). T stage ≥3 in patients with SLE was higher than in patients without SLE (p = 0.017).

**Conclusions**
We determined that LE was associated with RT, timing of CT and BMI. Type of reconstruction and advanced tumor stage were statistically considerable for SLE in BC patients underwent ALND.

**09-06-P**

**THE RELATIONSHIP BETWEEN LYMPHEDEMA, PAIN AND HANDGRIP STRENGTH IN PATIENTS WITH MASTECTOMY**

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**Introduction**
Lymphedema manifested by various symptoms

**Objectives**
To investigate the relationship between lymphedema, pain and handgrip strength in patients with mastectomy.

**Methods**
Thirty-seven female lymphedema patients who were operated due to ductal carcinoma in situ or invasive ductal carcinoma of the breast and recommended physiotherapy and rehabilitation were evaluated. The demographic and social data, details of surgeries and oncology treatment, swelling, handgrip strengths were recorded. Pain was evaluated using visual analogue scale. Girth measurements were taken of the metacarpophalangeal joint, wrist, 15 cm below the elbow, 7 cm below the elbow and elbow joint. Grip strength was evaluated by Jamar dynamometer.

**Results**
Thirty-seven female (mean age: 53.46±10.2) were included in this study. Lymphedema of the dominant side was in 67.57%. Twenty-two patients were stage-I and 15 patients were stage-II lymphedema. 67.6% of patients were reported arm and back pain on the lymphedema side. The mean pain intensity was 3.8±1.4 (min-max, 2–7).

Girth measurements of limb with lymphedema were higher than the other arm measurements at all levels (p<0.001). Hand grip strength of the lymphedema side was lower than the normal extremity hand grip strength (p = 0.008).

A positive correlation was found between the hand grip strengths differences and girth measurements differences (p<0.05). There were no correlation between severity of pain, intensity of edema and grip strength (p>0.05).

**Conclusions**
Increase in the severity of edema can cause a decrease in grip strengths in patients with lymphedema. In the future we are going to think to design a more comprehensive research.

**09-07-P**

**THE EFFECT OF INDIVIDUAL PHYSIOTHERAPY AND REHABILITATION TRAINING PROGRAM ON LYMPHEDEMA IN PATIENTS WITH MASTECTOMY**

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**Introduction**
Lymphedema manifested by various symptoms

**Objectives**
To investigate the relationship between lymphedema, pain and handgrip strength in patients with mastectomy.

**Methods**
Thirty-seven female lymphedema patients who were operated due to ductal carcinoma in situ or invasive ductal carcinoma of the breast and recommended physiotherapy and rehabilitation were evaluated. The demographic and social data, details of surgeries and oncology treatment, swelling, handgrip strengths were recorded. Pain was evaluated using visual analogue scale. Girth measurements were taken of the metacarpophalangeal joint, wrist, 15 cm below the elbow, 7 cm below the elbow and elbow joint. Grip strength was evaluated by Jamar dynamometer.

**Results**
Thirty-seven female (mean age: 53.46±10.2) were included in this study. Lymphedema of the dominant side was in 67.57%. Twenty-two patients were stage-I and 15 patients were stage-II lymphedema. 67.6% of patients were reported arm and back pain on the lymphedema side. The mean pain intensity was 3.8±1.4 (min-max, 2–7).

Girth measurements of limb with lymphedema were higher than the other arm measurements at all levels (p<0.001). Hand grip strength of the lymphedema side was lower than the normal extremity hand grip strength (p = 0.008).

A positive correlation was found between the hand grip strengths differences and girth measurements differences (p<0.05). There were no correlation between severity of pain, intensity of edema and grip strength (p>0.05).

**Conclusions**
Increase in the severity of edema can cause a decrease in grip strengths in patients with lymphedema. In the future we are going to think to design a more comprehensive research.
Introduction
In Turkey, breast cancer is the most common type of cancer in women.

Objectives
Our aim is to investigate the effect of physiotherapy and rehabilitation training on lymphedema in patients with mastectomy.

Methods
An individualized education program related to lymphedema was given to lymphedema patients. The exercises advised to repeat 2 times a day, were checked every week during 1 month. The demographic and social data, details of surgeries and oncology treatment, the edema period, swelling, and ranges of motion of patients were recorded. Pain was evaluated using a visual analogue scale. Girth measurements were taken of the proximal interphalangeal joint, metacarpophalangeal joint, wrist, 10 cm above the wrist, elbow, 10 cm above the elbow joint, and the axillary cavity. Evaluations were carried out prior to training, and repeated a month after training.

Results
Twenty women (mean age 53.44±8.1 years) participated in the study. The ill arm right/left=6/14. Shoulder ranges of motion were restricted in four patients. The edema period was 2–17 months. After training program, the pain (p<0.01) and the girth measurements were decreased (p<0.05). A positive relationship was determined between the pain and the edema period (p<0.05) and body mass index and a history of cancer (p<0.05).

Conclusions
Even though physiotherapy and rehabilitation is important effects in lymphedema treatment, treatment is delayed due to the lack of trained physiotherapists and busy clinics. Patient-specific home training program may decrease the amount of edema and pain. The preventive education given to patients with lymphedema candidates during the early stage may increase the success of the treatment.

09-08-P
OUTPATIENT MANAGEMENT OF LYMPHEDEMA IN BREAST CANCER PATIENTS IN JAPAN

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Introduction
Most Japanese patients with lymphedema were treated on an outpatient-basis. Japanese hot and humid climate often increases risks for skin adverse events, necessitating modification of the standard procedure.

Objectives
To review the actual condition of lymphedema management in Japan.

Methods
We retrospectively reviewed actual procedures, adverse events, and outcomes of consecutive 400 breast cancer patients (399 women and 1 men) who had lymphedema or high-risks for lymphedema in our hospital in 2013. All patients were treated by occupational therapists in our hospital.
Conclusions
QOL decreases due to LLL-related symptoms and financial diffi-
culty in women with LLL. Well-designed prospective studies are
required to confirm these findings.

09-10-P
PREVENTION OF LYMPHEDEMA FOLLOWING COMPLETE
DECONGESTIVE PHYSIOTHERAPY IN BREAST CANCER
PATIENTS: A LITERATURE REVIEW
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Introduction
Complete decongestive physiotherapy (CDP) is considered the
gold standard of lymphedema treatment of the arm. Current re-
search has aimed to identify whether any preventative effect exists
if CDP is administered immediately post-surgery.

Objectives
The goal of this literature review was to determine the efficacy of
CDP in the prevention of lymphedema development in post-
treatment breast cancer patients.

Methods
A literature search was conducted using the Ovid MEDLINE,
Cochrane Central Register of Controlled Trials, and Ovid
EMBASE databases. Keywords used in the search were “physio-
therapy”, “breast cancer” and “lymphedema”.

Results
Four studies conducted between 2002 and 2010 were identified
that commented on the efficacy of CDP or manual lymph drainage
(MLD) at preventing lymphedema development in post-treatment
breast cancer patients. Early CDP was found to significantly reduce
the incidence of lymphedema and to increase lymphatic flow
progression.

Conclusions
Current evidence suggests that CDP is effective in preventing
lymphedema after breast cancer treatment. However, the ideal dura-
length, and commencement timeframe of post-treatment CDP in
specific subpopulations remains unclear.

Mucositis
10-01-O
CLONIDINE MUCOADHESIVE BUCCAL TABLET
(CLONIDINE LAURIAD) PREVENTS SEVERE
RADIOMUCOSITIS IN HEAD AND NECK CANCER PATIENTS:
A PHASE II RANDOMIZED TRIAL
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G. Pajkot6, R.D. Kortmann7, J. Contreras-Martinez8, P. Ceruso9,
X. Zasadny10, F. Arias de la Vega11, P. Attaill12, B. Vasseur13, M. Henke13
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Introduction
Oral mucositis (OM) is the most frequent complication of chemo-
radiotherapy (CRT) in head and neck cancer patients. Clonidine
reduces NF-kB activation and expression of pro-inflammatory cy-
tokines. In preclinical studies, topical clonidine reduced the inci-
dence of severe OM (SOM).

Objectives
To evaluate the preventive efficacy on SOM and the safety of clonidine
mucoadhesive buccal tablet (MBT) in head and neck cancer patients
receiving CRT.

Methods
This phase 2, multicenter, double-blind, randomized, placebo-con-
trolled, 3-arm study compared clonidine MBT 50 μg, 100 μg, and
placebo. Clonidine MBT and matching placebo were applied to
the gum once daily 1–3 days prior to RT until the end of CRT.
The primary endpoint was the incidence of SOM (WHO grade 3
or 4) at the cumulative radiation dose analyzed by the Kaplan-
Meier method. Safety was evaluated by monitoring AEs.

Results
Clonidine MBT was administered to 121 patients and placebo to
62. SOM developed in 45.3 % of patients in the clonidine MBT
group and in 60.0 % of patients in the placebo group (p=0.064).
Patients developed SOM at a median radiation dose of 60.0 Gy
and 48.0 Gy for the clonidine MBT and placebo groups, respec-
tively (HR=0.754 [0.484; 1.175]; p=0.211). The percentage of
AEs was similar between groups with less nausea and dysphagia
in the clonidine MBT groups

Conclusions
Clonidine MBT treatment in head and neck cancer patients under-
going postoperative CRT showed a strong trend of a reduction of
SOM with minimal toxicity. The observed differences support the
initiation of confirmatory studies.

10-02-O
EFFECTIVENESS OF LOW-LEVEL LASER THERAPY IN THE
PREVENTION AND TREATMENT OF CHEMOTHERAPY-
INDUCED ORAL MUCOSITIS IN CHILDREN
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Introduction
Oral mucositis (OM) is a common side effect of chemotherapy; it can impair quality of life because of pain, ulcers, overinfection and risk of malnutrition, especially in childhood.

Objectives
The aim was to evaluate the effect of low-level laser therapy (LLLT) in the prevention of chemotherapy related oral mucositis and pain in childhood, versus sham therapy.

Methods
A randomized double blind clinical trial was carried-out. Patients from 3 to 18 years of age undergoing chemotherapy or HSCT were eligible for this study. Patients were random divided in two groups: group A received laser therapy from the beginning of cancer therapy for 8 days every 2 days; group B received sham therapy (placebo) with the same timing. The OM score and the pain evaluation were performed at day 1 (immediately before the beginning cancer treatment), day 4, day 8 and at day 12 as follow up.

Results
A total of 72 patients were analysed (36 children per group). The incidence of OM was significantly lower in the group treated by laser \( (p<0.05) \) at each measurement, such as the OM grade. In addition, a statistically significative difference in pain reduction between two groups was observed \( (p<0.05) \).

Conclusions
This study in children has demonstrated the analgesic effect of LLLT in cancer therapy related-OM, such as its preventive and therapeutic effect.

10-03-O

TIGHT JUNCTION DISRUPTION IS SEEN IN THE ORAL CAVITY OF PATIENTS RECEIVING STANDARD DOSE CHEMOTHERAPY

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Introduction
Modification of tight junction (TJ) proteins by inflammatory mediators is well-documented. We have previously shown irinotecan is able to modulate TJ expression in the small and large intestines, however the effect of chemotherapy on oral epithelial TJs remains unclear.

Objectives
To assess the molecular integrity of oral epithelial TJs following chemotherapy and correlate with changes in proinflammatory cytokines and MMP profiles.

Methods
Archival patient samples were used. Patients \((n=23)\) undergoing chemotherapy were recruited from the Royal Adelaide Hospital between 2000 and 03. Patients had two buccal biopsies; one prior to chemotherapy and one up to 6 days after chemotherapy. Buccal biopsies were also taken from five healthy volunteers. H&E analysis was performed and epithelial thickness quantified. Immunohistochemical analysis was conducted for TJ proteins (occludin, claudin-1, ZO-1), proinflammatory cytokines (IL-1b, IL-6, TNF) and MMPs (MMP-2 and MMP-9).

Results
Epithelial atrophy was observed both prior to \((p=0.0002)\) and following chemotherapy \((p<0.0001; \text{Fig 1a})\). Epithelial thickness prior to chemotherapy correlated with the number of previous chemotherapy cycles patients underwent \((r^2=0.66; \text{Fig 1b})\). Increased expression of proinflammatory cytokines and MMP-2 was seen in patients following chemotherapy corresponding with decreased expression of ZO-1, particularly in the basal epithelium. Altered distribution of ZO-1 and claudin-1 staining from the membrane to the cytoplasm was clearly evident following chemotherapy (Fig 2).

Conclusions
Chemotherapy causes defects in oral TJs, coupled with altered cytokine and MMP profiles. TJ disruption in the epithelium may contribute to ulcer development and these events may be a target for preventative treatment.
10-04-O

DEVELOPMENT AND VALIDATION OF A PATIENT-REPORTED ASSESSMENT TOOL FOR SYSTEMIC THERAPY-INDUCED DIARRHEA

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Introduction
Diarrhea is a common toxicity of cancer therapies, frequently leading to complications and dose delays/reductions that can lead to treatment failure. Current tools for assessing therapy-induced diarrhea lack standardization, do not comprehensively assess patients’ bowel habits, and have not undergone validation.

Objectives
This study aims to develop a validated patient-reported diarrhea assessment tool used to identify the occurrence and evaluate the severity of diarrhea in cancer patients at increased risk of experiencing systemic therapy-induced diarrhea.

Methods
We conducted a two-phase study to develop the questionnaire. Part one consisted of a literature search and question development for the initial version, based on clinician consensus and themes identified in patient interviews. The questionnaire then underwent internal validation in cancer patients receiving chemotherapy or targeted agents at high risk of diarrhea. Patients completed the questionnaire at baseline and weekly with a daily diary. Results were evaluated for reliability, consistency and validity and a scoring system was developed using exploratory factor analysis.

Results
Ninety-five entries from 43 participants were completed. The questionnaire showed good internal consistency (Cronbach’s α=0.79, 0.69–0.88), inter-rater reliability in severity (Kendall’s τ=0.82), urgency (κ=0.71), fecal incontinence (κ=0.752) and antidiarrheal use (κ=0.897) dimensions, as well as excellent criterion validity (C-statistic=0.966). There was fair correlation between diaries and questionnaires (r=0.897) dimensions, as well as excellent criterion validity (C-statistic=0.88). The final questionnaire accurately and reliably predicts diarrhea incidence and severity by evaluating frequency, urgency, abdominal pain, fecal incontinence, antidiarrheal use and quality of life. Future studies are required to externally validate this questionnaire.

Conclusions
The questionnaire accurately and reliably predicts diarrhea incidence and severity by evaluating frequency, urgency, abdominal pain, fecal incontinence, antidiarrheal use and quality of life. Future studies are required to externally validate this questionnaire.

10-05-O

ASSOCIATION BETWEEN ORAL MICROBIOME AND MUCOSITIS IN HEMATOPOIETIC STEM CELL TRANSPLANT SUBJECTS

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Introduction
Over 75% of cancer patients develop oral mucositis (OM) following hematopoietic stem cell transplant (HSCT). The role of oral microbiome in OM remains largely unexplored.

Objectives
To determine whether oral bacterial profiles identified in patients prior to HSCT can distinguish patients who develop mucositis from those who do not.

Methods
Saliva samples were collected from AML (n=10) and myeloma (n=9) patients prior to HSCT. Bacterial profiles (96 oral genera, 1–50,000 counts/ genera) were obtained using Human Oral Microbe Identification using Next-Generation Sequencing (HOMINGS). Mucositis was assessed by WHO grading scales 0 to 4. ANNI text mining program was used to identify oral bacterial genera implicated in OM. Hierarchical clustering (HCL) in TMev(TM4) and determination of dissimilarity in GrammR(R), were performed to compare mucositis with non-mucositis (n=5). Wilcoxon rank sum test was used to determine significance.

Results
ANNi identified 16 OM genera, also represented in our HOMINGS 96-genera dataset. HCL showed increased dissimilarity between mucositis and non-mucositis, when 16-genera dataset was compared to 96-genera dataset. GrammR analysis confirmed that the 16-genera dataset distinguished mucositis from non-mucositis (p=0.041), while the 96-genera dataset did not (p=0.19). Removing the genera with <100 counts/ genera from 96-genera dataset and comparing the resulting 63-genera dataset with corresponding 15 OM genera dataset, generated similar results (p=0.26 and p=0.045, respectively). Random 15-genera subsets of HOMINGS dataset not including the OM genera, did not distinguish mucositis from non-mucositis, thereby confirming the results.

Conclusions
Comparative analyses combining data from next-generation sequencing technologies and targeted approaches can help identifying oral bacterial profiles conferring increased risk in OM.

10-06-P

TLR4 DELETION ATTENUATES IRINOTECAN-INDUCED GUT TOXICITY AND BARRIER DYSFUNCTION IN THE BALB/C MOUSE OFFERING A NEW THERAPEUTIC TARGET

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Introduction
Our recent research suggests that TLR4 is a key mediator of chemotherapy-induced gut toxicity (CIGT). TLR4 activation causes powerful downstream inflammatory signaling and we therefore hypothesise that TLR4 deletion (-/-) will significantly improve CIGT.

Objectives
To confirm the protective effect of TLR4 deletion on the development of irinotecan-induced gut toxicity.

Methods
TLR4-/- and wild-type (WT) BALB/c mice received a single dose of irinotecan (270–5 mg/kg), or vehicle control, and were killed at 6 and 72 h post-chemotherapy via transcardial perfusion. CIGT was assessed using validated clinical and histopathological markers. Three hours prior to kill time points, mice were gavaged with 500 mg/kg of 4kD FITC-dextran. Levels were quantified in
the serum and used as a marker of intestinal barrier function. Sections of the distal colon were mounted into Ussing Chambers for ex vivo functional analysis of chloride secretion and electrical conductance.

Results
Diarrhoea ($p<0.0001$) and weight loss ($p=0.021$) were significantly improved in $\text{tlr4}^{-/-}$ mice compared to WT. Mucosal injury scores remained at baseline in $\text{tlr4}^{-/-}$ mice, while a significant increase was observed in the jejunum and colon of WT mice ($p=0.002$). Intestinal barrier function was improved in $\text{tlr4}^{-/-}$ mice compared to WT controls ($p=0.0051$). Ex vivo functional analysis revealed no significant differences in electrical characteristics or chloride secretion in the distal colon of $\text{tlr4}^{-/-}$ and WT animals.

Conclusions
TLR4 deletion protects against the development of irinotecan-induced gut toxicity through barrier modulation. This offers a new avenue for targeting TLR4 and the innate immune system to prevent this toxicity.

10-07-P
MINIMAL ENTERAL FEEDING IMPROVES RECOVERY OF METHOTREXATE-INDUCED GASTROINTESTINAL MUCOSITIS IN THE RAT

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Introduction
Patients suffering from gastrointestinal mucositis often receive parenteral nutrition as nutritional support. However, the absence of enteral nutrition might not be beneficial for the intestine.

Objectives
We aimed to determine the feasibility of Minimal Enteral Feeding (MEF) administration in a methotrexate (MTX)-induced mucositis rat model, and thereby determine the effect of MEF on recovery.

Methods
Male wistar rats were attached to swivel systems from day 1–5 after 45 mg/kg MTX IV injection. The MTX group continued ad libitum feeding, the MTX+MEF group continued ad libitum feeding and received from day 1–5 continuously MEF. MEF consisted of 20% of their normal caloric intake. We measured bodyweight, intake and plasma citrulline. At day 10 the rats were terminated and villus and crypt length were measured.

Results
The administration of MEF caused no increased severity of mucositis-phenotype, with comparable caloric intake, bodyweight and plasma citrulline during mucositis. The recovery of plasma citrulline levels was not different between both groups. At day 7 and 8 the MTX+MEF group gained significantly more weight ($p<0.05$ and $p<0.01$, respectively), and at day 8 and 9 the total caloric intake was significantly increased ($p<0.01$ and $p<0.05$, respectively) compared to the MTX group. At day 10 the rats from the MTX+MEF group showed a significant increase in jejunal villus length compared to the MTX group ($p=0.05$).

Conclusions
This is the first study in which the feasibility of MEF administration during chemotherapy-induced mucositis was determined. This study indicates that MEF administration is feasible during mucositis and suggests that MEF accelerates recovery after MTX-induced mucositis.

10-08-P
CLONIDINE DOES NOT INTERFERE WITH THE TUMORCIDAL EFFECTS OF CHEMORADIOOTHERAPY (CRT) IN A NUDE MOUSE XENOGRAFT MODEL OF HEAD AND NECK CANCER(HNC)

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Introduction
Clonidine was reported to reduce the duration and the severity of CRT-induced oral mucositis (OM) in patients with HNC. Crucial to its clinical applicability is the need to demonstrate that clonidine does not, simultaneously, mitigate the anti-tumor efficacy of CRT.

Objectives
The interaction of clonidine with CRT was thus evaluated in a nude mouse xenograft model of HNC.

Methods
Athyemic nude mice were inoculated with FaDu human head and neck cancer cells subcutaneously. Once tumor reached an approximate volume of 90 mm$^3$, animals were randomized in 5 groups ($n=10$ gp): oral clonidine given by gavage at 4 mg/day or 40 mg/day based on conversion mouse/human equivalent doses was administered with a single 10 mg/kg dose of Cisplatin (i.p.) and 3 fractions of 6 Gy of irradiation on days 1, 3, and 5. These combination treatment groups were compared to those consisting of CRT alone, clonidine 40 mg/day alone, and no treatment.

Results
At study termination, there was no difference in average tumor volume between the untreated control animals (1275 mm$^3$) and the clonidine only control group (1323 mm$^3$). In contrast, CRT alone or in combination with clonidine at either dose effectively reduced tumor growth with an average final tumor volume of 296 mm$^3$ 341 and 89 mm$^3$ respectively ($p<0.001$ vs control).

Conclusions
Clonidine administered orally does not interfere with the efficacious effects of CRT on tumor growth.

10-09-P
CLINICAL EFFICACY OF A MEDICAL DEVICE IN THE TREATMENT OF CHEMOTHERAPY-INDUCED ORAL MUCOSITIS IN CHILDREN

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Introduction
Oral mucositis (OM) is a severe side effect of anti-cancer therapy, especially in children. It causes a painful inflammatory process, which may have a detrimental effect on quality of life and on therapeutic protocols.

Objectives
The aim was to assess the efficacy of a medical device (Mucosyte®), respect of placebo, in the treatment of chemotherapy-induced OM in childhood.

Methods
Patients between 5 and 18 years of age undergoing chemotherapy for malignancies diseases with OM grade 1 or 2 were enrolled in this study. They were randomized in group A (treated with Mucosyte®), 3 rinses/day.
per 8 days) and group B (treated with placebo, that is an inert water based solution, same dosage).

The OM scoring was performed at day 1 (diagnosis of OM-T0), after 3 days of treatment (T1), and at day 8 (T2). Pain was evaluated through the Visual Analogue Scale (VAS) with the same timing of OM measurement. A statistical analysis was performed.

**Results**

A total of 59 patients were included (28 patients per group). Group A experienced a statistically significative decline of OM just at T2 ($p=0.0038$) while a statistically significative difference in pain reduction between two groups both at T1 and at T2 ($p<0.005$) was observed.

**Conclusions**

The present trial demonstrated the efficacy of this medical device (Mucosyte ®) on the treatment of chemotherapy-induced OM in children; in fact, thanks to its barrier effect, it is useful in re-epithelialization and in reducing pain, OM score, burning and erythema, thanks to its anti-inflammatory component Verbascoside.

**10-10-P**

**CANCER THERAPY-INDUCED ORAL MUCOSITIS: IN SILICO DRUG DISCOVERY BASED ON MOLECULAR PATHWAY INTERACTIONS BETWEEN ORAL MUCOSA AND ORAL MICROBIOME**

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**Introduction**

Cancer Therapy-Induced Oral Mucositis (CTOM) is a major side effect of cancer treatment. Severity of CTOM has been associated with poor oral hygiene via opportunistic bacteria. Little is known about molecular pathways governing interactions between oral microbiome and oral mucosa in cancer patients undergoing treatment. Investigation of these molecular pathways is critical for future therapeutic development.

**Objectives**

Using in silico data mining and analysis tools, the objectives were to investigate CTOM and oral microbiome molecular pathway intersections and to identify drug candidates targeting these pathways.

**Methods**

Genes ($n=42$) associated with CTOM were extracted from 3 independent studies. Genes ($n=48$) targeted by 17 oral bacterial genera implicated in CTOM were identified using ANNI text mining program. Cytoscape-ClueGO and GeneMania online programs, enabling metadata, and gene ontology analyses and network visualization were used to build protein interaction networks. An enriched protein-protein interaction network, integrating identified genes ($n=42+48$), was constructed. Candidate drugs targeted against this network were identified.

**Results**

A composite network containing 169 genes was assembled by integrating the CTOM-associated genes with the genes targeted by bacteria implicated in CTOM. Functional analysis of this network confirmed a strong association with CTOM. Subsequent query identified non-steroidal and steroidal anti-inflammatory drugs, antioxidants, granulocyte colony-stimulating factor, TNF-inhibiting anti-inflammatory and immunosuppressive drugs, all of which target the composite network.

Conclusions

Computational systems biology tools can be used to comprehensively assemble and analyze diverse molecular pathways underlying CTOM. In addition, these tools can identify candidate prophylactics and therapeutics targeting these pathways.

**10-11-P**

**ADMINISTRATION OF THE SMALL MOLECULE ALDEHYDE TRAP NS2 IN A HAMSTER MODEL OF RADIATION-INDUCED ORAL MUCOSITIS**

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**Introduction**

Endogenous aldehydes are implicated as early mediators of inflammation and fibrosis in numerous indications. Specifically, malondialdehyde (MDA) and 4-hydroxynonenal (4-HNE) accumulate during irradiation-induced toxicity; pharmacological scavenging of these species represents a novel prophylactic approach.

**Objectives**

To demonstrate NS2 binding to MDA and 4-HNE in vitro, and to show preclinical efficacy in a hamster model of radiation-induced oral mucositis.

**Methods**

Liquid Chromatography/Mass spectroscopy (LC/MS) analysis examined NS2 binding to MDA or 4-HNE. For in vivo studies, Golden Syrian hamsters ($n=10$) were irradiated to the cheek pouch with a single radiation dose ($40$ Gy). NS2 ($12.5$ mg/kg) was administered subcutaneously b.i.d. from day $-2$ until day $36$. Mucositis was evaluated from day 7–35; at day 36, tissue was formalin-fixed and evaluated for fibrosis using Masson’s Trichrome stain.

**Results**

LC/MS studies confirmed the ability of NS2 to bind to both MDA and 4-HNE. In vitro, NS2 statistically significantly accelerated mucositis lesion healing; by day 24, $90$% of vehicle group exhibited ulceration versus $50$% of the NS2 group. By Day 36, $40$% of the vehicle group remained ulcerated, while ulceration was not evident in the NS2-treated group ($p<0.01$), which exhibited normal tissue at this time-point. Upon histological examination, NS2-treated animals trended towards a decrease in fibrotic severity ($p<0.01$).

**Conclusions**

NS2 trapped the pathologically relevant aldehydes MDA and 4-HNE in vitro. In vivo, NS2 significantly and robustly increased healing rate in a radiation-induced lesion to the hamster cheek pouch. NS2 represents a potential new class of anti-inflammatory agents for the treatment of radiation-induced mucositis.

**10-12-P**

**EFFECTS OF GLYCINE ON COLLAGEN EXPRESSION AND NEUTROPHIL INFILTRATE IN 5-FLUOROURACIL-INDUCED ORAL MUCOSITIS IN HAMSTERS**

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Introduction
Glycine is a simple nonessential amino acid with potential immunomodulatory and anti-inflammatory effects in models animals including Oral Mucositis (OM); however, the mechanisms involved are not well understood.

Objectives
The aim of this study was to investigate the mechanisms of action of Glycine on chemotherapy-induced oral mucositis, as related to effects on collagen expression and inflammation.

Methods
A hamster cheek pouch model of oral mucositis was used with all animals receiving intraperitoneal 5-fluorouracil, followed by surface irritation. Animals were randomly allocated into two groups and treated with a glycine 5%, or no supplemented. Clinical severity of mucositis was assessed by two blinded examiners on D7. Buccal pouch tissue was harvested from all animals on day 7. Collagen was qualitatively and quantitatively evaluated after picrosirius staining. The density of the neutrophil infiltrate was also scored.

Results
The reduced severity of mucositis in the Glycine group was accompanied by a decrease in the number of neutrophils and an increase in the proportion of mature collagen as compared to the control group. The total quantity of collagen was significantly higher in the control group at the day 07 time point, as compared to the Glycine, with a more prolonged inflammatory response in the control group (Figure 1 & Figure 2).

Conclusions
This study supports two mechanisms of action for Glycine in reducing mucositis severity. The increase in collagen organization in response to the Glycine group indicates that glycine promotes wound healing. In addition, Glycine also appears to have an anti-inflammatory effect, as evidenced by the reduction in neutrophil infiltrate.

10-13-P
REBAMIPIDE LIQUID EFFICIENTLY AMELIORATES BOTH SINGLE AND FRACTIONATED RADIATION-INDUCED GLOSSITISES IN RATS
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Introduction
Rebamipide is widely used for an anti-gastric ulcer and anti-gastritis agent. Kawata et al. (2001) reported rebamipide gargle inhibited oral mucositis induced by chemoradiotherapy in head and neck cancer patients although still in a small pilot study.

Objectives
We examined protective effects of rebamipide liquid on not only a single radiation-induced glossitis in rats, but also a fractionated radiation-induced glossitis in rats established newly as more similar animal model to clinical practice.

Methods
In the single irradiation model, rats were exposed to a single dose of 15 Gy X-radiation only around the snout (Day 0). Rebamipide liquid was administered intraorally at doses of 5, 10 or 20 mg/kg, 6 times a day for 14 days from Day −7. The tongue injuries were analyzed by the digital photo-images on Day 7. In the fractionated radiation model, rats were received 10 fractions of 3 Gy X-radiation a day. Rebamipide liquid was administered intraorally at 20 mg/kg, 6 times a day for 17 days from Day −3. The tongue injury scores were recorded every day during the experiment.

Results
Rebamipide liquid reduced ulcer area in dose dependent manner with the inhibition of elevated expressions of inflammatory genes and proteins in the single radiation model. Moreover, rebamipide liquid (20 mg/kg) significantly decreased the AUC of the tongue injury score in the fractionated radiation model.

Conclusions
Rebamipide liquid is expected to be a beneficial remedy for the treatment of the oral mucositis accompanied with the chemoradiotherapy.

10-14-P
LIPID LOWERING DRUGS (STATINS) FOR THE PREVENTION OF RADIOTHERAPY-INDUCED NORMAL TISSUE DAMAGE
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Introduction
Radiotherapy plays a key role in the therapy of malignant disease. Apart from killing tumor cells, ionizing radiation (IR) also causes normal tissue damage. HMG-CoA-reductase inhibitors (statins) interfere with the function of Ras-homologous (Rho) GTPases, thereby affecting multiple stress responses following genotoxic insult.

Objectives
We aim to examine the usefulness of lovastatin (Lova) to protect normal cells in vitro and in vivo from IR-induced injury.

Methods
Induction of DNA damage, DNA damage response (DDR) and cell death were analyzed in various human cell lines (HUVEC, EA.hy926, HaCat) pretreated or not with lovastatin (Lova). Moreover, the impact of Lova on normal tissue damage induced by total body irradiation (TBI) of Balb/c mice was investigated.

Results
Lovastatin inhibited the IR-stimulated activation of various mechanisms of the DDR without affecting the level of DNA double-strand breaks (DSBs) and protected cells from IR-induced apoptotic death in vitro. Moreover, Lova reduced acute pro-inflammatory and profibrotic stress responses of the liver and the intestine following TBI of Balb/c mice (1 × 6 Gy). It also attenuated the mRNA expression of proinflammatory and profibrotic cytokines in lung tissue as observed 3 weeks after TBI (2 × 2.5 Gy).

Conclusions
Lova alleviates various adverse responses of normal cells and tissues resulting from radiation treatment. Therefore, we suggest that statins may be clinically useful for radioprevention.

10-15-P

ORAL CANDIDA CARRIAGE, ORAL MUCOSITIS, PAIN AND XEROSTOMIA AND QUALITY OF LIFE IN HEAD AND NECK CANCER PATIENTS, FOLLOWING IMRT

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Introduction
Significant oral complications with adverse effect on quality of life, develop in head and neck cancer radiotherapy.

Objectives
We aimed to assess the Candida carriage, oral mucositis, pain, xerostomia and quality of life during Intensity Modulated Radiotherapy (IMRT).

Methods
Forty-nine patients were included; 71 % received concurrent chemotherapy; Mean daily dose was 2.19 and total 65.5 Gray. Smear for Candida was taken before and after IMRT. Oral mucositis was assessed according to the EORTC/RTOG criteria. Patients self-assessed their pain and xerostomia and completed the EORTC C30 and H&N35 questionnaires.

Results
Forty-eight patients completed IMRT in the preplanned time; one interrupted due to hematological toxicity. No feeding tube was used. Twenty-five patients were restaged for Candida and 18 completed the questionnaires. Candida carriage and Candida albicans prevalence were similar before and after IMRT, 53 % versus 44 and 38.3 % versus 37.5 % respectively. Severe mucositis was observed in 40.5 % of patients, severe pain in 27.8 %, and severe xerostomia in 19.4 %. No significant differences were observed between tumor histology/locations, or in chemotherapy group. Thirty-one percent of patients received antifungals, 17.8 % anti-virals and 50 % pain medications. Mean weight loss was 6.8 kg. Weakness, constipation, loss of appetite, mouth pain and opening, swallowing, taste disturbances, xerostomia, and loss of weight were significant problems (P = 0.0005 to 0.05). Sixty-four percent of patients are free of disease.

Conclusions
IMRT was completed as preplanned, without the use of feeding tubes. There were expected acute toxicities and deterioration of quality of life. We did not observe an increase in Candida carriage.

10-16-P

CHARACTERIZATION OF DACOMITINIB-INDUCED DIARRHEA: TARGETING CHLORIDE SECRETION WITH CROFELEMER

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Introduction
Dacomitinib is an irreversible pan-HER tyrosine kinase inhibitor (TKI) under investigation for the treatment of NSCLC. The most common adverse event in clinical trials is diarrhea. The underlying mechanism of this diarrhea is hypothesized to be secretory in nature. Crofelemer is a naturally derived compound that prevents secretory diarrhea by targeting intestinal epithelial chloride channels.

Objectives
To determine if crofelemer is an effective inhibitor of dacomitinib-induced diarrhea.

Methods
Male Wistar rats (n=48) received 7.5 mg/kg dacomitinib and 25 mg/kg crofelemer via daily oral gavage. Diarrhea was measured 2× daily using a well-established grading system. Rats were killed after 7 or 21 days. Samples of distal colon were mounted in Ussing chambers to measure short circuit current (Isc) as an indicator of chloride secretion, and routine histopathological and immunohistochemical analysis was conducted.

Results
No significant differences in the incidence of diarrhea between dacomitinib or dacomitinib+crofelemer (83 vs 92 % p >0.05) was seen. Weight loss was also similar across these groups (11 % dacomitinib, 8.9 % dacomitinib+crofelemer p >0.05). Crofelemer alone reduced Isc, but this effect was lost when given in conjunction with dacomitinib. Dacomitinib alone did not
increase \( Jc \). Histopathological analysis revealed decreased villus height in rats treated with dacomitinib (\( p<0.0001 \)) and dacomitinib-crofelemer (\( p=0.0039 \)) compared to controls. However, no differences between groups were seen in crypt depth, apoptosis or proliferation (\( p>0.05 \)).

**Conclusions**
Crofelemer was ineffective at inhibiting dacomitinib-induced diarrhea in our rat model despite reducing intestinal chloride secretion. This indicates that a non-secretory mechanism may be important in the pathogenesis of dacomitinib-induced diarrhea.

### 10-17-P

**MICROVASCULAR INJURY AND ASSOCIATED MEDIATOR CHANGES OCCUR DURING ACUTE RADIOTHERAPY-INDUCED GUT TOXICITY**

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**Introduction**
Radiotherapy-induced gut toxicity (RIGT) is associated with significant diarrhea, pain, and rectal bleeding. The microvasculature has been implicated in the development of RIGT, however, this involvement is not yet characterised. We propose that matrix metalloproteinases (MMPs) and endothelial mediators may be involved in changes to the intestinal microvasculature during RIGT.

**Objectives**
To identify changes to the intestinal microvasculature following radiotherapy.

**Methods**
Dark Agouti rats were treated with a 6 week fractionated radiation schedule of 6×2.5 Gy doses. Rats were killed at 1–15 weeks to represent acute and chronic toxicities. Sections of formalin-fixed, paraffin-embedded colon and jejunum were immunostained for Caspase 3, Ki67, von Willebrand Factor (vWF), MMP-2, MMP-9, and vascular endothelial growth factor (VEGF) using a validated autostainer method.

**Results**
Apoptosis, measured by Caspase-3 immunostaining, significantly increased at 6 weeks in the jejunal microvasculature (\( p=0.0363 \)) and 15 weeks in the colon microvasculature (\( p=0.0473 \)). Cell proliferation, measured by Ki67 immunostaining, significantly decreased at 6 weeks in the jejunal (\( p=0.0186 \)) and colon (\( p=0.0048 \)) microvasculature. vWF increased in the colon microvasculature at 3 (\( p=0.0020 \)) and 6 weeks (\( p=0.0450 \)), as did MMP-2 (\( p=0.0189 \)) at 6 weeks. No significant changes in MMP-9 and VEGF immunostaining were seen.

**Conclusions**
Changes to apoptosis and proliferation were observed in the intestinal microvasculature following fractionated irradiation. vWF and MMP-2 levels were altered in the intestinal microvasculature suggesting a complex pathway of mediator involvement in RIGT. Findings of this study highlight a role for intestinal microvasculature in RIGT and the development of novel treatments.

### 10-18-P

**PRECLINICAL APPLICATION OF NALOXONE TO ATTENUATE CHEMOTHERAPY-INDUCED GUT TOXICITY**

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**Introduction**
Chemotherapy-induced gut toxicity (CIGT) is a major side effect of cancer treatment with limited management options. Our research indicates increased expression of the innate immune modifier, Toll-Like Receptor 4 (TLR4), which correlates with CIGT severity.

**Objectives**
To determine the impact of blocking TLR4, using (−)-naloxone, on CIGT severity and tumor growth following irinotecan.

**Methods**
Female tumor-bearing Dark Agouti rats (\( n=28 \)) were assigned to one of the following treatment groups: control, naloxone, irinotecan or irinotecan + naloxone. Naloxone was gavaged at 100 mg/kg 2 h prior to chemotherapy and every 24 h thereafter for 72 h. Irinotecan was administered as a single 175 mg/kg i.p. dose with atropine (0.03 mg/kg s.c.). Tumor growth, diarrhea and weight loss were recorded as clinical outcomes. At 72 h, animals were killed and intestines and tumor collected for analysis.

**Results**
Severe diarrhea (grade 3) was more frequent in rats treated with irinotecan + naloxone (29%) compared to rats treated with irinotecan alone (14%). There was a significant difference in tumor size as percentage bodyweight between control (4.73%) and naloxone (7.15%) groups at 72 h (\( p=0.016 \)). However, there were no significant differences in tumor burden or body weight loss between any groups.

**Conclusions**
Naloxone was ineffective in reducing CIGT severity and was associated with increased tumor size. Further investigation into the action of naloxone and TLR4 on tumor growth is required. This research was supported by the Ray and Shirl Norman Cancer Research Grant.

### 10-19-P

**AN AUDIT OF CLINICAL PRACTICES IN THE MANAGEMENT OF MUCOSITIS IN CHILDREN IN A PEDIATRIC ONCOLOGY WARD: A 6 YEAR EXPERIENCE**

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**Introduction**
Mucositis is a debilitating, common yet poorly understood symptom in the Palliative care of children with malignancies who undergo Chemotherapy.

**Objectives**
Medical records from Pediatric oncology from 6 years was studied to find out:
1. The incidence of mucositis
2. The assessment of mucositis in children
3. The pattern of analgesia administration and overall management
4. Outcomes during hospitalisation
The data was also analysed in the context of inception of Palliative care services 3 years ago.

**Methods**

An audit was undertaken by the department of Pain medicine and Palliative care services for data dating back from 2015 from the Pediatric oncology unit. Standard tools such as the WHO grading of mucositis, formal pain scales and tools in children for assessment of pain were noted. Management protocols for mucositis were compared with the WHO ladder approach and existing literature on mucositis in children.

**Results**

More than half of the children suffered from Mucositis. Introduction of Palliative services improved assessment and management in patients with improved outcomes in terms of resuming feeding and activities.

**Conclusions**

Mucositis in children in Oncology wards is very common. An inter disciplinary approach with sensitization of nurses and caregivers, with a formal role for Pain medicine and Palliative care improves aspects of care such as assessment and early initiation of opioids and analgesics in these patients.

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### 10-20-P

**MICROBIAL ALTERATIONS AND TOLL-LIKE RECEPTOR EXPRESSION PLAY A ROLE IN THE IMPROVEMENT OF IRINOTECAN-INDUCED MUCOSITIS AFTER TREATMENT WITH THE NEW SELECTIVE GLP-2 RECEPTOR AGONIST, ELSIGLUTIDE**

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**Introduction**

Toll-like receptors (TLRs) within the gastrointestinal tract (GIT) respond to different bacterial ligands and induce inflammation. CPT-11-induced alterations in commensal and pathogenic GIT flora are likely to be involved in inflammation, mediated by TLRs; elsiglutide (a glucagon-like peptide-2 analogue), may attenuate these alterations, reducing GIT inflammation.

**Objectives**

To determine changes to GIT microbiota and TLR expression in CPT-11-induced mucositis with elsiglutide treatment.

**Methods**

Dark Agouti rats were given 200 mg/kg intraperitoneal CPT-11, followed by daily subcutaneous elsiglutide at 0.9 or 0.45 mg/kg. Rats were killed at 6 h (peak apoptosis), 72 h (peak diarrhoea/damage) and 120 h (recovery). qPCR was used to quantify TLR2 and TLR4 and pyrosequencing was used for bacterial analysis.

**Results**

TLR2 (recognising gram-positive bacteria) increased significantly (P<0.05) in response to elsiglutide at 72 h and elsiglutide +/− CPT-11 at 120 h (Table 1). TLR2 changes coincided with increased Firmicutes and Actinobacteria in all elsiglutide-treated rats at 72 h (Table 1). TLR4 (recognising gram-negative bacteria) was significantly increased in CPT-11 treated rats at 72 and 120 h compared with saline; however, addition of 0.9 mg/kg elsiglutide prevented TLR4 increases (Table 1). Proteobacteria increased at 72 and 120 h in CPT-11 treated animals compared with 0.9 mg/kg of elsiglutide+CPT-11 (Table 1).

**Conclusions**

TLR4 expression and gram-negative bacteria increased consistently with damage; however, treatment with 0.9 mg/kg elsiglutide attenuated these changes. TLR2 and gram-positive bacteria were increased with elsiglutide after CPT-11-induced mucositis. This suggests the microbiome and TLR signalling are linked mechanisms associated with CPT-11-induced GIT inflammation, and that elsiglutide may utilise these mechanisms to decrease mucositis. Analysis of other TLRs and bacterial species is required.

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### 10-21-P

**DEVELOPING A NURSE-LED TOOL FOR THE IDENTIFICATION AND MANAGEMENT OF MTOR INHIBITOR-ASSOCIATED STOMATITIS**

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Introduction
Oral ulceration is a common side effect of treatment with mTOR inhibitors, with clinical manifestations more closely resembling aphthous stomatitis than the oral mucositis seen with conventional anticancer therapies. Stomatitis has far-reaching implications for the patient. Scales for conventional oral mucositis assessment were not developed to evaluate mTOR inhibitor-associated stomatitis (mIAS) and associated complaints; therefore this is an area where effective management tools are needed to support this group of patients.

Objectives
To develop a specific mIAS assessment tool that is sensitive enough to quantify the true impact of mIAS on a patient and direct appropriate interventions and supportive management.

Methods
A comprehensive literature review was undertaken via PubMed. Keywords included: mTOR inhibitor, mucositis, stomatitis, assessment, morbidity, triggers, grading. Existing scales were also reviewed. An assessment tool was developed by an expert group, considering the literature and areas of importance for both patients and healthcare professionals within this setting.

Results
The tool contains three components: a baseline assessment to establish individual patient risk, an objective component which allows grading of mIAS according to NCI-CTCAE criteria and a subjective component that grades pain on a VAS scale (0–10).

Conclusions
Before developing guidelines for the management of mIAS, a simple, reliable and validated approach to staging is required. This assessment tool has been created for this purpose and will be trialed in a cohort of patients, assessing the impact on incidence. It is only by identifying mIAS according to NCI-CTCAE criteria and a subjective component that grades pain on a VAS scale (0–10), can appropriate supportive care be delivered to the patient.

10-22-P
THE IMPACT OF NEW NATIONAL GUIDELINES FOR HEAD AND NECK CANCER ON ACUTE MUCOSAL RESPONSE TO RADIATION
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Introduction
New national guidelines (GL) for radiotherapy (RT) of head and neck cancer (HNC) were implemented at the beginning of 2013. One purpose of the new GL was to standardise the GTV-CTV1 expansion.

Objectives
This study investigated the change in acute response during RT in one centre where the GTV-CTV1 margin was increased from 0 to 5 mm.

Methods
All patients (n=592) receiving curative RT for HNC from Jan 2011 to Sep 2014 were included after IMRT to 66–68 Gy in 33–34 fractions. Acute mucosal reactions were scored weekly during RT.

Potential change in actuarial cumulative incidence of mucositis was tested using the log-rank test. To stratify for the potential effect between non-accelerated (5 fx/w) and accelerated (6/10 fx/w) RT, a Cox regression analysis including the covariates: acceleration, old/new GL, and their interaction product was performed.

Results
The new GL increased the risk of grade 2+ mucositis for the non-accelerated group during RT (p=0.02) as demonstrated by a ~20 %-point increase at the end of RT, but not in the accelerated group. In Cox regression, all covariates were significantly associated with grade 2+ and 3+ mucositis (acceleration, p<0.05).

Conclusions
For the non-accelerated RT, the new GL increased the risk of acute mucositis. During accelerated RT, the risk of grade 2+/3+ mucositis was not related to GL which implies that mucosal repopulation is compromised by the expanded CTV1 volumes during non-accelerated RT.

10-23-P
EFFICACY OF A NOVEL INTRAORAL COOLING DEVICE
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Introduction
Oral mucositis is a common debilitating adverse affect following high doses of chemotherapy prior to bone marrow transplantation. The complication manifests as erosions, and may require intravenous morphine for pain alleviation. The erosions may also interfere with food intake and lead to malnutrition, weight loss and impaired quality of life. Although uncomfortable to the patient, oral cryotherapy with ice chips has been shown to be effective in reducing the grade and extent of oral mucositis.

Objectives
The objective of the present study is to evaluate whether an intraoral cooling device has the same effectiveness as ice chips when it comes to cooling the oral mucosa.

Methods
Five healthy volunteers (mean age: 36.2 years) chewed ice under surveillance for 30 min. Before the start and immediately after the termination of the ice chewing, the intraoral mucosal temperature was measured using a modified thermometer. The same protocol was used to assess the cooling efficacy obtained by a newly developed intraoral device.

Results
The methods showed no statistically significant differences in cooling of the oral mucosa (p=0.12). The mean surface temperature following
cooling was 25.7 °C with ice chips (Fig. 1) and 24.7 °C with the cooling device (Fig. 2).

**Conclusions**

The cooling device is as effective as ice chips when it comes to cooling the oral mucosa. The next step in this research is to use the cooling device to establish the highest surface temperature of the oral mucosa, during infusion of chemotherapy, that will still result in prevention of oral mucositis.

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**Figure 1.** Mean and individual intra oral temperatures inside right buccal mucosa before and after 30 min of cooling.

**Figure 2.** Mean and individual intra oral temperatures inside right buccal mucosa before and after 30 min of cooling.

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10-24-P

**A NEW IN VITRO MODEL TO STUDY HOST-MICROBE INTERACTIONS IN CHEMOTHERAPY-INDUCED MUCOSITIS**

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**Introduction**

Alimentary mucositis not only majorly affects the quality of life of patients but also often causes a cessation of the treatment. Unfortunately, there are limited treatment options available. The successful development of new agents for mucositis will rely on our improved understanding of the pathogenic mechanisms underlying mucositis.

**Objectives**

We want to explore the role of host-microbe interactions in chemotherapy-induced mucositis by means of a new in-house developed in vitro model.

**Methods**

The model consists of a 24-well Transwell™ plate with removable inserts in which an oral or fecal-derived biofilm is cultured separately from a monolayer of epithelial cells in presence or absence of 5-Fluorouracil (5-FU) or irinotecan (SN-38). A wound scratch assay is performed in the model to study the effect of both microbiota and 5-FU and SN-38 on the healing of epithelial cells.

**Results**

We show that an oral biofilm has an overall negative impact on wound closure of oral epithelial cells, irrespective of the presence of 1 μM 5-FU. In contrast, a caecum-derived biofilm significantly stimulates the healing of small intestinal epithelial cells, irrespective of the presence of 500 nM SN-38. An analysis of the composition of the biofilm shows a shift in the microbiome after 5-FU and SN-38 exposure.

**Conclusions**

Our in vitro mucositis model is able to identify functional and mechanistic changes in host-microbe interactions and will be helpful in further characterising the pathobiology of mucositis and in the development of new treatment strategies.

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10-25-P

**SAGE TEA-THYME-PEPPERMINT HYDROSOL ORAL RINSE REDUCES CHEMOTHERAPY INDUCED ORAL MUCOSITIS: A RANDOMIZED CONTROLLED PILOT STUDY**

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Introduction
Chemotherapy induced oral mucositis is one of the most debilitating complications experienced by cancer patients and there is no common method to prevent this toxicity. Previous data showed that sage tea, thyme and peppermint have antiseptic and antimicrobial effects.

Objectives
The study aimed to investigate the preventive effect of sage tea-thyme-peppermint hydrosol oral rinse along with basic oral care on chemotherapy induced oral mucositis.

Methods
Thirty intervention and 30 control group patients receiving 5-Fluouracil based chemotherapy regimens were included in this randomized controlled pilot study. Basic oral care was prescribed to the control group, whereas the intervention group was instructed to use sage tea-thyme-peppermint hydrosol in addition to basic oral care. During the study all patients were called to assess their compliance of the study instructions by the researchers. Oral mucositis evaluation was performed using inspection method or assessment of oral cavity photos based on World Health Organization Oral Toxicity Scale on the 5th and 14th day.

Results
Oral mucositis had not developed in the greater part of the intervention group on the 5th day. Also, the rate of grade 1 oral mucositis was statistically low in the intervention group (10 %) comparing to control (53.3 %) on the 5th day. In addition, the grade of oral mucositis was 0 in almost all patients of both groups on the 14th day.

Conclusions
Sage tea-thyme-peppermint hydrosol has a prophylactic effect on chemotherapy induced oral mucositis. The hydrosol was well tolerated and cost effective. Further randomized controlled trials are needed to support the study.

10-26-P
SINGLE AGENT ANTI-MUCOSITIS PROTOCOL NOW A POSSIBILITY. 66PATIENT MULTI-INSTITUTION PHASEIV POST-MARKET SURVEILLANCE OF PROTHELIAL (HIGHPOTENCY POLYMERIZED CROSS-LINKED SUCRALFATE)

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Introduction
Dispensing over 86 % of cancer therapies that cause mucositis, oncology pharmacists are uniquely positioned to manage it if there was an effective therapeutic option.

Objectives
To test the utility of FDA cleared high potency polymerized cross-linked sucralfate oral paste (HPPCLS, ProThelial™) as a single agent option to prevent and treat mucositis.

Methods
A Mucositis Registry was established in Feb 2014 as part of an FDA Phase IV post-marketing surveillance. Inclusion Criteria: Any cancer treatment patient who developed or was anticipated to develop oral mucositis. Exclusion Criteria: Allergies to sucralfate products.

Results
Thirty-nine oncologists from 32 institutions prescribed HPPCLS to 66 patients, five were lost to follow-up. Fifty-seven patients with moderate to severe mucositis (oral, esophageal, small bowel & colonic) experienced rapid elimination in 2–3 days, four patients experienced complete prevention (Table 1).

Statistical Analysis:
The evidence-based Glasziou treatment effect supports efficacy ($p \leq 0.05$). The 70–84 day duration of mucositis standard for chemoradiation of SCCHN was either completely prevented in four patients or completely eliminated within 2–4 days of use of HPPCLS. The resulting rate ratio of 68 to 82 is far larger than the statistically required Glasziou treatment efficacy effect of 10 to demonstrate efficacy in an uncontrolled setting.

Conclusions
HPPCLS paste may offer an unprecedented single-agent approach to prevent and treat - chemo-radiation induced oral and GI mucositis. Proposed ProThelial protocols are presented (Table 2).

10-27-P

IRINOTECAN INDUCES DNA DAMAGE IN THE ORAL CAVITY OF THE DARK AGOUTI RATS WITHOUT VISUAL SIGNS OF LESIONS

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Introduction

Irinotecan causes mucosal damage in the alimentary tract of rats, in particular at the level of the jejunum. Less is known about its effects on oral tissues.

Objectives

The aim was to characterize the histological, molecular and microbial changes in rat oral tissues following irinotecan.

Methods

Rats were treated with a single dose of irinotecan and killed at various time points. Ki67 and caspase-3 immunostaining were used to assess proliferation and apoptosis, respectively, whereas DNA damage was measured using gammaH2AX staining of oral tissues. Alcian blue staining was applied to determine alterations in the mucus layer. qPCR was used to detect microbial shifts by measuring expression levels of abundant oral species.

Results

In contrast with what our group has observed in the jejunum, irinotecan did not induce ulcerations in the oral cavity of the rats. Also, no alterations in epithelial cell kinetics could be detected in the tongue or the buccal mucosa and the mucin layer appeared normal after exposure to irinotecan. At the molecular level, however, significant DNA damage could be detected at different time points. Microbial changes were observed for Lactobacillus spp, with increased levels 48 h after exposure.

Conclusions

These results indicate that, although there is no visual damage noticeable in the oral cavity, irinotecan induces significant changes at the level of the DNA and the microbiome. Further research is warranted 1) to find out if this DNA damage is repaired more efficiently in the oral cavity compared to the jejunum, and 2) to further unravel the potential impact of host-microbiota interactions on the DNA damage.

10-28-P

THE USE OF THE MELLINN650, A NEW DEVICE INTRODUCING DIVERGENT LOW LEVEL LASER THERAPY, AS TREATMENT FOR CHEMOTHERAPY-INDUCED ORAL MUCOSITIS IN PEDIATRIC CANCER PATIENTS

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Introduction

Oral Mucositis (OM) is a severe side effect of chemotherapy and radiotherapy in pediatric cancer patients. At present day no treatment for OM in children is proven effective. However, recent evidence in adult medicine supports Low Level Laser Therapy (LLLT) as possible prophylaxis or treatment of OM. A drawback of current LLLT is that it requires expensive equipment and specialized training. Recently a new device for the treatment of chemotherapy-induced OM has been introduced. This device, the Mellinn650, uses divergent Low Level Laser Therapy (dLLLT); a new, non spot-focused technique which irradiates the entire oral cavity.

Objectives

To determine the feasibility and effect of the Mellinn650 for the treatment of chemotherapy-induced OM.

Methods

The Mellinn650 is a semiconductor laser treatment instrument, capable of providing dLLLT. The light spots are situated in the disposable mouth clips and emit laser light with a wavelength of 650 nanometers and an adjustable output power of 1–5 milliwatts, via a prism that diverges laser light. The Mellinn650 is not expensive (~450 euro) and does not require much training. Recently, we gave three pediatric cancer patients the option to use the Mellinn650 during their treatment, as a pilot feasibility study.

Results

Preliminary results showed that the use of dLLLT during severe mucositis was easy and feasible.

Conclusions

dLLLT seems promising for the use in children with cancer and will therefore be studied in a randomized placebo controlled trial in the Netherlands to determine the effectiveness in the treatment of OM in pediatric cancer patients.
**Introduction**

*Faecalibacterium prausnitzii* (Fp) is a commensal bacterium of the human gut microbiome. *Escherichia coli* Nissle 1917 (Ec) is a probiotic which has been demonstrated to protect against certain gastrointestinal disorders.

**Objectives**

We evaluated the effects of supernatants (SNs) derived from Fp and Ec on 5-Fluorouracil (5-FU) induced mucositis in rats.

**Methods**

Fp supernatants (FpN) and Ec supernatants (EcN) were prepared. Female Dark Agouti rats were gavaged with 1 ml FpN or EcN daily (day 0–8) and received either saline (control) or 5-FU (150 mg/kg) by intraperitoneal injection on day 8 to induce mucositis. Daily metabolic data were measured. Rats were sacrificed on day 8 and intestinal tissues collected for myeloperoxidase assay and histological analyses.

**Results**

5-FU significantly reduced body weight, food intake, water intake, and increased urine output. 5-FU also affected faecal output with a significant decrease on day 6, and a significant increase on day 7, compared to saline controls. Interestingly, on day 6, 5-FU injected rats treated with FpN or EcN partly prevented the loss in body weight induced by 5-FU and were not significantly different compared to normal controls (saline) (*p > 0.05*). In addition, 5-FU injected rats treated with FpN or EcN normalized their water intake compared to rats treated with water on day 7. 5-FU injected rats treated with FpN restored faecal output toward normal levels compared to normal controls.

**Conclusions**

Factors derived from Fp and Ec could have a potential role in preventing or partially reducing symptoms of intestinal mucositis. Further dose–response studies are required.

**10-30-P**

STOMATITIS IN WOMEN WITH ADVANCED BREAST CANCER RECEIVING EVEROLIMUS: A CASE SERIES REPORT ON CLINICAL PRESENTATION AND MANAGEMENT


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**Introduction**

Stomatitis is a frequent dose-limiting toxicity related to mTORIs in oncology.

**Objectives**

We report the clinical features and management outcomes of everolimus-related stomatitis in 14 patients.

**Methods**

Fourteen women with advanced breast cancer receiving everolimus, combined with exemestane (12) or anastrozole (2) and antiresorptives (9), presented with stomatitis. Patients were pretreated with standard chemotherapy and hormonal therapy. Seven patients had received antiresorptives before everolimus therapy and one had received bevacizumab.

**Results**

 Aphthous-like ulcers were observed in 13 of 14 (92.8 %) women, ill-defined ulcerations in 3 (21.4 %) and pain without ulcers in one. Non-keratinized mucosa was affected in 13 (92.8 %) and keratinized mucosa in 4 (28.5 %) patients. Other oral symptoms were erythematous tongue (3), periodontal/dental disease (3), dysgeusia (2), xerostomia (2), burning sensation (one), and cheilitis (one). The median time to stomatitis development from everolimus initiation was 10 days. Patients asked our professional help after a median of 15 days. Corticosteroids were introduced; topical (all patients) and systemic (two patients), combined with low level laser therapy (LLLT) (4 patients). Eleven patients interrupted everolimus (median 1 week); eight (57.1 %) due to stomatitis and three (21.4 %) due to periodontal/dental disease. Stomatitis recurred in 7 patients (50 %) and led to permanent dose reduction (one) and drug discontinuation (one). Everolimus was discontinued due to disease progression (3 patients) and systemic side effects (2).

**Conclusions**

Drug interruptions due to stomatitis or dental problems and stomatitis recurrences were common in this patient group. Delays in seeking professional help could be related to this marked toxicity.

**10-31-P**

BURDEN OF ORAL MUCOSITIS IN HEMATOLOGY/ONCOLOGY PATIENTS – STATUS QUO OF RESEARCH

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**Introduction**

Oral mucositis (MUC) is a frequent adverse event of cancer therapy. Occurring during chemo- or radiation-therapy with various incidences it has an important influence on treatment outcome, on side effects e.g. fever or infections, on resource use, and on quality of life (QoL).

**Objectives**

To determine the status quo of current studies concerning incidence, QoL, resource use and cost of MUC.

**Methods**

Systematic literature searches and evaluation according to Health Technology Assessment (HTA) requirements were conducted in BIOSIS, EMBASE and MEDLINE. Search terms: oral mucositis, incidence, quality of life, cost. Inclusion criteria: journal articles (JA), conference abstracts (CA), English language, published between January 2000 and November 2014, adult cancer patients, studies only.
Results
Screening of 784 hits yielded 45 studies, 32 (71 %) prospective, 4 (9 %) prospective and retrospective comparative, 9 (20 %) retrospective. 18 studies concerning frequency of MUC were found (13 JA and 5 CA), thereof 12 (67 %) studying patients after hematopoietic stem cell transplantation (HSCT). In 14 JA and 2 CA prospective studies on QoL associated with MUC were reported; those were using at least 10 different measurement instruments. Resource use and economics of MUC was surveyed in 9 JA and 2 CA, predominantly retrospective (64 %) and from US centres (55 %).

Conclusions
Even if it is acknowledged that MUC has a negative impact on therapeutic outcome, QoL and costs, studies fulfilling HTA requirements are rare. Standardization of measurements for QoL is lacking. Methodological discussions, further research and prospective real-life data collection is needed to analyze the total burden of this common adverse event.

10-32-P
CHEMOTHERAPY INDUCES MICROBIAL CHANGES THAT ALTER TOLL-LIKE RECEPTOR EXPRESSION
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Introduction
Mucositis following chemotherapy affects both oral and gastrointestinal mucosa. Toll-like Receptors (TLRs) are immune system activators, and may play a role in the initiation and ulceration phases of mucositis.

Objectives
The objectives were to investigate associations between TLRs and microbial changes following chemotherapy.

Methods
Rat intestinal epithelial cells (IEC-6) were seeded into two 24-well plates with Transwell® permeable inserts. Salivary microbes (healthy subject) in BHI broth were added to inserts, and SN-38 (irinotecan active metabolite) was added to cells. Groups included control, microbes only, SN-38 only, microbes and SN-38. Cells were incubated for 24 or 48 h (37 °C, 5 % CO2). Nucleic acids were extracted from inserts and cells. Real time PCR and 454-pyrosequencing were carried out on cells and inserts, respectively. Pfaffl’s model for relative quantification and 2-way ANOVA (Tukey’s multiple comparison test) were used for analysis.

Results
SN-38 significantly increased expression of TLR2 (4-fold, p<0.05). TLR4 expression did not alter with SN-38, but did significantly increase in the presence of microbes only. TLR5 was significantly increased in response to microbes (3.6-fold, p<0.0001). However, in the presence of SN-38 and microbes, TLR5 was not significantly altered. Bacterial sequencing showed that levels of Bacillales, Lactobacillales and Clostridiales (Gram-positive, flagellate) were all lower in the presence of SN-38. Sequencing showed increased Actinomycetales (Gram-positive, non-flagellate). Bacteroidales (Gram-negative) decreased.

Conclusions
Gram-positive, flagellate microbes decreased with SN-38, which may account for the static levels of TLR2 and TLR5 in the presence of both SN-38 and microbes. Increased TLR4 expression is not the result of chemotherapy.

10-33-P
NEW BUPIVACAINE LOZENGE AS PAIN MANAGEMENT FOR HEAD AND NECK CANCER PATIENTS WITH ORAL MUCOSITIS
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Introduction
Oral mucositis (OM) is a common, serious complication to cancer treatment. OM is caused by a damage of the mucosa in the oral cavity and pharynx which induces severe pain. There is a need for additional locally administered options for managing OM induced pain.

Objectives
To investigate the anesthetic effect of a bupivacaine lozenge in patients with OM.

Methods
Head and neck cancer patients with OM assessed the anesthetic effect in the oral cavity/pharynx on a visual analogue scale (VAS) before administration and up to 180 min after the administration of one 25 mg bupivacaine lozenge.

Results
Of ten patients included in the study, eight experienced pain in both the oral cavity and the pharynx, one patient only experienced pain in the oral cavity and one patient only in the pharynx. The mean baseline VAS assessment for oral pain was 55 mm (range: 50–64) and 54 mm (range: 50–61 mm) for pharynx pain. There was a significant immediate reduction in both the oral pain (−26 mm, range: −3 to −52 mm, p=0.002) and the pharynx pain (−30 mm, range: −3 to −52 mm, p=0.003) after the lozenge was completely dissolved. At 180 min there was still a significant mean reduction (p<0.001) in both the oral cavity (−24 mm; range: −7 to −45 mm) and the pharynx (−23 mm; range: −5 to −45 mm).

Conclusions
The results indicate that the bupivacaine lozenge has a clinically significant and long lasting pain relieving effect in patients with oral mucositis.

10-34-P
FEASIBILITY STUDY EVALUATING EXTRAOORAL LOW LEVEL LIGHT THERAPY (LLLT) FOR PREVENTION OF OROPHARYNGEAL MUCOSITIS IN PEDIATRIC PATIENTS UNDERGOING MYELOABLATIVE HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT)
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3 Pediatric Oncology, Boston Children’s Hospital, Boston, USA
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Introduction
Oropharyngeal mucositis (OM) is a frequent complication in pediatric HSCT. LLLT is effective in preventing OM, but intraoral protocols are limiting and may be unsuitable for children.

Objectives
To determine the feasibility, safety, and tolerability of providing extraoral LLLT in pediatric HSCT.

Methods
Patients aged 4–21 scheduled for myeloablative HSCT were eligible to participate. LLLT was delivered using a THOR Model LX2M with a 69 Diode LED Cluster Probe (34×660 nm 10 mW, 35×850 nm 30 mW; 1390 mW total power output) at an irradiance of 50 mW/cm². Daily treatment exposed six sites (R/L/midline face and neck) for 60 seconds each, for a total dose of 3.0 J/cm². Treatment was initiated on the first day of conditioning, through day +20. OM assessments were completed at baseline then daily, beginning day −1 through day +20. Feasibility assessment included both qualitative and quantitative measures and outcomes from patients and providers.

Results
Thirteen patients with a median age of 15 (range 4.8–21.6) were consented and completed the protocol. The incidence of severe mucositis (WHO Grade≥3) was 77 %, with a median duration of 4 days (range 1–14). Of 355 attempted LLLT administrations there were four refusals, and the mean proportion of days with data submitted was 96.2 % (95 % CI: 78.5–97.2 %). The ten trained nurses all reported that the device was accessible, maneuverable, and lightweight, and that training was effective. There was no reported toxicity attributed to the LLLT.

Conclusions
Provision of extraoral LLLT with the intent of prevention of OM in pediatric HSCT is both safe and feasible.

10-35-P
Prevention of Oral Mucositis in Cancer Patients - Clinical application of an anti-inflammatory agent (Mucosyte®)
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PURPOSE
The aim of this project was to evaluate a new anti-inflammatory bio-adherent mucosal agent for the prevention and treatment of oral mucositis in cancer’s patients undergoing radio and chemotherapy.

About 75 % of all patients undergoing bone marrow transplant develop symptomatic oral mucositis (Bellm et al., 1999); chemotherapy produces oral mucositis in an estimated 40 % of patients, while radiation therapy for tumors of the head and neck affects approximately 80 % of patients.

MATERIAL AND METHODS
The application of a new protocol treatment in a group of patients hospitalized at San Raffaele’s Hospital (Milano) to prevent onset of oral mucositis. Two groups of patients were selected:
- 50 patients for randomization to the control group, which were given only the instructions of oral hygiene
- 50 patients, always chosen for randomization, for the experimental group to which we have given ORALIS enzymatic alcohol free mouthwash to use 1 week before radio or chemotherapy, associated always with the instructions for oral hygiene.

A week later the treatment both groups were undergoing to control, extended for 3 months. Moreover the patients of both groups that presented oral mucositis, were treated with Mucosyte® until the complete healing.

RESULTS
Positive results were reported during the treatment with Mucosyte® because the formulation was devised to guarantee synergy amongst its components:
- reduction of inflammation and pain relief
- by forming a protective film that covers and protects the oral mucosa
- promotion of re-epithelialization of the oral mucosa

The preliminary results are very interesting because they show the ability of the Verbascoside (Mucosyte®) to act on transcription factors and regulatory DNA sequences involved in the inflammatory process. This new experimental protocol, still under study, is proving useful in the reduction of oral complications caused by radio and chemotherapy treatments.

CONCLUSION
The use of anti-inflammatory agents continues to be a promising strategy for the prevention and treatment of oral mucositis associated with oral hygiene instructions. However, we must wait the outcome of further research to demonstrate the efficacy of ORALIS mouthwash and Mucosyte® in preventing the onset of further complications at the level of the oral cavity in these patients who are already at increased risk of super infection.

10-36-P
ORAL TOXICITIES OF TARGETED ANTICANCER THERAPIES
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Introduction
Whereas the toxicity of targeted anticancer therapies on the oral mucosa seems relatively frequent in our clinical experience, it has not really been characterized so far, apart from mTOR inhibitors aphthous-like lesions or anti- EGFR induced mucositis.

Objectives
Characterize the most frequent but also the more recently described oral toxicities of targeted therapies.

Methods
We performed a systematic analysis of the literature after narrative review, supplementing the available data with our own, multicentre and multidisciplinary clinical experience acquired in specialised comprehensive cancer centres.

Results
We describe here the main oral adverse events of these new targeted therapies, by reporting the most frequent but also the most recent and characteristic clinical manifestations of these molecules, including mucositis induced by EGFR or MEK inhibitors, aphthous-like ulcerations related to mTOR inhibitors, hyperkeratotic lesions and squamous cell carcinoma occurring with BRAF inhibitors, benign migratory glossitis and lichenoid reactions with new immune checkpoint inhibitors and imatinib.
Conclusions
The oral toxicities of targeted anticancer therapies clearly differ from chemotherapy-induced mucositis. Furthermore, they are clearly underestimated in clinical practice. Clinicians should be aware of these mucosal symptoms and their potential impact on quality of life. A close oral examination should be regularly performed in treated patients.

10-37-P
EFFECTS OF LOW DOSE IRRADIATION ON FUNCTIONAL BEHAVIOR OF ORAL MICROBIOTA IN THE CONTEXT OF MUCOSITIS

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Introduction
The role of host-microbe interactions in the pathobiology of oral mucositis is still unclear.

Objectives
This study was undertaken to unravel the effect of irradiation on behavioural characteristics of oral microbial species in the context of mucositis.

Methods
Various experimental in vitro set-ups were applied to evaluate the effects of irradiation on growth and biofilm formation of two Candida spp., Streptococcus salivarius and Klebsiella oxytoca in different culture conditions. The Galleria melonella model was used to study effects on microbial virulence.

Results
Irradiation did not affect growth of planktonic cells but reduced the number of K. oxytoca cells in newly formed biofilms cultured in static conditions. Biofilm formation of K. oxytoca and C. glabrata was affected by irradiation and depended on the culturing conditions. In the presence of mucins, these effects were lost, indicating the protective nature of mucins. We further showed that irradiated cells of K. oxytoca were more virulent in Galleria melonella larvae compared to non-irradiated cells.

Conclusions
Our data indicate that low dose irradiation can have an impact on functional characteristics of microbial species. Screening for pathogens like K. oxytoca in the context of mucositis could be useful to allow early detection and immediate intervention.

10-38-P
THE ASSESSMENT OF PAIN USING BEHAVIOUR AND THE RAT GRIMACE SCALE IN A RAT MODEL OF CHEMOTHERAPY-INDUCED MUCOSITIS

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Introduction
Rat models are commonly used to evaluate novel therapeutic agents for the treatment of chemotherapy-induced mucositis. Success of such treatments is typically assessed retrospectively by gut histology and in-vitro analyses. However these measures fail to evaluate emotional affect, that is how the patient ‘feels’.

Objectives
The aim of this study was to investigate a range of behavioural outcomes in order to reliably identify the presence of pain in this short-term mucositis model. These indicators could then be developed further to provide some indication of patient well-being.

Methods
Rats (n=16) were video-recorded before and after induction of mucositis by injection of 5-fluorouracil. Facial expression and behavioural repertoire
were assessed over a 20 min period at 12 h prior to mucositis induction, and at 12, 24, 48 and 72 h after induction.

**Results**

Mean grimace score ranged from 2.3 to 3.6 (total=6). There were no statistically significant differences between time-points in score (p=0.19). Of the behavioural parameters evaluated those that demonstrated significant differences with time included the frequency of transient inactivity and abdominal twitching, and duration of transient inactivity, back arching and sleep (p<0.05 for all: Friedman). In general these parameters increased in value, with the exception of sleep which occurred in shorter periods in animals with mucositis. However, considerable variability between individuals, rendered clear identification of a change in pain status problematic based on post-hoc analyses.

**Conclusions**

Behaviours which detect pain reliably in post-laparotomy models proved unsatisfactory in the mucositis model. Duration of transient inactivity and sleep behaviours hold most promise for future study.

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**10-40-P**

**EMU OIL SOURCE DOES NOT SIGNIFICANTLY ALTER THERAPEUTIC EFFICACY, WHilst OSTRICH OIL HAS NO BENEFICIAL EFFECT, IN A RAT MODEL OF CHEMOTHERAPY-INDUCED MUCOSITIS**

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**Introduction**

Previously, our pre-clinical studies have identified Emu Oil (EO) as a potential therapy for ulcerative colitis, NSAID-induced enteropathy and chemotherapy-induced mucositis. Should EO become indicated for human use, it would need to conform to much tighter regulation related to farming, manufacture and processing practices.

**Objectives**

We compared three EO sources (two different batches from the same company and a second formulation) for efficacy in our mucositis model, in comparison with Ostrich Oil.

**Methods**

Rats (n=8/group) were gavaged with water, Olive Oil (OlO), EO1, EO2 (same company), EO3 (second company) or Ostrich Oil (OsO) once daily (1 ml), injected with 5-Fluorouracil (5-FU) or saline on day 5 and euthanized on Day 10. Metabolism data and intestinal weights and lengths were recorded. p<0.05 was considered significant.

**Results**

On Day 10, 5-FU resulted in significantly reduced bodyweight gain (105 ±2 % of starting bodyweight) compared to healthy controls (113±1 %; p<0.001). Total water intake and urine and faecal output did not differ significantly among treatment groups. Importantly, food intake was significantly improved by all three EO samples and OlO during the phases of intestinal damage (Day 6–8) and repair (Day 6–10); an effect not reflected by OsO. JJ weights in 5-FU-injected rats were significantly increased by OlO (4.8±0.06 g), EO3 (5.6±0.4 g) and OsO (5.4±0.4 g; p<0.05) compared to 5-FU controls (4.0±0.1 g).

**Conclusions**

Although a limited study, these results imply that different sources of Emu Oil formulations would likely achieve similar clinical outcomes. More definitive histological and biochemical analyses are currently underway.

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**10-41-P**

**SERUM-DERIVED BOVINE IMMUNOGLOBULIN (SBI) REDUCES INFLAMMATION IN JEJNUM FROM ANIMALS WITH IRINOTECAN-INDUCED GASTROINTESTINAL MUCOSITIS**

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**Introduction**

Emu Oil (EO) is a potential therapy for ulcerative colitis, NSAID-induced enteropathy and chemotherapy-induced mucositis. Should EO become indicated for human use, it would need to conform to much tighter regulation related to farming, manufacture and processing practices.

**Objectives**

We compared three EO sources (two different batches from the same company and a second formulation) for efficacy in our mucositis model, in comparison with Ostrich Oil.

**Methods**

Rats (n=8/group) were gavaged with water, Olive Oil (OlO), EO1, EO2 (same company), EO3 (second company) or Ostrich Oil (OsO) once daily (1 ml), injected with 5-Fluorouracil (5-FU) or saline on day 5 and euthanized on Day 10. Metabolism data and intestinal weights and lengths were recorded. p<0.05 was considered significant.

**Results**

On Day 10, 5-FU resulted in significantly reduced bodyweight gain (105 ±2 % of starting bodyweight) compared to healthy controls (113±1 %; p<0.001). Total water intake and urine and faecal output did not differ significantly among treatment groups. Importantly, food intake was significantly improved by all three EO samples and OlO during the phases of intestinal damage (Day 6–8) and repair (Day 6–10); an effect not reflected by OsO. JJ weights in 5-FU-injected rats were significantly increased by OlO (4.8±0.06 g), EO3 (5.6±0.4 g) and OsO (5.4±0.4 g; p<0.05) compared to 5-FU controls (4.0±0.1 g).

**Conclusions**

Although a limited study, these results imply that different sources of Emu Oil formulations would likely achieve similar clinical outcomes. More definitive histological and biochemical analyses are currently underway.
Introduction
We demonstrated previously that SBI significantly alleviated clinical symptoms and diarrhea in a rat model of irinotecan-induced mucositis. Reduced histological damage to jejunum and less pronounced changes in circulating white cell levels were also associated with SBI administration.

Objectives
To characterise the effect of SBI administration on gut-associated lymphoid tissue (GALT) and irinotecan-induced inflammation by examining histopathology and myeloperoxidase (MPO) expression in formalin-fixed jejunum.

Methods
Jejunum was collected from irinotecan-treated animals that had been orally gavaged with either 250 or 500 mg/kg SBI, or saline. Paraffin-embedded sections of 4 μm were incubated with an antibody directed against MPO. Positive cells per unit area (15 fields) were counted for each piece of tissue, and presented graphically. H&E sections were examined for changes to the GALT.

Results
Histopathology of jejunum from irinotecan-treated animals that had received SBI showed a less pronounced presence of white cell infiltrate in the lamina propria, less mucosal ulceration and decreased mucosal lymphatic congestion compared to controls. Preliminary assessment shows that SBI administration is associated with significantly lower MPO counts in irinotecan-treated jejunum in this animal model (P<0.05); data is still being collected in order to complete quantitative and statistical analyses.

Conclusions
These preliminary findings are consistent with the hypothesis that SBI manages mucositis through mediation of the inflammatory response. Reduction in circulating white cells, decreased white cell infiltrate in the lamina propria, decreased mucosal ulceration and decreased histopathological damage certainly support this, and further analysis of MPO and other inflammatory markers is ongoing.

10-43-P
EFFECTS OF EPISIL® ORAL LIQUID IN CANCER PATIENTS WITH ORAL MUCOSITIS: AN OBSERVATIONAL STUDY

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Introduction
Oral Mucositis (OM), a common and painful side effect of cancer therapies, decreases patients’ quality of life. Effective OM treatment alternatives are needed.

Objectives
The study aimed at data collection on the non-interventional medical use of episil® oral liquid (episil) in cancer patients with OM.

Methods
Forty-four physicians documented OM grade, pain and quality of life in 146 patients (58.9 % female, 41.1 % male). Additionally, 161 patients completed a questionnaire included in the statistical analysis. Most common underlying cancer diseases were breast cancer (35.6 %) and head and neck cancer (24 %). At study start, patients discontinued their respective pre-treatments and were initiated on episil. Evaluations were made before, immediately after first application and after 5 episil treatment days.

Results
Among patients, 87 % suffered from OM grade 2 or 3 at study start, decreasing to 32 % after 5 treatment days with episil. Pain and quality of life scores improved marginally during pre-treatment whereas rapid and pronounced pain reduction was observed for 74 to 89 % of patients (measured at rest, when swallowing, speaking or eating); over 85 % of patients reported quality of life improvement. Fifty-six percent of patients reported strong quality of life improvement and 59 % strong pain reduction. Median time to onset and duration of pain reduction was 5 min and 4 h, respectively. Eight adverse device effects occurred in seven out of 146 patients.
Conclusions
Evaluation of the pain reduction and quality of life by both physicians and patients showed a rapid and considerable improvement during episil treatment versus pre-treatment.

10-44-P
PROSPECTIVE OBSERVATIONAL TRIAL TO ASSESS THE IMPACT OF MUCOSITIS IN PATIENTS TREATED WITH TARGETED THERAPIES IN ONCOLOGY (PRO-IMPACT) - TRIAL IN PROGRESS

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Introduction
Mucositis due to targeted therapies in oncology differs in terms of pathogenesis and clinical presentation to that deriving from conventional chemotherapy and radiation.

Objectives
To prospectively assess the impact of oral mucositis and diarrhea due to targeted therapies through patient reported outcome (PRO) instruments and physicians’ evaluation.

Methods
We will identify 3 cohorts of patients (50 patients each) that will be treated with single modality oral targeted therapy: mTOR inhibitors, Erb-B pathway Tyrosine Kinase Inhibitors (TKI), multiple pathways-receptor TKI.

For the first 2 months of treatment, the patient will be administered the following PRO questionnaires: OMWQ-HN and MDAS I-HN plus an added questions regarding diarrhea. The treating physician will assess oral mucositis and diarrhea according to the WHO and mIAS scale (mTOR inhibitor-associated stomatitis).

We will evaluate the highest mucosal intensity reached, the mean of the reported values and time with a value ≥ 1 in the questionnaire’s questions regarding oral mucositis and diarrhea and in the physician’s evaluation.

Results
We started the trial in December 2014 and we foresee a 1-year accrual period.

Conclusions
This trial will assess prospectively the impact of oral mucositis and diarrhea induced by targeted therapies from the patients and physicians’ point of view.

Presented on behalf of NICS O (Network Italiano di Cure di Supporto in Oncologia)

10-45-P
THE EFFECT OF PROPHYLACTIC MOUTHWASH TREATMENT WITH GRAPE SEED EXTRACT IN BREAST CANCER PATIENTS TREATED WITH POLYCHEMOTHERAPY

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2Clinical Study Management, Medical Data Research CRO, Düsseldorf, Germany
3Institut für Biometrie, Medizinische Hochschule Hannover, Hannover, Germany

Introduction
There is a high incidence of oral mucositis and inflammation in breast cancer patients treated with common standard chemotherapy protocols. These adverse effects may go along with ulceration, pain, and impaired dietary intake and impaired quality of life. 57 patients with breast cancer were prophylactically treated with supportive oligomeric proanthocyanidin based mouthwash during standard chemotherapy.

Objectives
Grape Seed Proanthocyanidins make up to 60 % the essential component of the applied mouthwash. Proanthocyanidins from grape seed extracts have demonstrated anti-inflammatory effects with a pharmacologically pleiotropic mode of action in various former preclinical examinations. The aim was to verify a prophylactically protecting effect against oral mucositis under standard chemotherapy in breast cancer.

Methods
Medline was searched for the last 10 years for randomized controlled trials describing the incidence of oral mucositis in breast cancer patients undergoing standard chemotherapy. Prophylactic supportive treatment with grape seed mouthwash was applied in a non-interventional trial with 57 breast cancer patients. The anticipated incidence of severe mucositis was compared to the incidence of severe mucositis in patients treated with the OPC mouthwash.

Results
The incidence of grade II mucositis in 57 breast cancer patients undergoing standard chemotherapy was 22.8 %. The anticipated mucositis from 7 RCTs for grade II to III was 40 %. The difference was statistically significant (p=0.005).

Conclusions
Prophylactic treatment with OPC mouthwash reduced the incidence of severe mucositis in patients undergoing standard chemotherapy to 22.8 % grade II mucositis. This outcome should encourage further studies with OPC grape seed based mouthwash.
SMOKELESS TOBACCO USE AND ORAL MUCOSITIS: IS IT A NEW RISK FACTOR?

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**Introduction**

Oral mucositis (OM) is a painful and common complication of chemotherapy (CT) and radiation (RT) in the cancer patients. Many risk factors had been evolved out in earlier studies which helped the management of this morbid condition. Though tobacco smoking has been implicated as a risk factor for development of mucositis, role of smokeless tobacco has hardly studied. As the practice of smokeless tobacco use is prevalent in many parts of the globe, any association of it with development of OM might become useful tool for future management plans.

**Objectives**

The present study aims at finding the association, if any, with different types of tobacco use with OM.

**Methods**

In this cross-sectional study in two multi-specialty hospitals from India over a period of 3 months, enrolling cancer patients who developed OM during RT, CT. History of different forms of tobacco use, alcohol, oral hygiene and other risk factors were noted along with other demographic variables and analysed.

**Results**

Out of total 38 enrolled patients of OM, smokeless tobacco addiction was found in 58 % patients (\(n=22\)) compared to 15.8 % patients (\(n=6\)) who had no history of tobacco addiction (\(p<0.001\)). Also, smokeless tobacco use was associated with higher symptom severity and early onset (median onset 11.8th day vs. 14th day of RT among others).

**Conclusions**

Smokeless tobacco was found to be associated significantly with OM among cancer patients receiving CT or RT. It was also associated with higher symptom severity and early onset of OM. However, there remains scope of larger studies to fetch definite conclusion.

THE ROLE OF THE ORAL ASSESSMENT GUIDE IN ADDRESSING THE CHALLENGE OF MUCOSITIS AS A DOSE-LIMITING TOXICITY IN CANCER CARE

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**Introduction**

Oral mucositis remains a leading challenge in cancer care, contributing to life-threatening infections, decreased nutritional intake, decreased quality of life, and reduced cumulative treatment doses. Research has been hampered by inconsistent use of valid/reliable instruments.

**Objectives**

To: 1.) provide support for the use of a valid/reliable oral assessment scale as foundational to improved evidence-based care and patient outcomes; 2.) provide evidence for the Oral Assessment Guide (OAG) as a clear, concise, clinically useful valid/reliable tool; 3.) review multi-lingual availability of the OAG as a testimony to its international acceptance; and 4.) discuss its use to guide oral care.

**Methods**

1.) Review the design and operational simplicity that was based on research findings, patient reports, and multidisciplinary input and which contribute to ease of use in the clinical setting by direct care providers and clear communication of findings across disciplines. 2.) Provide evidence of widespread acceptance and applicability.

**Results**

OAG is widely published and recommended in clinical practice guidelines for individuals at risk for oral mucositis. It’s been translated into multiple languages including Danish, German, Italian, Japanese, Korean, Portuguese, Spanish, and Swedish, providing an objective guide for oral care intervention evaluation.
Conclusions
OAG has been well received internationally and provides clinicians with a clear, concise, clinically useful instrument to guide and evaluate evidence-based interventions. The validity, reliability, and simplicity of the OAG have positioned it for integration into the electronic medical record. Consistent use of valid/reliable tools will contribute to the advancement of improvements for the prevention and management of mucositis in cancer care.

10-48-P
THE ROLE OF MUCOSYTE IN PATIENTS UNDER CHEMOTHERAPY AND/OR RADIOTHERAPY WITH MUCOSIS
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Introduction
Mucositis/stomatitis/oesophagitis are common in patients(pts) receiving chemotherapy±radiotherapy. Chemotherapy acts on tissues with high mitotic rate, including the cells of the oral cavity leading to ulceration, occurring 7–14 days post therapy. Locoregional radiotherapy may produce xerostomia within the treatment area. Oxidative stress is considered essential in the pathogenesis of mucositis/stomatitis. Verbacoside(mucosyte) is an anti-inflammatory agent inducing superoxide radicals, COX-2 and iNOS activity reduction, associated with chemokine IL-8 expression. COX-2 is upregulated in mucositis, so their inhibitors may affect its evolution and probably promote reepithelialization of the oral cavity mucosa.

Objectives
The aim of the study was to state and record prospectively the clinical benefits and side effects of mucosyte in pts with mucositis post chemotherapy±radiotherapy

Methods
43pts were consecutively admitted between 09/2014–1/2015 in our Department.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men/women</td>
<td>27(63 %)/16(27 %)</td>
</tr>
<tr>
<td>Primary disease (oral vs. non-oral)</td>
<td>25(58 %)/7(16 %)</td>
</tr>
<tr>
<td>Median ECOG</td>
<td>1(0–3)</td>
</tr>
<tr>
<td>Median age</td>
<td>64(37–84) years</td>
</tr>
<tr>
<td>ChemorRT</td>
<td>No of pts: 23(53 %) vs 20(47 %)</td>
</tr>
<tr>
<td>Verbacoside dosage</td>
<td>2×10 ml/day</td>
</tr>
<tr>
<td>Duration</td>
<td>1–2 months</td>
</tr>
</tbody>
</table>

Results
Median time onset of adverse events was post 2 months. We included pts with xerostomia 28/43(65 %) median grade (MG) 2, dysphagia 11/43(26 %) MG 2, pain 10/43(23 %) MG 2, difficulty in drinking/eating 9/43(20 %), sleep disturbance 8/43(18 %), taste loss 7/43(16 %), speaking difficulty 4/43(9 %), depression 4/43 (9 %), infection 2/43(4 %) MG 3, fever 1/43(2 %). Weight loss had 27(63 %)pts. In clinical examination: aphthae: 7(16 %), ulcers 20(46 %), burning mouth 26(60 %), MG 2. Oesophagitis 7(16 %)MG 2(1–4) Analgesics required 9/43(20 %), and hospitalization 9/43(20 %). Treatment interruption from 5 to 7 days: 5/43(11 %). Median time of improvement: 4 days. No recurrence observed.

Conclusions
1. Xerostomia/ Mucositis/Esophagitis are common.
2. Mucosyte seems to be a challenging therapeutic/preventive agent in pts under chemotherapy ± radiotherapy.

10-49-P
INCIDENCE OF RADIATION MUCOSITIS AND REVIEW OF ITS MANAGEMENT IN A SOUTH EAST ASIAN COUNTRY
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Introduction
Radiotherapy is one of the means of treatment of head and neck cancer with mucositis being one of the early side effects which significantly reduces the quality of life of patients.

Objectives
To evaluate the number of radiation oncologists who encounter radiation mucositis and consider worth referring to dentist and to evaluate the attitude of oncologists towards dental consultation to patients planning for/prior to/undergoing/post radiation therapy for head and neck cancers.

Methods
A questionnaire-based study was carried out following mailing of covering letter and self-administered questionnaire comprising 13 items to 20 oncology centers in India based on convenient sampling.

Results
We received responses from all the centers with 60 completely filled questionnaires. 86.7 % of the oncologists encountered radiation mucositis and only 16.7 % of them considered worth referring it to dentists. Most of them advised topical anesthetics and analgesics as the first line of management. Low-level He-Ne laser therapies, application of pure honey were some of the other lines of treatment.

Conclusions
Though radiation mucositis was frequently encountered oral complaint in patients after/during radiation therapy, most oncologists did not consider them worth referring to dentist. The study indicated a need for awareness and education among radiation oncologists regarding dental consultation in patients planned/undergoing /post radiation therapy for head and neck cancer.

10-50-P
‘UNITED KINGDOM ORAL MUCOSITIS IN CANCER GROUP GUIDANCE: SECOND EDITION’
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Introduction
Changes to the oral cavity can be caused by numerous factors including the disease, the direct and indirect impact of cancer treatments and supportive care, co-existing co-morbidities and underlying oral health problems.

Objectives
The United Kingdom Oral Mucositis in Cancer Care (UKOMiC), a multi-professional expert group was founded in 2011 to address the challenges of oral complications secondary to disease and treatment in the cancer and supportive care setting.

Methods
The first edition of the oral care clinical guidance produced in 2012 has been widely used within the United Kingdom and many other countries to help support and improve practice. The group has continued to disseminate the guidance, through the delivery of several national study days, numerous educational workshops and lectures, while continuing to collaborate with international organisations.

Results
This presentation focuses on the recently updated oral care guidance (2014) which is based on the most recent evidence, including MASCC guidance, clinician feedback and expert opinion. The guidance continues to focus on the key principles of; an accurate assessment of the oral cavity, identification of risk factors, regular care, earlier intervention to prevent/reduce oral damage and the correct treatment interventions.

Conclusions
It is anticipated that this updated guidance will further assist health care professionals in planning and implementing oral care into everyday practice, thus reducing a significant health burden for the patient and reduce demands on limited health care resources.

Nausea-Vomiting

IMPACT AND MANAGEMENT OF CHEMOTHERAPY/RADIOThERAPY-INDUCED NAUSEA AND VOMITING AND THE PERCEPTUAL GAP BETWEEN ONCOLOGISTS/ONCOLOGY NURSES AND PATIENTS: A CROSS-SECTIONAL MULTINATIONAL SURVEY

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2Catalan Institute of Oncology, Hospital Duran i Reynals, Barcelona, Spain
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Introduction
Chemotherapy/radiotherapy-induced nausea and vomiting (CINV/RINV) can affect half of oncology patients, significantly impacting daily life. As nausea without vomiting has only recently been considered a condition in its own right, incidence of nausea is often underestimated.

Objectives
To investigate the incidence and impact of CINV/RINV in patients versus estimations by oncology physicians/nurses to determine if there is a perceptual gap between healthcare professionals and patients.

Methods
An online research survey of oncologists, oncology nurses and patients was conducted across five European countries. Participants had experience of prescribing/recommending or having received anti-emetics for CINV/RINV treatment. Questions included: anti-emetic usage assessment; CINV/RINV incidence; impact of CINV/RINV; anti-emetic regimen compliance; and attributes of anti-emetic medications.

Results
947 respondents (375 oncologists; 186 nurses; 386 patients) participated in this survey. Incidence of nausea was greater than vomiting: 60 % of patients reported nausea alone whereas 18 % reported vomiting. Physicians/nurses overestimated the incidence of CINV/RINV, but underestimated the impact that this had on patients’ daily lives (Figure 1). Only 38 % of patients reported full compliance with physicians’/nurses’ guidelines when self-administering anti-emetic medication. Leading factors given for poor patient compliance included reluctance to add to a pill burden and fear that swallowing itself would induce nausea/vomiting.

Conclusions
There is a perceptual gap between healthcare professionals and patients in terms of incidence and impact of CINV/RINV. This may lead to sub-optimal prescription and therefore management of CINV/RINV. Poor patient compliance with anti-emetic regimens may be improved by minimising the pill burden and eliminating the requirement to swallow medication.

Figure 1. Mean rating of the impact that nausea/vomiting has on patients’ daily lives

IMPACT AND MANAGEMENT OF CHEMOTHERAPY/RADIOThERAPY-INDUCED NAUSEA AND VOMITING AND THE PERCEPTUAL GAP BETWEEN ONCOLOGISTS/ONCOLOGY NURSES AND PATIENTS: A CROSS-SECTIONAL MULTINATIONAL SURVEY

11-01-O

ANTIEMESIS PROPHYLAXIS AMONG BREAST CANCER (BC) PATIENTS RECEIVING ANTHRACYLINE-BASED CHEMOTHERAPY: A POPULATION-BASED STUDY

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Introduction
Chemotherapy-induced emesis is associated with medical problems and decrease in QoL. Patients receiving highly emetogenic chemotherapy should receive a 5HT3-antagonist and steroids. In 2006 NK1-antagonist use was added to the guidelines.

Objectives
To evaluate adherence to antiemesis prophylaxis guidelines among patients treated with antracyclines.

Methods
BC Patients treated with adjuvant AC, FAC or TAC were identified. In the SEER/TCR-Medicare database 5569 patients >65 years, diagnosed between 2005 and 2009 were identified, and in the MarketScan database 25,971 patients <65 years, diagnosed between 2005 and 2012. Antiemetics given within 1 day of the 1st cycle of chemotherapy were recorded. Adherence to NCCN-guidelines was determined according to treatment year. Descriptive statistics and logistic regression models were used.

Results
Guideline-adherent prophylaxis was observed in 22.4% of SEER/TCR-Medicare patients, and 28.2% of MarketScan patients. There was a dramatic decrease in guideline-adherence in 2006 with an increase in subsequent years. Guideline non-adherence after 2006 was secondary to lack of NK1 administration in 82.7 and 83.3% of the cases in SEER/TCR and MarketScan respectively. In multivariable analysis, year of treatment was associated with guideline adherence. In SEER/TCR, AA patients (OR 0.62 95% CI 0.41–0.94) were less likely to receive guideline-adherent prophylaxis. In MarketScan, compared to patients treated with AC, those receiving FAC (OR 0.24; 95% CI 0.18–0.32) and TAC (OR 0.87; 95% CI 0.78–0.96) were less likely to receive guideline-adherent treatment.

Conclusions
This is the largest population-based study-evaluating adherence to antiemesis guidelines. Most patients treated with antracyclines do not receive guideline-adherent prophylaxis, in most cases secondary to lack of NK1-antagonist use.

11-03-O

EFFICACY AND SAFETY OF ROLAPITANT FOR PREVENTION OF CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING (CINV) OVER MULTIPLE CYCLES OF HIGHLY- OR MODERATELY EMETOCIC HEMOTHERAPY (HEC; MEC)

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3Palliative Rehabilitation, Elisabeth Bruyère Hospital, Ottawa, Canada
4Medical, Tesaro Inc, Waltham, USA
5Biostatistics, Tesaro Inc, Waltham, USA
6Medical Oncology, Indiana University School of Medicine, South Bend, USA
7US Oncology Research, Compass Oncology, Tualatin, USA

Introduction
The long-acting NK-1 receptor antagonist (NK-1 RA) olapitant has demonstrated efficacy for CINV prevention in patients receiving HEC and MEC during Cycle 1.

Objectives
Rolapitant’s efficacy and safety was examined during subsequent cycles 2–6 in a pooled analysis.

Methods
In 4 double-blind, active-controlled studies, patients were randomized to oral rolapitant 200 mg or placebo 1–2 h before chemotherapy. All patients received active control: 5HT3 receptor antagonist + oral dexamethasone. Patients completing Cycle 1 could receive the same anti-emetic treatment in subsequent cycles. On Days 6–8 of subsequent cycles, patients self-reported the incidence of emesis, or nausea interfering with normal daily life following Day 1 of chemotherapy.

Results
A greater proportion of patients on rolapitant than active control reported no emesis or interfering nausea separately for each subsequent cycle. Results of individual studies and pooled analysis are shown in Table. During cycles 2–6, the incidence of treatment-related AEs was similar for rolapitant (5.5%) and control (6.8%). The most common treatment-related AEs were similar with control: constipation (1.2%; 0.8%) and fatigue (1.3%; 1.8%).

<table>
<thead>
<tr>
<th>Cycle</th>
<th>Rolapitant 200 mg</th>
<th>Active Control</th>
<th>p-value**</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>75.7 (1006)</td>
<td>70.1 (990)</td>
<td>0.006</td>
</tr>
<tr>
<td>3</td>
<td>76.9 (834)</td>
<td>67.9 (826)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>4</td>
<td>78.6 (682)</td>
<td>70.9 (687)</td>
<td>0.001</td>
</tr>
<tr>
<td>5</td>
<td>84.7 (378)</td>
<td>78.2 (362)</td>
<td>0.021</td>
</tr>
<tr>
<td>6</td>
<td>84.0 (318)</td>
<td>80.1 (312)</td>
<td>0.209</td>
</tr>
</tbody>
</table>

* mITT population
** CMH test

Conclusions
Rolapitant was superior in reducing CINV over active control when administered over multiple cycles of emetogenic chemotherapy, with no increase in toxicity.

11-04-O

ROLE OF OLANZAPINE IN CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING ON PLATINUM BASED CHEMOTHERAPY PATIENTS; A RANDOMIZED CONTROLLED STUDY

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2Radiotherapy, Christian Medical College Ludhiana, Ludhiana, India
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Introduction
Even with the use of modern antiemetics, chemotherapy induced nausea and vomiting (CINV) is still a cause of great distress to the patients. Olanzapine, primarily marketed as an antipsychotic, was found to reduce nausea and vomiting in some chemotherapy patients.

Objectives
The present study aims to evaluate the role of olanzapine in CINV in patients receiving platinum based chemotherapy.

Methods
The study was a randomized, controlled, assessor blinded study on 100 chemotherapy naive consenting patients receiving any one
from cisplatin, carboplatin or oxaliplatin. The control group \((n=50)\) received palonosetron and dexamethasone in the approved therapeutic dose from the day 1 of chemotherapy. The test group \((n=50)\) received additional olanzapine 10 mg/day from day 1 for 5 consecutive days. CINV and quality of life (QoL) were assessed.

**Results**

Vomiting was significantly less among the olanzapine treated patients. Control of delayed emesis was significantly better in this group (complete response among 96 % vs. 42 % in the control group, \(p\) value<0.0001).

Incidence and severity of nausea was significantly less in this group. Failure of anti-CINV measure was 4 % in this group compared to 26 % of the patients of the control group during day 1–5.

Though sedation was more in these olanzapine treated patients, there was no dose limiting adverse event. Quality of life was also better among the olanzapine treated patients.

**Conclusions**

Olanzapine was found to be effective as add-on in control of CINV.

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**11-05-O**

**THE ORAL ADMINISTRATION OF THE BRAIN PENETRATING GHRELIN AGONIST, HM01, ANTAGONIZES CISPLATIN-INDUCED EMESIS IN SUNCUS MURINUS (HOUSE MUSK SHREW)**

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\(^2\)Research and Preclinical Development Dept., Helsinn Healthcare S.A., Lugano, Switzerland

**Introduction**

Ghrelin stimulates gastric motility in animals and humans. A study in ferrets showed that central but not peripheral administration of ghrelin antagonizes cisplatin-induced emesis.

**Objectives**

To investigate if oral administration of a novel brain penetrating ghrelin agonist, HM01, has a potential to antagonize cisplatin-induced emesis when used alone or combined with the 5-HT\(_3\) antagonist, palonosetron, and the NK\(_1\) antagonist, netupitant, in *Suncus murinus*.

**Methods**

HM01 (3–30 mg/kg, p.o.) was administered 1 h prior to the injection of cisplatin (30 mg/kg, i.p.). In combination studies, animals were administered orally with HM01 (3 mg/kg) together with palonosetron (0.01 mg/kg) and/or netupitant (1 mg/kg). Behaviour was recorded for 24 h.

**Results**

Cisplatin induced an emetic response following a latency of \(-0.7\) h that comprised 13 episodes of 58.6 retches/vomits (RV). Approximately 94 % of the response occurred in the first 4 h, and this was prevented completely by HM01 at 30 mg/kg \((P<0.05)\); the ID\(_{50}\) (dose that produced an inhibition of 50 %) was 6.8±3.4 mg/kg. In a separate experiment, palonosetron and netupitant alone reduced the number of episodes recorded during the 24 h period by 63.5, \((P<0.01)\) and 44.2 % \((P>0.05)\), respectively.
Introduction
Corticosteroids are used routinely with other antiemetics to prevent acute chemotherapy-induced nausea and vomiting (CINV). The effects of continuing corticosteroids beyond day 1 on delayed CINV are less clear.

Objectives
The purpose was to evaluate the efficacy of single-day versus multiple-day corticosteroid dosing in the prevention of delayed chemotherapy-induced nausea and vomiting.

Methods
An electronic literature search of MEDLINE (1946 to December 2014) and EMBASE (1974 to December 2014) was performed. Eligible studies comprised of randomized controlled trials comparing corticosteroids given on day 1 only versus day 1 and beyond in the prevention of CINV. Studies were pooled in a meta-analysis using the Mantel-Haenszel fixed effect model. The primary endpoint was delayed emesis and the secondary endpoint was complete response in the delayed period. Meta-regression explored predictors of benefit from prolonged corticosteroids.

Results
Thirteen studies comprising 3343 patients were included in the analysis. Corticosteroid administration on day 1 only was associated with a statistically significant increase in the odds of delayed emesis (odds ratio [OR] 2.09; 95% confidence interval [CI] 1.71–2.54, p<0.001). This corresponded to a 13% absolute difference in the risk of delayed emesis (95% CI 9.1–16%). There was a corresponding significant decrease in the odds of achieving a complete response to nausea and emesis (OR 0.51; 95% CI 0.41–0.62, p<0.001). Meta-regression showed that prolonged corticosteroids were more beneficial in men (p<0.001) and among patients receiving highly emetogenic chemotherapy (p<0.001).

Conclusions
Corticosteroid administration beyond day 1 is highly efficacious in preventing delayed emesis due to chemotherapy.

11-08-P
PROPOSED EMETIC RISK CLASSIFICATION OF 32 RECENTLY APPROVED ANTICANCER AGENTS
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2Department of Radiotherapy, Vivantes Medical Center Berlin-Neukölln, Berlin, Germany
3Hematology and Oncology, Lahey Hospital & Medical Center, Burlington, USA

Introduction
Many recently approved anticancer agents have not yet been evaluated for inclusion in the emetogenicity classification system of the MASCC/ESMO Antiemetic Guidelines.

Objectives
To describe the emetic risk of 32 relatively new anticancer agents based on a systematic literature search.

Methods
For each agent a systematic literature review was conducted, using EMBASE and PubMed, for clinical trials published in English between January 2009 and December 2014. Review articles/publications describing preclinical or phase I studies were excluded. Phase II/III randomized trials examining the effect of monotherapy on safety outcomes were included. Summary of Product Characteristics documents were also reviewed. Rates of all grades of vomiting were recorded in evidence tables. In accordance with the established MASCC/ESMO emetic risk
classification system, agents were classified as having minimal (<10 %), low (10–30 %), moderate (30–90 %), or high (>90 %) emetic risk.

**Results**
The Table lists the proposed emetic risk classifications. Although the incidence of vomiting was heterogeneous across studies for many agents, there was adequate evidence to classify them. The majority of agents were classified as having low (21/32) or minimal (3/32) emetic risk. Five agents had moderate risk and none was classified as highly emetogenic.

**Conclusions**
Classifying the emetogenicity of anticancer agents provides a critical framework for the development of antiemetic guidelines and helps clinicians make decisions regarding appropriate antiemetic prophylaxis. This literature review and proposed classification of these newer anticancer agents offers valuable information for practitioners, and a tool for the panel members of the MASCC/ESMO Antiemetic Guideline group.

<table>
<thead>
<tr>
<th>Anticancer agent</th>
<th>Emetic risk classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abiraterone</td>
<td>Moderate</td>
</tr>
<tr>
<td>Axitrinit</td>
<td>Low</td>
</tr>
<tr>
<td>Brentuximab</td>
<td>Low</td>
</tr>
<tr>
<td>Cabazitaxel</td>
<td>Low</td>
</tr>
<tr>
<td>Carfilzomib</td>
<td>Low</td>
</tr>
<tr>
<td>Crizotinib</td>
<td>Moderate</td>
</tr>
<tr>
<td>Darabrafenib</td>
<td>Low</td>
</tr>
<tr>
<td>Dasatinib</td>
<td>Low</td>
</tr>
<tr>
<td>Erlotinib</td>
<td>Low</td>
</tr>
<tr>
<td>Irinotecan</td>
<td>Low</td>
</tr>
<tr>
<td>Ipilimumab</td>
<td>Low</td>
</tr>
<tr>
<td>Nab-paclitaxel</td>
<td>Classification not possible</td>
</tr>
<tr>
<td>Nilotinib</td>
<td>Low</td>
</tr>
<tr>
<td>Obritinib</td>
<td>Classification not possible</td>
</tr>
<tr>
<td>Olaparibuxab</td>
<td>Classification not possible</td>
</tr>
<tr>
<td>Pazopanib</td>
<td>Low</td>
</tr>
<tr>
<td>Parluzumab</td>
<td>Low</td>
</tr>
<tr>
<td>Pevanterone</td>
<td>Minimal</td>
</tr>
<tr>
<td>Pemetrexed</td>
<td>Minimal</td>
</tr>
<tr>
<td>Pazopanib</td>
<td>Low</td>
</tr>
<tr>
<td>Regorafenib</td>
<td>Low</td>
</tr>
<tr>
<td>Rovalastinib</td>
<td>Low</td>
</tr>
<tr>
<td>Temozolomide (IV)</td>
<td>Moderate</td>
</tr>
<tr>
<td>Trabectedin</td>
<td>Classification not possible</td>
</tr>
<tr>
<td>Trastuzumab emtansine</td>
<td>Low</td>
</tr>
<tr>
<td>Vandetanib</td>
<td>Minimal</td>
</tr>
<tr>
<td>Vinorelbine</td>
<td>Low</td>
</tr>
<tr>
<td>Vinostatin</td>
<td>Low</td>
</tr>
</tbody>
</table>

11-09-P

**ASSOCIATION BETWEEN NK1 RECEPTOR OCCUPANCY (RO) OF NETUPITANT (NETU) AND EFFICACY OF NEPA, THE FIXED ANTIEMETIC COMBINATION OF NETU AND PALONOSETRON (PALO)**

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**Introduction**
Positron emission tomography (PET) studies suggest that a high degree of NK₁-RO (>90 %) in the striatum brain region may be associated with antiemetic efficacy of NK₁ receptor antagonists (NK₁,RA) at therapeutic doses. However, the 90 % threshold appears to be arbitrary and the relationship between varying levels of NK₁,RO and clinical efficacy has not been established. NEPA is a fixed antiemetic combination comprised of the NK₁,RA, netupitant 300 mg, and the 5-HT₃,RA, palonosetron 0.5 mg.

**Objectives**
Evaluate the possible relationship between RO of NETU and the efficacy of the NEPA combination.

**Methods**
A PET imaging study (N=6) was performed in healthy subjects to evaluate NK₁-RO of NETU. An Emax model correlating NK₁-RO with NETU plasma concentrations was developed and applied to predict the time course of RO in the striatum brain region up to 120 h (end of the efficacy evaluation period) following 300 mg NETU. In pivotal trials in patients receiving either cisplatin- or AC-based chemotherapy, the proportions of NEPA-treated patients with no emesis or no significant nausea (NSN: max score ≤25 mm on 100 mm VAS) were evaluated on a daily basis.

**Results**
NETU RO ranged from 75 to 90 % throughout the 5 days post-dose. Daily no emesis rates were >96 % in Study 1 and >85 % in Study 2; NSN rates were similarly high.

**Conclusions**
It does not appear necessary to achieve sustained RO >90 % for NETU when combined with palonosetron, as NEPA resulted in excellent emesis/nausea control during the 5 days post-chemotherapy in patients at significant emetic risk.

**Model Predictions**

<table>
<thead>
<tr>
<th>NETU Dose: 300mg</th>
<th>Cancer patients NEPA: 300mg NETU/0.5mg PALO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time (h)</td>
<td>NK₁, RO (%)</td>
</tr>
<tr>
<td>No Emesis</td>
<td>NSN</td>
</tr>
<tr>
<td>3</td>
<td>90%</td>
</tr>
<tr>
<td>6</td>
<td>90%</td>
</tr>
<tr>
<td>24</td>
<td>88%</td>
</tr>
<tr>
<td>48</td>
<td>83%</td>
</tr>
<tr>
<td>72</td>
<td>80%</td>
</tr>
<tr>
<td>96</td>
<td>78%</td>
</tr>
<tr>
<td>120</td>
<td>75%</td>
</tr>
</tbody>
</table>

11-10-P

**EFFICACY OF TRANSDERMAL GRANISETRON PATCH IN CONTROLLING CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING (CINV) IN GASTROINTESTINAL CANCER PATIENTS**

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²Internal Medicine, University of Texas MD Anderson Cancer Center, Houston, USA

**Introduction**
Patients with gastrointestinal (GI) cancer are at risk of CINV due to the use of highly emetogenic chemotherapy regimens. Patients...
with GI cancer can also experience limited gut motility and absorptive capacity, potentially decreasing effectiveness of oral medications. A granisetron transdermal system (GTS) has been shown to be as effective as oral granisetron (OG) in controlling CINV across multiple tumor types.

Objectives
This post-hoc analysis examined efficacy and safety of GTS in GI cancer patients.

Methods
A randomized, phase 3 study compared GTS (7 day) to OG (2 mg/day) in patients with cancer receiving moderately or highly emetogenic chemotherapy for 3–5 days. Data for this analysis were limited to GI cancer patients (n=53). Rates of complete control (CC; no vomiting, mild nausea, no rescue medication), complete response (CR; no vomiting, no rescue medication), rescue medication, and patients’ global satisfaction using GTS or OG were compared.

Results
53 patients with GI cancer (27 GTS, 26 OG) were included. The majority received cisplatin-based chemotherapy (43 patients; 81 %); 94 % received highly emetogenic chemotherapy. The CC and CR rates were similar in the GTS (both 70 %) and OG (CC=69 %, CR=73 %) groups. Lack of rescue medication was similar for GTS and OG (81 % for both; p=0.95), and patient’s global satisfaction did not differ (8.50 cm vs. 8.22 cm; p=0.48). The only GTS related adverse event was one case of constipation.

Conclusions
GTS may be an effective option for controlling CINV in patients with GI cancer who are at high risk of CINV.

11-12-P
STEROID DIABETES IN CANCER PATIENTS RECEIVING CHEMOTHERAPY INCLUDING DEXAMETHASONE AS AN ANTIEMETIC
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Introduction
Dexamethasone has a high therapeutic index when used to prevent chemotherapy-induced nausea and vomiting; however, the chronic use of high-dose glucocorticoids may cause significant hyperglycemia.

Objectives
The aim of this study was to assess the prevalence and associated factors of steroid diabetes in cancer patients receiving chemotherapy including dexamethasone as an antiemetic.

Methods
Patients with newly diagnosed gastrointestinal cancer who were scheduled to receive at least three cycles of highly or moderately emetogenic chemotherapy with dexamethasone as one of antiemetics were enrolled.

Results
Between January 2012 and November 2013, 101 patients with no history of diabetes underwent fasting plasma glucose, 2-h plasma glucose, and HbA1c tests to assess eligibility; 77 of these patients were included in the analysis. The fasting blood glucose levels (mean±standard deviation) at baseline, 3 and 6 months were 92.1±11.5, 99.4±12.9, and 98.4±14.9 mg/dL, respectively (P=0.001). The 2-h blood glucose (P=0.455) and HbA1c (P=0.584) levels at 3 and 6 months were not significantly different from baseline levels. Seventeen patients (22.1 %) showed steroid diabetes at 3 or 6 months after the first chemotherapy that included dexamethasone as an antiemetic. Multivariate analysis revealed that the prevalence of steroid diabetes was significantly associated with the dose of dexamethasone (P=0.022).

Conclusions
This study showed that approximately 20 % of cancer patients with normal blood glucose levels showed steroid diabetes after antiemetic dexamethasone therapy, this was particularly significant for patients treated with higher doses of dexamethasone.
**11-13-P**

**PROSPECTIVE EVALUATION OF A MARKER FOR DELAYED CHEMOTHERAPY-INDUCED VOMITING (CIV)**

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3Pharmacy Practice, West Virginia University, Morgantown, USA

**Introduction**

Results of clinical trials suggest that serotonin and substance P play prominent roles in acute and delayed CIV, respectively. These findings are potentially important especially with regard to the use of NK₁ receptor antagonists (RA). Recently, post hoc analysis of data indicated the risk of developing delayed CIV was associated with a marker, a ratio of substance P (sP) to the serotonin metabolite, 5-HIAA, urine creatinine (uCr) ≥70.¹,²

**Objectives**

We are conducting an IRB-approved clinical trial involving subjects who may receive the NK₁ RA, aprepitant, as antiemetic prophylaxis to prospectively determine the predictive value of this marker.

**Methods**

Eligibility restricted to subjects who provided signed informed consent and treated with AC or R-CHOP, two doxorubicin- and cyclophosphamide-containing regimens which have similar dosages of the two agents. Pretreatment blood and urine samples were obtained to determine baseline ratios for each subject. The treating oncologist decided whether to follow investigator recommendations, which were based on calculated ratios or MASCC-endorsed antiemetic guidelines. Subjects were monitored for 120 h following chemotherapy.

**Results**

Of the initial 12 subjects evaluated, 4 had ratios ≥70. Despite recommendation and addition of aprepitant, two of the 4 still developed delayed CIV. All remaining 8 subjects had ratios <70; none of whom, even 4 subjects who did not receive aprepitant (as recommended), developed delayed emesis.

**Conclusions**

We anticipate enrolling 12–18 additional subjects by March 2015. Further discussion and statistical analyses will be forthcoming. If accepted, these data will be presented at the 2015 MASCC/ISOO International Symposium on Supportive Care in Cancer.

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**11-15-P**

**RANDOMISED, CROSS OVER STUDY OF FOSAPREPITANT (SINGLE DOSE VS TWO DOSES) FOR NAUSEA AND VOMITING IN SARCOMA PATIENTS RECEIVING MULTIDAY CHEMOTHERAPY**


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**Introduction**

Doxorubicin and Ifosfamide (AI) is a highly emetogenic regimen. Single-dose Fosaprepitant (Fosa), with 5HT3RA and dexamethasone has improved the Chemotherapy-induced nausea/vomiting (CINV) control. However, delayed N/V is still problematic.

**Objectives**

The purpose of the study was to examine the effects of Fosa single dose vs 2 doses on CINV and Ifosfamide/metabolites, due to potential drug interactions via CYP450.

**Methods**

Forty-seven patients planned to receive AI, were randomized 1:1 to Arm A (single dose Fosa on day 1) or Arm B (2 doses, on days 1 and 4). Within each arm pts were randomized to Group 1
(Fosa in cycle-1 but not in cycle-2) or Group 2 (Fosa in cycle-2 but not in cycle-1). Blood samples were drawn for pharmacokinetics on days 1 and 4 in first 2 cycles. The lack of drug interaction was established if the 95 % CI of the geometric mean AUC ratio of Fosa/control was within 0.8–1.25 range.

**Results**

In the 40 pts that received at least 1 cycle of treatment, the complete response to N/V was significantly higher (p=0.013) in the two-dose (50 %) than single-dose arm (10 %) or control (17 %). During treatment with 2 doses, the geometric mean AUC ratio was marginally increased for Ifosfamide [ratio (95 % CI):1.20 (1.09–1.32)] and decreased for 4-hydroxyifosfamide [0.91 (0.75–1.10)] on day 4. There was no enhanced neurologic/urinary toxicity with the two doses of Fosa.

**Conclusions**

Two doses of Fosa better controls multi-day CINV without increasing the toxicities, and with a marginal effect on Ifosfamide metabolism.

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**11-16-P**

**PHASE 1 BIOAVAILABILITY STUDY COMPARING 2 DIFFERENT SUBCUTANEOUS ROUTES OF ADMINISTRATION FOR APF530**

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**Introduction**

Chemotherapy-induced nausea and vomiting (CINV) is often poorly controlled. APF530, a new polymer-based formulation of granisetron, provides controlled sustained delivery for longer therapeutic activity. A large, randomized, double-blind phase 3 trial showed APF530 was noninferior to palonosetron in preventing acute (0–24 h) and delayed (24–120 h) CINV following moderately emetogenic chemotherapy (MEC) and acute CINV following highly emetogenic chemotherapy (HEC).

**Objectives**

This study investigated safety and bioavailability of 2 subcutaneous administration routes of extended-release granisetron (APF530).

**Methods**

This phase 1 crossover study randomized healthy subjects to APF530 500 mg subcutaneously via the nondominant upper arm or upper left quadrant (ULQ) abdomen on day 1, with crossover on day 15 to APF530 via the other route. Plasma samples were obtained to assess granisetron pharmacokinetics by a non-compartmental model analysis. Adverse events (AEs) were assessed, including injection-site reactions (ISRs), treatment-emergent AEs (TEAEs), serious AEs, and AEs causing discontinuation.

**Results**

113 of 120 randomized subjects were included in the pharmacokinetic analysis. The 2 routes of administration were bioequivalent with 120-h exposure (Figure 1, Table 1). Most TEAEs were mild or moderate, mainly ISRs. ISRs occurred in 84.5 % of subjects receiving abdominal and 69.2 % receiving armjections. 91.4 % of subjects receiving abdominal and 76.9 % receiving arm injections experienced TEAEs (Table 2).

**Conclusions**

Bioequivalence across administration routes is an important therapeutic consideration. APF530 administration in the upper arm and ULQ abdomen were bioequivalent. The AE profile was similar to that of previous studies. Single subcutaneous injections of APF530 may provide an outpatient option for preventing CINV following MEC or HEC.

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**11-17-P**

**RELATIONSHIP BETWEEN ALCOHOL METABOLISM & CHEMOTHERAPY-INDUCED EMETIC EVENTS (ACHIEVE STUDY)**

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**Introduction**

The correlation between habitual alcohol consumption and chemotherapy-induced nausea and vomiting (CINV) has been reported, but it would be interesting to ascertain the mechanism underlying this association, especially in Japanese, as approximately 40 % of our population lacks one of the alleles of the ALDH2 gene which is related to alcohol-metabolism.
Objectives
To elucidate the mechanism of CINV, we examined, as a primary endpoint, whether genetic polymorphism of ALDH2 and habitual alcohol consumption are related to a complete response (CR) to treatment as defined by the absence of vomiting without rescue treatment. As a secondary endpoint, we investigated the relationships of CRs, which are divided into acute, delayed and all phases, to ALDH2 genetic polymorphisms and habitual alcohol consumption in women with breast cancer initially treated with anthracycline and cyclophosphamide-containing regimens (FEC).

Methods
Eighty-one women between 20 and 55 years of age, diagnosed with primary breast cancer stage-III and FEC, were enrolled after providing informed consent. We investigated the relationship between ALDH2 gene typing results, obtained with an ALDH2 typing kit®, and CINV as assessed by patient diaries.

Results
The wild-, hetero, and mutant types were found in 43/81 (53.1 %), 36/81 (44.4 %), and 2/81 (2.5 %) patients, respectively. Habitual alcohol consumption correlated significantly with ALDH2 gene typing but not with the CR. CR correlated with alcohol consumption according to genotype of ALDH2.

Conclusions
Novel findings applicable to controlling CINV were obtained in Japanese breast cancer patients with characteristic genetic polymorphisms for alcohol metabolism.

11-18-P

IMPACT OF 5-HT3-RECEPTOR ANTAGONIST THERAPY ORDER AND SWITCHING ON CHEMOTHERAPY INDUCED NAUSEA AND VOMITING IN BREAST CANCER (BC) PATIENTS ON HEC OR MEC

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Introduction
Patients may be switched from initial antiemetic therapy for various reasons, including to seek better control. However, little is known about the impact of switching between palonosetron and other 5-HT3-RAs on chemotherapy-induced nausea and vomiting (CINV).

Objectives
This study investigated the effect of 5HT3-RA switching in patients with BC.

Methods
Retrospective study on Truven claims dataset (Jan, 2007–13) including patients ≥18 years who had a first BC diagnosis during the study period and were treated with a MEC or HEC regimen

Results
Eight thousand one hundred twenty-eight patients were included: 84.8 % initiated on palonosetron, and 11.4 % on ondansetron. Concurrent NK1-a use in the first cycle was observed in 28.0 and 19.4 % and triple therapy (NK1-a+5HT3-RA+Dexamethasone) in 8.9 % and 16.3 % of the palonosetron and ondansetron groups, respectively. After 3 months, switching rates were 26.2 % in the palonosetron and 18.0 % in the ondansetron group. Percent of patients with any CINV event after switching was significantly higher in those switching from palonosetron to ondansetron (53.51 % vs 44.58 %; p=0.03). Logistic regression on risk of having CINV event during the 3-months post-index indicated patients who switched away from palonosetron had significantly higher risk for CINV (OR=1.758; 95 % CI, 1.567~1.972)

Conclusions
Patients who switched from palonosetron to ondansetron experienced higher CINV rate, while those who persisted on palonosetron fared better than those who switched

11-19-P

IMPACT OF 5-HT3-RECEPTOR ANTAGONIST THERAPY ORDER AND SWITCHING ON CHEMOTHERAPY INDUCED NAUSEA AND VOMITING IN LUNG CANCER (LC) PATIENTS ON CISPLATIN OR CARBOPLATIN

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Introduction
Patients may be switched from initial antiemetic therapy for various reasons, including to seek better control. However, little is known about the impact of switching between palonosetron and other 5-HT3-RAs on chemotherapy-induced nausea and vomiting (CINV).

Objectives
This study investigated the effect of 5HT3-RA switching in patients with LC.

Methods
Retrospective study performed on Truven claims dataset (Jan, 2007–13) including patients ≥18 years who had a first LC diagnosis during the study period and were treated with carboplatin or cisplatin.

Results
Two thousand two hundred thirty-four were included: 58.0 % male; mean age 61 years (±9.0); 66.8 % on carboplatin, 30.8 % on cisplatin; 71.5 % initiated palonosetron and 20.5 % ondansetron in cycle1. Concurrent NK1-a use in cycle1 was observed in 19.7 and 12.9 %, and triple therapy (NK1-a+5HT3-RA+Dexamethasone) in 16.3 and 12.0 % of the palonosetron and ondansetron groups, respectively. Among carboplatin-treated patients switching rates were 19.4 % in the palonosetron and 22.3 % in the ondansetron group after 3 months. Those who switched away from palonosetron had higher rates of CINV compared to those who switched from ondansetron (60.1 % vs 47.8 %, p=0.07). Among cisplatin-treated patients, logistic regression model found patients who switched from palonosetron had 121 % higher risk for a CINV event compared to those who did not. Poisson regression found palonosetron had significantly lower CINV rate than ondansetron patients, with those who switched from palonosetron had 58 % more CINV events than those who persisted.

Conclusions
Patients who switched from palonosetron experienced higher CINV rate, while those who persisted on palonosetron fared better than if switched.
11-20-P

PHARMACOKINETICS OF ROLAPITANT ADMINISTERED INTRAVENOUSLY FOLLOWING SINGLE ASCENDING AND MULTIPLE ASCENDING DOSES IN HEALTHY VOLUNTEERS

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Introduction

Rolapitant is a potent, highly selective and long acting NK-1 receptor antagonist for the prevention of chemotherapy-induced nausea and vomiting (CINV). Oral pharmacokinetics (PK) of rolapitant following single-ascending doses (SAD) and multiple-ascending doses (MAD) have been previously determined in healthy volunteers.

Objectives

1) To assess the PK of intravenously (IV) administered rolapitant following SAD and MAD; and 2) to evaluate the safety and tolerability of IV rolapitant.

Methods

This was an open-label study. Rolapitant was administered as an IV infusion over 30 min in SAD (20, 50, 100, 150, and 200 mg) and MAD (20, 40 and 60 mg once daily for 10 days). At least 6 subjects were dosed at each dose level. Blood samples were collected to determine the PK of rolapitant and its major metabolite SCH720881.

Results

Rolapitant PK (Cmax and AUC) increased dose proportionally following both single and multiple doses. Following a single IV dose of 185 mg, mean rolapitant T-half was approximately 190 h, which was consistent with T-half from oral studies at the therapeutic dose of 200 mg (~180 h). Similar to oral studies, accumulation (based on AUC) following IV administration over 10 days was approximately 5-fold. Additionally, comparable PK of SCH720881 was observed between this IV and previous oral studies. There were no severe study drug-related TEAEs and no SAEs reported in either part of the study.

Conclusions

PK of IV rolapitant was consistent with previous oral PK results. IV rolapitant was safe and well tolerated in this study.

11-21-P

SHOULD ALL ANTIEMETIC GUIDELINES RECOMMEND ADDING A NK1 RECEPTOR ANTAGONIST (NK1RA) IN PATIENTS RECEIVING CARBOPLATIN: SUPPORTIVE EVIDENCE WITH NEPA (NETUPITANT AND PALONOSETRON) AND APREPITANT REGIMENS

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Introduction

Guideline recommendations are inconsistent as to whether a NK1RA should be added to a 5HT3 RA+dexamethasone in patients receiving carboplatin. Patients receiving cisplatin routinely receive a NK1RA where a 12–20 % benefit is seen. Recent studies suggest a similar benefit in patients receiving carboplatin (Rapoport, Tanioka, Ito, Yahata).

Objectives

Evaluate antiemetic efficacy for NEPA and aprepitant (APR) regimen in a subset of patients receiving carboplatin in a NEPA Phase 3 trial.

Methods

One hundred ninety-six patients (n = 145 NEPA+DEX; n = 51 APR+palonosetron+DEX) received carboplatin in cycle 1. Complete response (CR: no emesis/rescue) and no significant nausea (NSN: score ≤25 on 100 mm visual analog scale) rates were calculated for all patients and by gender/age for NEPA.

Results

Cycle 1–4 overall (0–120 h) CR rates were similar for NEPA (80, 91, 92, and 93 %) and APR (82, 88, 89, and 90 %). NSN rates were also similar (NEPA 84–96 %; APR 82–90 %). NEPA cycle 1 efficacy by risk groups is in the Table.

Conclusions

Response rates for NEPA and APR regimens were similar and consistent with prior studies evaluating the contribution of adding NK1RAs in patients receiving carboplatin. High nausea control rates were also seen with NEPA, even in women and younger patients at greater emetic risk. Considering such evidence, guideline groups/practitioners should consider giving a NK1RA antiemetic triplet in patients receiving carboplatin.

<table>
<thead>
<tr>
<th>Overall Response Percentage [95% CI]</th>
<th>NEPA + DEX</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>CR</td>
</tr>
<tr>
<td>All Patients</td>
<td></td>
</tr>
<tr>
<td>(N = 145)</td>
<td>80%</td>
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<tr>
<td></td>
<td>[73, 86]</td>
</tr>
<tr>
<td>Females</td>
<td></td>
</tr>
<tr>
<td>(N = 66)</td>
<td>73%</td>
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<tr>
<td></td>
<td>[61, 82]</td>
</tr>
<tr>
<td>Males</td>
<td></td>
</tr>
<tr>
<td>(N = 79)</td>
<td>86%</td>
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<td></td>
<td>[76, 92]</td>
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<tr>
<td>≤ 55 years</td>
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<tr>
<td>(N = 53)</td>
<td>85%</td>
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<td></td>
<td>[73, 92]</td>
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<tr>
<td>≥ 55 years</td>
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<td>(N = 92)</td>
<td>77%</td>
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<td>[68, 85]</td>
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</table>
changes in phosphorylation of brainstem kinases (ERK1/2, PKCα/β, and PKA) were investigated.

Methods

Behavioural and Western blot techniques were employed in least shrews. Palonosetron (0.1 mg/kg), netupitant (5 mg/kg) or vehicles were administered 30 min prior to cisplatin (10 mg/kg).

Results

Cisplatin caused early and delayed emesis emesis over 40 h. Palonosetron nearly completely suppressed vomit frequency during early phase. It also protected shrews from vomiting during the delayed phase, but the reduction in mean vomit frequency failed to achieve significance. Netupitant totally abolished vomiting during the delayed phase, with non-significant reductions in both emetic parameters during the acute period. The combined treatment protected shrews almost completely from vomiting. Brainstem pERK1/2 levels were significantly elevated at all time-points. PKA phosphorylation was significantly increased at 33 h. Brainstem pPKCa/β levels was significantly elevated at 2 h. Palonosetron, netupitant or their combination had no effect on elevated pERK1/2 levels during acute phase, but the combination reversed ERK1/2 phosphorylation at 33 h post-cisplatin treatment. Only the combined regimen prevented the cisplatin-induced PKCa/β phosphorylation observed at the acute phase. Palonosetron and netupitant, either alone or in combination, were effective in reducing the elevated pPKA levels during the delayed phase.

Conclusions

The differential effects of palonosetron and netupitant on cisplatin-induced emetic signals downstream of 5-HT3- and NK1- receptors help us to better understand the intracellular basis of cisplatin-induced vomiting.

11-23-P

EFFICACY OF PALONOSETRON AND 1-DAY DEXAMETHASON IN MODERATELY EMETIC CHEMOTHERAPY COMPARED WITH FOSAPREPITANT, GRANISETRON, AND DEXAMETHASONE: A RANDOMIZED CROSSOVER STUDY

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Introduction

Although palonosetron (PALO) and NK1 receptor antagonist both reduce chemotherapy-induced nausea and vomiting, no comparison trial in moderately emetogenic chemotherapy (MEC) had been reported.

Objectives

To find out which drug combinations are preferable for patients receiving MEC.

Methods

Chemotherapy-naive patients receiving MEC were randomized to two groups; group A first to PALO therapy and group B first to fosaprepitant (FAPR) therapy. Patients were re-allocated to the other therapy respectively at the second cycle of their chemotherapy. We administered intravenous PALO 0.75 mg and dexamethasone (DEX) 9.9 mg to PALO therapy groups, FAPR 150 mg, DEX 4.95 mg, and granisetron (GRAN) 3 mg to PALO therapy groups, on day 1. We evaluated the complete response rate of vomiting, complete control rate of nausea and vomiting, and total control rate of nausea and vomiting at acute, delayed, and overall intervals.

Results

The total of 35 patients and 70 therapies was available for analysis. No significant difference was found in any evaluation points. Complete response rates in overall interval of PALO and FAPR therapy were 74 % vs 69 % (P=0.567), complete control rates 66 % vs 69 % (P=0.521), total control rates 46 % vs 60 % (P=0.235), respectively. Patients also showed no clear preference for their third and following cycles of chemotherapy choosing both regimens almost equally often (PALO 10 vs FAPR 13).

Conclusions

PALO and 1-day DEX showed equivalent to FAPR, GRAN, and DEX in MEC.

11-24-P

STANDARDIZED GINGER EXTRACT IMPROVES QUALITY OF LIFE ASSOCIATED WITH CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING

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Introduction

Ginger supplementation could be an effective adjuvant treatment to improve chemotherapy-induced nausea and vomiting (CINV) and quality of life (QoL); however, previous trials in this area have noted limitations including the lack of control for prognostic factors that can influence CINV, and the use of suboptimal dosing regimens.

Objectives

The aim of this study was to determine the effect of a time- and dose-standardised form of ginger as an adjuvant treatment for CINV-related QoL compared to placebo in chemotherapy naïve patients commencing moderately- and highly-emetogenic chemotherapy.

Methods

In a double-blind, randomised, placebo-controlled trial, patients were randomly allocated to receive either 1.2 g of a standardised ginger extract or placebo per day, in combination with standard anti-emetic therapy. Supplements were divided into four capsules per day, consumed every 4 h for 5 days, commencing on day of chemotherapy. The primary outcome was CINV-related QoL using the Functional Living Index-Emesis questionnaire. Acute and delayed CINV, as well as cancer-related fatigue, and CINV-specific prognostic factors were also assessed using validated questionnaires.

Results

Fifty three patients were enrolled of which there is complete data on 44. Nausea was reported by 43 % (n=19) and vomiting reported by 14 % (n=6) of patients. Patients who received ginger supplementation reported significantly higher ratings of CINV-related QoL (120±13 vs 105±32; p=0.038) and global QoL (85±22 vs 70±14; p=0.039) than patients receiving placebo. No significant difference in reported adverse effects was identified (p>0.05).

Conclusions

Ginger extract was well tolerated and prevented a reduction in CINV-related QoL. Larger studies are now required to confirm these results.

11-25-P

ONDANSETRON RAPIDLY DISSOLVING FILM FOR THE PROPHYLACTIC TREATMENT OF RADIATION-INDUCED NAUSEA AND VOMITING – A PILOT STUDY

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Introduction
Rapidly dissolving film (RDF) formulations facilitate drug delivery in circumstances where swallowing the medication may be difficult for the patient such as pre-existing nausea and vomiting.

Objectives
The purpose of this study was to investigate the efficacy of an ondansetron RDF in the prophylaxis of radiation-induced nausea and vomiting (RINV).

Methods
Patients undergoing palliative radiotherapy at risk for RINV were prescribed ondansetron RDF 8 mg twice a day while on treatment and were asked to complete a nausea and vomiting-specific daily diary, the Functional Living Index – Emesis (FLIE), and the European Organization for Research and Treatment of Cancer – C15-PAL. Patients were categorized under primary or secondary prophylaxis based on whether they had pre-existing emetic episodes. Overall control rate was defined as a maximum increase of two episodes of nausea or vomiting from baseline. Acute phase was defined as days during radiation to the first day after radiation whereas delayed phase was day 2–10 after the radiation.

Results
Thirty patients were accrued. In the primary prophylaxis, for the acute phase, the overall control rates for nausea and vomiting were 89 and 93 % respectively; for the delayed phase, 73 and 75 % respectively. In the secondary prophylaxis, for the acute phase, both the overall control rates for nausea and vomiting were 100 %; for the delayed phase, 50 %. Significant correlation was found between the number of nausea and vomiting episodes with the FLIE and C15-PAL questionnaires.

Conclusions
Ondansetron RDF is effective in the prophylaxis of RINV.

11-26-P
BREAKTHROUGH CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING (CINV) IN JAPAN -REPORT FROM THE NA-TIONWIDE SURVEY BY THE CINV STUDY GROUP OF JAPAN

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Introduction
We have reported good compliance with the Japanese CINV guideline (ESMO annual meeting, 2013 & 2014) in terms of prophylactic use of antiemetics. For breakthrough CINV, the guideline says one can use multiple antiemetics which have different antiemetic mechanisms from those used as prophylaxis.

Objectives
To evaluate the use of antiemetics for breakthrough CINV in Japanese patients and their effect.

Methods
The multicenter, prospective, observational study analyzed data for 1910 patients in Japan scheduled for highly and moderately emetogenic chemotherapy (HEC and MEC). The patients who developed CINV despite of prophylactic administration of antiemetics were evaluated whether they were treated with rescue drugs to control it. Since the incidence and pattern of CINV differed among cisplatin-based HEC (C-HEC), non-cisplatin-based HEC (N-HEC) and MEC, they were evaluated separately.

Results
A total of 989 experienced CINV. Rescue drugs were given to 11–17 % of the patients on day 1, but it was increased to 20–35 % on days 2–7. There was a tendency to receive rescue drugs more on days 2–7 for C-HEC and MEC than for N-HEC. The majority of patients received a dopamine receptor antagonist, metoclopramide and/or an anti-anxiety drug as a rescue. It is difficult to assess the effect of the rescue drugs, since the diary was not filled out as an hourly basis.

Conclusions
Only 1/5 to 1/3 of the patients was treated with rescue drugs for breakthrough CINV, and it is still a challenging complication to cope with by medical personnel. Hearing the patients’ complaint well is important.

11-27-P
PREFERENCE REGARDING ROUTE OF ANTI-EMETIC ADMINISTRATION AMONGST HOSPITAL PATIENTS REFFERED TO A SUPPORTIVE CARE TEAM

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Introduction
Patients referred to hospital supportive and palliative care teams commonly experience nausea and vomiting. Anti-emetics can be given by several routes; however, there is paucity of research into patient preferences regarding the route of anti-emetic administration.

Objectives
To undertake an exploratory study about whether patients exhibit preferences for the route of anti-emetic administration; and the reasons for preferences.

Methods
We conducted a study of hospital inpatients referred for supportive and palliative care. A structured interview was developed and piloted. It explored patient preferences between six routes of anti-emetic administration: oral, oro-dispersible, intravenous, subcutaneous, rectal suppository, and transdermal patch. The study was registered according to hospital service evaluation guidelines and conducted in a Sheffield hospital during March 2014. Interviews were conducted by medical students under supervision of senior doctors.

Results
Fifteen consenting patients met criteria to participate in the study: 7 females, mean age 50 years (range 26–70). All patients were either ‘quite’ or ‘definitely’ likely to want an anti-emetic, if symptomatic. The most positive responses were for transdermal (80 %), oral (67 %) and intravenous (53 %) routes. Less preferred routes were oro-dispersible and rectal (27 %) and subcutaneous (13 %). Factors influencing preference included: previous experience of the route, perceived efficacy and anticipated tolerability.

Conclusions
Anti-emetics are commonly prescribed in cancer care at all stages. Patients expressed varied treatment preferences, highlighting the significance of including patient participation in treatment decisions. Previous exposure to a route was a major influence. This study was limited by small size but suggests that further research is needed.

11-28-P
EVALUATING THE ADMINISTRATION TIMING OF NEPA, A FIXED COMBINATION OF NETUPITANT AND PALONOSETRON FOR PREVENTION OF CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING (CINV)

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NEPA is the first antiemetic combination agent developed. It is comprised of the NK₁RA, netupitant (NETU), and the 5-HT₃RA, palonosetron (PALO). NEPA showed superior CINV prevention to oral PALO in patients receiving highly and moderately emetogenic chemotherapy. NEPA was administered as a single dose 60 min prior to chemotherapy on Day 1 only.

Objectives
To explore the potential impact of dosing NEPA closer to chemotherapy initiation on efficacy, utilizing PET and clinical data.

Methods
A PET imaging study (N=6) was performed to evaluate brain NK₁ receptor occupancy (RO) of NETU. A sigmoidal Eₘₐₓ model was used to predict the time to achieve 90% NK₁-RO in the striatum region, a recognized RO threshold correlating with NK₁RA efficacy. The time to first emetic episode (TTFE) was calculated for NEPA in a pivotal trial in patients (N=135) receiving cisplatin (Hesketh, Ann Oncol 2014).

Results
Time to 90% RO of NETU in the striatum was 2.9 h, with 92.5% RO occurring at 6 h (the time to maximum plasma concentration). The earliest TTFE in the cisplatin trial was 8.0 h; the mean TTFE for NEPA was 11.4 h.

Conclusions
Considering that 90% RO is reached for NETU at 2.9 h and the earliest TTFE is 8 h for NEPA, shifting timing of administration of NEPA closer to time of chemotherapy initiation seems unlikely to negatively impact efficacy. This hypothesis should be validated in a clinical trial, as allowing flexibility in timing of dosing may further enhance the convenience of this new antiemetic combination.

11-30-P
NEUROKININ-1 (NK₁) RECEPTOR OCCUPANCY (RO) OF NETUPITANT IN DIFFERENT BRAIN REGIONS: POSITRON EMISSION TOMOGRAPHY (PET) STUDY IN HEALTHY MALE SUBJECTS

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Introduction
Netupitant is a selective NK₁ receptor antagonist developed in combination with palonosetron (NEPA) for the prevention of chemotherapy-induced nausea and vomiting. Specific brain regions involved in netupitant’s antiemetic activity remain undefined, although interaction with NK₁ receptors in the emesis trigger zone (ETZ) of the brainstem is expected.

Objectives
To evaluate the rate, magnitude, and duration of NK₁-RO of oral netupitant in different brain regions.

Methods
NK₁-RO was investigated in six different brain regions of six healthy male subjects following single oral netupitant doses (100/300/450 mg). PET imaging was performed up to 96 h post-dose. An Eₘₐₓ model correlated NK₁-RO with netupitant plasma concentrations (C): RO(%)=(Eₘₐₓ*C)/(Eₘₐₓ+Cₕ₅₀+Cₚ₅₀), which enabled more robust parameter estimates for all brain regions compared with previous modeling (Spinelli, J Clin Pharmacol 2014;54:97–108).

Results
Estimates of EC₅₀, Eₘₐₓ, and model-predicted RO are shown (Tables). Netupitant had a high binding affinity to NK₁ receptors in different brain regions. Maximal RO after 300 mg oral netupitant was ≥90% in all regions, except lateral and medial temporal cortex; highest RO was in the occipital cortex. In the striatum, NK₁-RO was achieved later and at...
higher plasma concentrations, and RO declined fastest, compared with other brain regions.

Conclusions
Interaction kinetics between netupitant and NK₁ receptors vary between brain regions, probably due to differences in regional blood perfusion, drug diffusion, and NK₁ receptor density. The magnitude and temporal profile of NK₁-RO in the striatum and certain brain cortex regions, represents a suitable surrogate marker for netupitant’s interaction with NK₁ receptors in the ETZ and drug response.

<table>
<thead>
<tr>
<th>Brain region</th>
<th>EC₅₀ (ng/mL)</th>
<th>Eₘₐₓ (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimate</td>
<td>CV%</td>
</tr>
<tr>
<td>Striatum</td>
<td>8.47</td>
<td>19.6</td>
</tr>
<tr>
<td>Occipital cortex</td>
<td>1.93</td>
<td>19.0</td>
</tr>
<tr>
<td>Frontal cortex</td>
<td>1.98</td>
<td>27.4</td>
</tr>
<tr>
<td>Anterior cingulate</td>
<td>0.93</td>
<td>70.0</td>
</tr>
<tr>
<td>Lateral temporal cortex</td>
<td>1.56</td>
<td>36.5</td>
</tr>
<tr>
<td>Medial temporal cortex</td>
<td>1.97</td>
<td>72.8</td>
</tr>
</tbody>
</table>

11-32-P

COMBINATION ANTIEMETIC THERAPY WITH APREPITANT/FOSAPREPITANT IN PATIENTS WITH COLORECTAL CANCER RECEIVING OXALIPLATIN-BASED CHEMOTHERAPY (SENRI TRIAL): A MULTICENTER, RANDOMIZED, CONTROLLED PHASE 3 TRIAL

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Introduction
Corresponding patients’ CINV experience with clinicians’ understanding about the symptom would contribute to advance symptom management.

Objectives
To compare patients’ CINV experience with clinicians’ awareness about the symptom.

Methods
A descriptive study was conducted at two university hospitals including cancer patients receiving the first and second adjuvant HEC or MEC and oncology clinicians. The MAT items were utilized to generate survey questions and symptom diary. Descriptive statistics were used to analyze the data.

Results
A total of 335 cancer patients receiving HEC or MEC and 73 clinicians with mean oncology care experience of 6 years have participated the study. On average, vomiting occurred less than once both in the acute and delayed phase (both HEC and MEC). However, clinicians estimated two times of acute vomiting after HEC and once after MEC. Delayed vomiting was expected to occur three times after HEC and twice after MEC. Patients experienced less intense acute (2 out of 10) and delayed nausea (3 out of 10) (both HEC and MEC) than clinicians’ expectation (6 out of 10) after HEC, and (4 out of 10) after MEC both the acute and delayed phase.

Conclusions
The findings of this study demonstrated gaps between patients’ CINV experience and clinicians’ awareness about the symptom. In general, clinicians overestimated patients’ CINV experience, especially for the symptoms after HEC. The gaps need to be narrowed to advance symptom management of CINV.

11-31-P

GAPS BETWEEN PATIENTS’ CINV EXPERIENCE AND CLINICIANS’ AWARENESS

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Introduction
Aprepitant is recommended in several guidelines for preventing CINV due to highly emetogenic cancer chemotherapy. Little is known about the feasibility and safety of aprepitant in patients treated with oxaliplatin.
Objectives
We conducted a multicenter, randomized, controlled clinical trial of combination antiemetic therapy with aprepitant in patients with colorectal cancer receiving oxaliplatin-based chemotherapy.

Methods
We recruited patients with colorectal cancer who underwent an initial FOLFOX, XELOX, or SOX regimen including oxaliplatin at ≥85 mg/m² (naïve patient), or those who had already started chemotherapy and had nausea of Grade 2 or higher in the last course or an earlier course (non-naïve patient). Patients were centrally randomized in a 1:1 ratio to the control group (5-HT₃-receptor antagonist + dexamethasone) or apreptiant group (5-HT₃-receptor antagonist + dexamethasone + apreptiant or fosapreptiant) in the first course and stratified according to age, gender, naïve/non-naïve, regimen, and institution. All patients were treated with apreptiant/fosapreptiant therapy in the second course. The primary endpoint was the proportion of patients with no emesis. The trial was registered with ClinicalTrials.gov, number NCT01344304.

Results
A total of 413 patients entered this clinical trial from 25 centers. Patients were randomly allocated to either the apreptiant group or the control group. Significantly more patients in the apreptiant group achieved no vomiting than those in the control group (95.7 % vs. 83.6 %; P<0.0001). The rate of nausea was also lower in the apreptiant group.

Conclusions
The apreptiant therapy was more effective than the control therapy for prevention of CINV in colorectal cancer patients receiving an oxaliplatin-based regimen.

11-33-P
CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING - TREATMENT AND PATIENT-REPORTED OUTCOMES IN GERMAN OUTPATIENT CANCER CENTRES: FINAL DATA FROM THE EMESIS-REGISTRY

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Introduction
Chemotherapy-induced nausea and vomiting (CINV) can significantly impair quality of life.

Objectives
To collect data on treatment and effectiveness of anti-emetic prophylaxis (AEP) for CINV in routine practice.

Methods
The multicentre, prospective, observational, cohort study recruited 1035 cancer patients treated in 55 outpatient cancer centres in Germany. Demographic, clinical and treatment data for the first four cycles of chemotherapy (CHT) were collected, and evaluable for 993 patients. Patients filled questionnaires about CINV during days 1–7 of the first four CHT cycles. CHT regimen were classified as moderate (MEC; 975 documented cycles), anthracyclines + cyclophosphamide-based (AC; 1334) and high emetogenic (HEC; 645).

Results
In the acute (emetogenic) phase of cycle one 47 % (AC), 55 % (HEC) and 74 % (MEC) of patients received guideline-conform (GC-AEP). 14 % of MEC patients received more substances than recommended (above GC-AEP), the remainder received fewer or none. During the delayed (emetogenic) phase of cycle one 27 % (HEC), 33 % (MEC) and 52 % (AC) of patients received above GC-AEP, 21 % (HEC, AC) and 29 % (MEC) GC-AEP. Overall, 7 % of patients reported emesis 24 h after chemotherapy, with no emesis reported later on. 13–35 % reported nausea during day 1, which decreased to 5–15 % on day 7, with no major differences between patients receiving GC-AEP and those who did not. 79 % of patients were satisfied with their AEP.

Conclusions
In daily routine practice CINV is well managed with few patients suffering from emesis, and nausea being mostly controlled. The majority of patients is satisfied with anti-emetic treatment.

11-34-P
A RANDOMIZED PHASE 2 STUDY OF TRIPLET OR DOUBLET ANTIEMETIC THERAPY FOR CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING IN LUNG CANCER PATIENTS RECEIVING MODERATELY EMETOGENIC CHEMOTHERAPY(NLCTG1002)

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Introduction
Chemotherapy-induced nausea and vomiting (CINV) is one of the most distressing adverse events for cancer patients.

Objectives
We performed a randomized phase II study to assess the efficacy of a triplet antiemetic therapy including aprepitant, palonosetron, and dexamethasone for preventing CINV in lung cancer patients receiving moderately emetogenic chemotherapy (MEC).

Methods
Chemotherapy-naïve lung cancer patients scheduled to receive MEC were enrolled and randomly assigned to the doublet (D) or triplet (T) arm. The D arm received granisetron (3 mg intravenously on day 1) plus dexamethasone (9.9 mg intravenously on day 1; 8 mg orally on days 2–3). The T arm received aprepitant (125 mg orally on day 1; 80 mg on days 2–3) with palonosetron (0.75 mg intravenously on day 1) and dexamethasone (4.95 mg intravenously on day 1; 4 mg orally on days 2–3). Both arms received the triplet regimen in the second cycle. The primary endpoint was the complete response (CR) rate during the overall first-cycle phase (0–120 h). The efficacy and safety of antiemetic therapy were assessed via daily patient questionnaires.
Results
Between January 2011 and April 2014, 180 patients were enrolled. The CR rate during the overall phase was significantly higher in the T vs. the D arm (91.7 % vs. 80.6 %, p=0.0427). In the D arm, the second-cycle CR rate was significantly higher (93.8 % vs. 79.7 % in first cycle, p=0.005).

Conclusions
Triplet antiemetic therapy shows promising antiemetic effects for CINV prevention in lung cancer patients receiving MEC.

11-35-P
GASTROINTESTINAL RADIATION THERAPY-INDUCED NAUSEA AND VOMITING PATIENT REPORTED OUTCOMES
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Introduction
Nausea and vomiting are common side effects from radiotherapy that can interfere with gastrointestinal (GI) cancer patients’ quality of life (QOL).

Objectives
This study seeks to describe the subjective experiences of patients with RINV and its relation to QOL.

Methods
Forty-eight patients planned to receive abdominal radiotherapy alone or with concomitant chemoradiotherapy were followed in a single centre non-randomised prospective pilot study. Patient’s documented all episodes of nausea, vomiting and antiemetic use daily during the treatment period and the week following completion of therapy. QOL was assessed weekly using the Functional Living Index – Emesis QOL Tool (FLIE) and the EORTC QLQ-C30 core questionnaire (C30).

Results
In total, up to 351 episodes of nausea severity, duration, or onset time, and up to 154 episodes of vomiting onset times or contents were documented. The median nausea severity experienced per episode was 5 (on a scale from 1 to 10), the most common durations of nausea were 0-0.5 h and constant nausea, with the most common perceived location of nausea being the abdomen. Longer nausea duration, great nausea severities and the location nausea experienced have significant adverse relationships to multiple QOL items on both the FLIE and the C30. In addition, the onset and number of vomiting episodes were related to the majority of all FLIE and QOL scores.

Conclusions
Patient’s subjective experiences of RINV directly correlate to debilitation of QOL. The identification and amelioration of these experiences could lead to alternate endpoints for therapy and improve QOL.

11-36-P
CHEMOTHERAPY INDUCED NAUSEA WITH GUIDELINE-RECOMMENDED ANTIEMETICS AFTER HEC
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Introduction
Utilizing guideline recommended antiemetics such as 5-HT3 RAs and NK-1 RAs significantly improved the management of chemotherapy induced vomiting, however, the control of nausea (CIN) remains problematic.

Objectives
To describe CIN after HEC in the clinical setting where guideline recommended antiemetics were utilized.

Methods
A descriptive study was conducted including 210 cancer patients receiving the first and second cycles of adjuvant HEC. The MAT items were utilized to generate survey questions and symptom diary. Descriptive statistics, t-test, and multilevel negative binomial regression analysis were used to analyze the data.

Results
Significant nausea was experienced starting the day after chemotherapy infusion (D2) till D5 (>2.5 out of 10) in the clinical setting where 95.7 % of patients received guideline-recommended antiemetics. During the first cycle, CIN increased gradually till D4 (mean=3.02, SD=2.91, range 0–10) but decreased in D5 (p<0.05). In the second cycle, highest nausea was reached in D3 (mean=3.20, SD=2.81, range 0–10) and continued until D5 (p<0.05). Age less than 55, history of morning sickness, history of stress with nausea and vomiting significantly contributed to the intensity of CIN (p<0.05). However, higher doses or additional antiemetics other than 3 drug regimen, did not improve the CIN control (p=0.117).

Conclusions
CIN remains as a significant symptom even after use of guideline recommended antiemetics. Utilizing more amount or additional antiemetics did not improve the control of CIN after HEC. Assessment of contributing factors of CIN would enable proactive symptom management. Supportive interventions need to be further explored to improve symptom management of CIN.

11-37-P
EFFECTIVENESS OF THE ANTI-EMETIC REGIMENS FOR PROPHYLAXIS OF CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING IN HEAD AND NECK CANCER
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Introduction
Chemotherapy-induced nausea and vomiting (CINV) is a troublesome side-effect of high and moderate emetogenic chemotherapy regimens. CINV reduces quality of life and causes discomfort for patients.

Objectives
This study examined the anti-emetic regimens prescribed for prophylaxis of CINV at a cancer centre to determine if modifications were necessary.

Methods
Patients with head and neck cancers who received cisplatin or carboplatin based chemotherapy between July and December 2013 were examined, and patients’ anti-emetic use and documentation of CINV were recorded.

Results
A total of 57 head and neck cancer patients (48 male, 9 female) were included in the analysis (median age 55 years). All patients received ondansetron and dexamethasone as CINV prophylaxis, and 36 received aprepitant with their high-dose cisplatin regimen (42 patients). Fourteen patients (25 %) reported nausea, and 12 patients (21 %) reported nausea and vomiting. Of the 26 patients (46 %) who reported nausea and/or vomiting, nine (35 %) had a
change in their 5HT$_3$ antagonist from ondansetron to granisetron or palonosetron, with six of those changes (67%) being to granisetron. Seventeen patients (65%) had a change in the strength and/or duration of their 5HT$_3$ antagonist and/or corticosteroid, and 13 (50%) had a change in their breakthrough anti-emetics from prochlorperazine to olanzapine or domperidone.

Conclusions
Overall, only 31 patients (54%) did not experience any nausea and/or vomiting. These numbers are low and improvements are required. Consideration of change in guidelines for anti-emetic use is recommended.

11-38-P
IMPACT OF ROLAPITANT ON QUALITY OF LIFE (QOL) IN PATIENTS (PTS) RECEIVING HIGHLY EMETOGENIC CHEMOTHERAPY (HEC) AND MODERATELY EMETOGENIC CHEMOTHERAPY (MEC)

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Introduction
Rolapitant, a novel NK-1 receptor antagonist with a half-life of 180 h, does not inhibit CYP3A4 as other drugs do in the class, which requires no dose modifications of concomitant steroids. Rolapitant demonstrated efficacy for CINV prevention in three global phase 3 trials (HEC1, HEC2, MEC).

Objectives
This pooled analysis examined the effect of rolapitant on QoL.

Methods
In three double-blind, active-controlled studies, pts were randomized to oral rolapitant 200 mg or placebo 1–2 h before chemotherapy. All pts received active control: granisetron 2 mg oral or 10 mcg/kg IV and oral dexamethasone 20 mg. In the MEC study, granisetron was continued on Days 2 and 3; in HEC studies, pts received oral dexamethasone 8 mg BID. QoL was assessed on Day 6 using the Functional Living Index-Emesis (FLIE) Questionnaire, and reported as a total score and no use of rescue medication), no emesis, and no nausea (<5 mm onVAS) were assessed during overall, acute, and delayed phases.

Results
CR was significantly ($P<0.05$) higher with rolapitant than active control for overall (80.2% vs. 64.6%) and delayed (82.3% vs. 65.6%) phases in carboplatin-based MEC, and for acute (89.2% vs. 76.5%) and overall (66.9% vs. 54.1%) phases in OM. No emesis rates were significantly ($P<0.05$) higher with rolapitant in both subsets in the overall phase. No nausea rates were significantly higher ($P<0.05$) with rolapitant during the overall and delayed phases in carboplatin-based MEC. Treatment-related AEs in cycle 1 with rolapitant vs. active control were 11.3% vs. 6.7% in carboplatin-based and 9.2% vs. 6.0% in OM-based therapy.

Conclusions
Rolapitant was superior to active control in CINV prevention in patients receiving carboplatin or other non-AC MEC regimens.

11-39-P
ROLAPITANT FOR PREVENTION OF CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING (CINV) IN NON-ANTHRACYCLINE/CYCLOPHOSPHAMIDE (A/C) MODERATELY EMETOGENIC THERAPY (MEC)

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Introduction
Rolapitant, a new NK-1 receptor antagonist (RA), demonstrated efficacy for CINV prevention in patients receiving MEC (anthracycline/cyclophosphamide (A/C) and other regimens) in a phase 3 trial. Anti-emetic guidelines consider A/C to be highly emetogenic and recommend the addition of NK-1 RAs. Their role in non-AC MEC remains incompletely defined.

Objectives
Assess rolapitant’s efficacy and safety during Cycle 1 in pts receiving non-AC MEC.

Methods
In a double-blind, active-controlled study, patients were randomized to oral rolapitant 200 mg or placebo 1–2 h before MEC. All patients received granisetron 2 mg oral (days 1–3) and oral dexamethasone 20 mg (day 1). Patient subgroups: carboplatin-based MEC and Other MEC (OM; non-AC, non-carboplatin). Complete response (CR = no emesis and no use of rescue medication), no emesis, and no nausea (<5 mm on VAS) were assessed during overall, acute, and delayed phases.

Results
CR was significantly ($P<0.05$) higher with rolapitant than active control for overall (80.2% vs. 64.6%) and delayed (82.3% vs. 65.6%) phases in carboplatin-based MEC, and for acute (89.2% vs. 76.5%) and overall (66.9% vs. 54.1%) phases in OM. No emesis rates were significantly ($P<0.05$) higher with rolapitant in both subsets in the overall phase. No nausea rates were significantly higher ($P<0.05$) with rolapitant during the overall and delayed phases in carboplatin-based MEC. Treatment-related AEs in cycle 1 with rolapitant vs. active control were 11.3% vs. 6.7% in carboplatin-based and 9.2% vs. 6.0% in OM-based therapy.

Conclusions
Rolapitant was superior to active control in CINV prevention in patients receiving carboplatin or other non-AC MEC regimens.

11-40-P
UPDATE ON THE MANAGEMENT OF CHEMOTHERAPY INDUCED NAUSEA AND VOMITING (CINV) – FOCUS ON PALONOSETRON

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Introduction
Nausea and vomiting are major adverse effects of chemotherapy that impact patients’ quality of life. Although the prevalence of chemotherapy-induced nausea and vomiting (CINV) is high, treatment
remains difficult. Palonosetron is a 5-hydroxytryptamine receptor antagonists (5-HT3,RA) approved for CINV treatment.

**Objectives**
The purpose of this review is to discuss existing and emerging therapeutic options for CINV and examine studies focusing on palonosetron with regards to efficacy, pharmacology, tolerability, safety, and patient-derived outcomes.

**Methods**
A literature search was conducted using Ovid MEDLINE and EMBASE to identify relevant studies using palonosetron alone or in combination with other antiemetics for CINV prevention. Studies including complete response (CR), complete control (CC), no nausea, no vomiting, no rescue medications and/or safety endpoints were extracted.

**Results**
Thirty-two full articles were included in this review. Palonosetron alone improved CR and CC for patients receiving emetogenic chemotherapy compared to first-generation 5HT3,RA. Rates were further improved with the addition of dexamethasone. Furthermore, addition of a neurokinin-1 receptor antagonists, such as netupitant and aprepitant markedly improved antiemetic efficacy compared to palonosetron alone. Recently, a new combination consisting of netupitant and palonosetron (NEPA®) demonstrated significantly more CINV prevention compared to palonosetron alone. Regardless of the combination, palonosetron has been well tolerated. The most common adverse events were mild or moderate and included constipation, headache, fatigue and dizziness.

**Conclusions**
Palonosetron, alone or with other antiemetics, has improved CINV treatment due to its ability to significantly reduce CINV in the delayed phase. Palonosetron is both more effective and safer than first-generation 5-HT3,RA.

**CHEMOTHERAPY-INDUCED NAUSEA AND EMESIS – ARE GENERAL GUIDELINES APPLICABLE IN NEUROONCOLOGY?**

**11-41-P**

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**Introduction**
Temozolomide, frequently used in neurooncology, has only moderate emetogenic potential.

**Objectives**
Most neurooncologists do not consider the MASCC guidelines (Palonosetron and dexamethasone) to be necessarily followed.

**Methods**
The MASCC questionnaire, adapted with a visual analogue scale (VAS) for 10 days, EORTC QLQ-C30 with BN20 and PHQ-9 addressed nausea and quality of life. More than 30 patients participated to date.

**Results**
Temozolomide doses ranged from 60 to 420 mg day 1–5. Antiemetics included alizapride 50 mg, ondansetron 8 mg, granisetron 2 mg, each day 1–5, or palonosetron 0.5 mg day 1. Two thirds of patients did not suffer from relevant nausea and emesis irrespective of the antiemetic. Marked nausea only occurred at doses of 200 mg or more of temozolomide. With alizapride, some patients experienced immediate and maximal nausea of 10 at the visual analogue scale with only 200 mg of temozolomide. Treatment with ondansetron and granisetron was associated with maximal values of only 7 not before day 3. With palonosetron, values did not exceed 4 at the VAS starting at day 3 even with 420 mg of temozolomide. Of note, nausea often persisted for 2–3 days after application of temozolomide.

**Conclusions**
During temozolomide chemotherapy, nausea can be marked and prolonged and differs markedly between individual patients, temozolomide dosages and antiemetic regimen. Nausea and emesis should therefore be carefully asked for and treated individually adapted and with long lasting antiemetics where needed. Dexamethasone is unnecessary and should be avoided in light of the intensive pretreatment of neurooncological patients.

**POSITIVE EFFECTS OF AN HOME-BASED PROGRAM OF PHYSICAL ACTIVITY ON CHEMOTHERAPY INDUCED DELAYED NAUSEA AND ON CHEMOTHERAPY RELATED FATIGUE**

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**Introduction**
Nausea and fatigue are common side-effects of cancer chemotherapy. Management strategies of fatigue include the use of pharmacological treatments, psycho-educational interventions and exercise programs. Exercise programs probably can improve chemotherapy induced fatigue acting on the hypothalamic–pituitary–adrenal axis. We hypothesized that the same mechanism could also impact on chemotherapy induced nausea.

**Objectives**
Primary objective was to investigate the effects of an home-based program of physical activity on chemotherapy induced delayed nausea (CIDN). Secondary objective were to define the impact on chemotherapy related fatigue (CRF).

**Methods**
We introduced 32 consecutive patients with breast or colon carcinoma with a 4 months program of adjuvant chemotherapy. We evaluated CIDN and CRF in two different moments: before (T0) and after (T1) the introduction of the physical exercise program. Delayed nausea was detected with the MAT scale. Home-based program of physical activity was composed of 30–60 min daily of aerobic, resistance and core stability exercises after a specific training lead by a physical therapist.

**Results**
Thirty-two patients are evaluable. Median ECOG PS was 0. 17 patients with breast carcinoma received 6 courses of standard FEC regimen while 15 pts with colon cancer were treated with 12 courses of FOLFOX-4 regimen. In an intention to threat analysis we detected a 34 % improvement in delayed nausea (p 0.010) and 37 % in fatigue (p 0.001).

**Conclusions**
We demonstrated that an home-based program of trained physical activity can represent an interesting perspective in the management of CIDN and CRF.

**EVALUATION OF PALONOSETRON AND DEXAMETHASONE FOR CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING IN PATIENTS WITH GYNECOLOGIC MALIGNANCIES RECEIVING MULTIPLE CYCLES OF PLATITAXEL AND CARBOPLATIN**

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**Introduction**
Palonosetron (PAL) may prevent chemotherapy-induced nausea and vomiting (CINV) for paclitaxel and carboplatin (TC) in the delayed phase without dexamethasone (DEX) on days 2 and 3.
Objectives
This retrospective study was designed to compare PAL plus DEX on day 1 only (D-1 group) with PAL plus DEX on days 1–3 (D-3 group) with respect to complete response rate for delayed CINV in patients with gynecologic malignancies receiving multiple cycles of TC.

Methods
There were 89 patients receiving TC in our institution between 2011 and 2013. Of these 89, 61 receiving four cycles of TC were included and evaluated using the Multinational Association of Supportive Care in Cancer Antimetic Tool. A chi-square test was used to compare the CR rate for delayed CINV between the D-1 and D-3 groups. Exploratory analysis of predictive factors for the CR rate for delayed CINV was performed by logistic regression analysis.

Results
The patients was 29 for the D-3 group and 32 for the D-1 group. There was no significant difference in the CR rates for delayed CINV in cycles 1–4 between groups. Multivariate analysis performed with the CR rate for delayed CINV as an endpoint revealed that the only independent predictor was age under 50 years in cycles 3–4 (p=0.043 and 0.005, respectively).

Conclusions
Combined treatment with PAL and DEX was effective for preventing delayed CINV in patients receiving TC, but the sustained protection was smaller in patients under 50 years of age.

11-44-P
PHASE II STUDY OF FOSAPREPTAN + 5HT-3 RECEPTOR ANTAGONISTS + DEXAMETHASONE IN PATIENTS WITH GERM CELL TUMORS UNDERGOING 5 DAY CISPLATIN-BASED CHEMOTHERAPY

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Introduction
Our phase III study (J ClinOnc 30:3998–4003, 2012) adding aprepitant to 5-day cisplatin regimens for germ cell tumors showed complete response (CR) of 42 %. Fosaprepitant demonstrated non-inferiority compared to aprepitant in single day cisplatin chemotherapy and is approved as a single-dose alternative. This single arm phase II study is the first clinical trial evaluating fosaprepitant in patients receiving multi-day cisplatin.

Objectives
Primary- determine the CR rate – no emetic episodes or use of rescue medications. Secondary- measure incidence of vomiting or retching via patient log days 1–8, describe use of rescue medications, self-reported assessment of nausea days 1–8 using 0–100 mm visual analog scale (VAS), as well as safety and toxicity.

Methods
Germ cell tumor (GCT) patients receiving 5 day cisplatin combination chemotherapy were eligible. Fosaprepitant 150 mg given IV on days 3 and 5. A 5HT3 antagonist days 1–5 (days 1, 3, 5, if palonosetron) plus dexamethasone 20 mg days 1, 2, and 4 mg po bid days 6, 7, 8 were administered. Rescue antiemetics allowed at discretion of investigator.

Results
Sixty-two patients enrolled, 57 evaluable. Male, median age 33, range 15–66. Thirty-seven patients reported using rescue therapy. Fifteen patients reported emetic episodes, 26 total episodes. Forty-six patients had at least one episode of nausea with 196 total episodes of ≥5 mm on VAS in the 8 day reporting period. Sixteen of 57 (28.1 %) reported complete response.

Conclusions
Preliminary data in this small phase II study, indicates a significantly lower CR rate substituting fosaprepitant for aprepitant.

11-45-P
THE EFFECT OF GINGER (ZINGIBER OFFICINALE ROS-COE) ON GASTRIC MYOELECTRICAL ACTIVITY, INFLAMMATORY MARKERS AND GHRELIN LEVELS IN PATIENTS WITH THE ANOREXIA CACHEXIA SYNDROME (ACS)

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Introduction
Ginger is used to treat conditions affecting the digestive tract, however, there is no published data on patterns of GMA in response to Ginger in patients with ACS.

Objectives
(1) To determine effect of oral Ginger administration on Gastric Myoelectrical activity (GMA) in patients with ACS (2) To evaluate symptoms in patients with ACS as measured by Edmonton symptom assessment scale (ESAS), patient generated subjective global assessment (PGSGA) and dyspepsia symptom severity index (DSSI). (3) To correlate level of inflammatory markers and Ghrelin in patients with ACS and impaired GMA.

Methods
Patients with ACS are recruited to document a baseline and post water load Electrogastrography (EGG) after oral ingestion of Ginger capsule (1650 mg) once daily, for 14 days. DSSI, ESAS and PG-SGA are completed and blood samples are drawn pre and post intervention to measure Ghrelin, albumin and CRP.

Results
To-date 14 patients (M7;F7; m age 58 years) are enrolled, EGG Diagnosis before intervention: 4 Tachygastria, 3 Bradygastria, 3 Mixed Dysrhythmia; after 14 day trial with Ginger- 9 had Mixed Dysrhythmia-nonspecific type 1 Normal EGG and 4 awaiting further EGG determination. All reported improvement in GI symptoms as measured by the DSSI, ESAS and PG-SGA. Blood sample results will be analyzed in May 2015.

Conclusions
This study is primarily exploratory, preliminary findings suggest that Ginger probably enhances gastric motility as measured by EGG. By increasing gastric emptying, ginger may improve a range of GI symptoms that can affect oral intake and quality of life.

11-46-P
PALONOSETRON-BASED ANTIEMETIC PROPHYLAXIS IN BREAST CANCER PATIENTS RECEIVING AC CHEMOTHERAPY: REGISTRY DATA FROM GERMAN GYNAECO-ONCOLOGY PRACTICES

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Introduction
Modern antiemetic guidelines recommend triplet antiemetic prophylaxis with 5-HT3-receptor-antagonist (5HT3RA), neurokinin1-receptor-antagonist (NK1RA) and dexamethasone (DEX) in anthracycline/cyclophosphamide (AC) chemotherapy. The 5HT3RA
palonosetron (PAL) has demonstrated high efficacy in moderately and highly emetogenic chemotherapy.

Objectives
To evaluate the efficacy of PAL-based antiemetic prophylaxis with or without the NK1RA aprepitant (APR) in breast cancer (BC) patients receiving A-based chemotherapy in BNGO practices.

Methods
From 2008 until 2014, BC-patients receiving A-containing CT and antiemetic prophylaxis based on PAL were documented using the ODM QuaSi GYN online system. Severity, frequency, duration and onset of nausea and vomiting were assessed after the 4th treatment cycle. Efficacy criteria were complete control (CC: no vomiting, no rescue medication (RM), only mild nausea); complete response (CR: no vomiting, no RM) and RM.

Results
2329 BC-patients were documented in 47 practices. Efficacy of all PAL-based antiemetic regimens: CC: 64.6 %, CR 79.4 %, RM was needed in 6.3 % of pts. Efficacy of PAL+APR+DEX (n=544): CC 73.3 %, CR 84.9 %, RM 6.6 %. 75 % of pts had no or mild N overall, 78.2 % had no nausea in the delayed phase. Only 5.2 % of all pts had severe N overall.

Conclusions
PAL-based antiemetic prophylaxis is effective in BC-patients receiving A-containing CT. P-DEX-N resulted in higher CC-rate of N/V.

11-47-P

CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING IN PATIENTS TREATED WITH CISPLATIN

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Introduction
Some patients treated with Cisplatin in combination with another chemo-agent have chemotherapy-induced nausea or vomiting (CINV) in such an extent that it is necessary to end treatment prematurely, this despite of antiemetic treatment. The extent of the problem is unknown.

Objectives
The objective of this study was to determine the number of patients ending treatment prematurely due to CINV and examine the type of CINV.

Methods
All patients treated with Cisplatin in combination with another chemo-agent in 2013 at the Department of Oncology, Roskilde Hospital, Denmark were evaluated retrospectively to determine the reasons for ending treatment prematurely. Data were extracted from the medical record.

Results
There were 24 patients that received Cisplatin in combination with Vinorelbine or Pemetrexed. Twenty-three patients were diagnosed with non-small-cell lung cancer and one with ovarian cancer. The patients received one of four different regimes of antiemetic treatment. There were 14 patients that ended treatment prematurely; six due to CINV and eight for other reasons. Acute nausea in combination with delayed nausea was the most prevalent type of nausea. Two patients had vomiting.

Conclusions
In this study 25 % of the patients treated with Cisplatin in combination with another chemo-agent ended treatment prematurely due to CINV. Further research is needed to eliminate the number of patients that terminate treatment prematurely due to CINV. Therefore, a prospective intervention study is considered with a change of the antiemetic treatment as Palonosetron day five for patients experiencing unacceptable CINV.
11-49-P

CHEMOTHERAPY INDUCED NAUSEA WITH GUIDELINE-RECOMMENDED ANTIEMETICS AFTER MEC

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Introduction
Utilizing guideline recommended antiemetics significantly improved the management of chemotherapy induced vomiting, however, the control of nausea (CIN) remains problematic.

Objectives
To describe CIN after MEC during two cycles of chemotherapy.

Methods
A descriptive study was conducted including 118 cancer patients receiving the first and second cycles of adjuvant MEC. The MAT items were utilized to generate survey questions and symptom diary. Descriptive statistics, t-test, and multilevel negative binomial regression analysis were used to analyze the data.

Results
Significant nausea started the third day after chemotherapy infusion (D3) and CIN intensity increased gradually till D4 (mean=3.58, SD=3.13, range 0–10) but decreased in D5 (p<.05) in the first cycle. In the second cycle, significant nausea started from D1, and the nausea peak reached earlier (D3) (mean=3.95, SD=3.23, range 0–10) and decreased from D4 (p<.05). Age, history of motion sickness, history of stress with nausea were significantly contributing to the intensity of CIN (p<.05). Only 34.7% received guideline recommended categories of antiemetics which did not contribute to better control of CIN (p=0.865).

Conclusions
CIN after MEC remains as a significant symptom. Less than half of cancer patients received guideline recommended antiemetics, and receiving guideline recommended antiemetics did not contribute to better control of CIN. Identifying factors contribute to CIN would enable proactive symptom management. CIN after MEC calls for further research to identify helpful antiemetic regimens for CIN control after MEC as well as supportive interventions to better manage the symptom.

11-50-P

THE ROLE OF PALONOSETRON IN NAUSEA, VOMITING AND FOOD INTAKE IN COLORECTAL CANCER (CC) PATIENTS UNDERGOING CHEMOTHERAPY

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Introduction
The control of chemotherapy-induced emesis is important for a good quality of life in CC patients receiving highly emetogenic chemotherapy. In our prospective study, we evaluated the efficacy of palonosetron in the control of emesis in CC patients.

Objectives
The aim of our study was to measure the nutritional intake of these patients.

Methods
We enrolled 18 adult CC patients undergoing chemotherapy. Patients were given palonosetron as a premedication plus dexamethasone 20 mg iv on day 1. Nausea and vomiting along with the food intake were monitored throughout all the chemotherapy cycles by a self-given test. In fact, CC patients received a 7 day diary in order to quote the occurrence of nausea, vomiting along with exact of food intake.

Results
Of 18 CC pts undergoing 55 chemotherapy cycles (a median of 3 cycles per patient, range 1–6), 15 (80%) had a complete control of nausea and vomiting (including oxaliplatin treated patients) and 3 (16%) showed a grade 3 vomiting. The food intake was normal for 12 pts (66%). Three pts showed a lower food intake of 30% and 3 pts had food intake reduced by 40%, respectively. It is noteworthy that all CC patients receiving chemotherapy, maintained protein food in their diets including red meat. Moderate headache (5pts) and constipation (4pts) were the most common adverse effects reported with palonosetron.

Conclusions
Our study, although preliminary, confirms the efficacy of palonosetron in the control of chemotherapy-induced-emesis and demonstrates the maintenance of a valid caloric intake in most cases.

11-51-P

DAILY LIFE CONTROLLED BY NAUSEA: A LIVING CONDITION FOR HAEMATOLOGICAL PATIENTS TREATED WITH CHEMOTHERAPY

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Introduction
The primary treatment of patients with hematological cancers is chemotherapy. A side effect is nausea, which according to the literature, is an overlooked and under-reported phenomenon. No studies have described the impact nausea has on the patients’ daily lives.

Objectives
We aimed to examine patients’ subjective experiences with nausea and the support and guidance they need with the aim to optimize nursing care to hemato logical patient with nausea.

Methods
The project applied a phenomenological design. Qualitative interviews were used as data collection method. Six patients aged 20–79 years from both hematological ward and outpatient clinic were interviewed. Participants were recruited during their chemotherapy treatment, and had all experienced nausea associated with the treatments.

Results
Nausea is a complex phenomenon with individual expression. Nausea impacts on the patient’s daily life, which is adjusted to what is experienced as possible. The patient does not expect it to be different as nausea is experienced as “something that belongs to the treatment”. It is “a price to pay to get well - a living condition”. Patients emphasize that it is important to maintain a daily life with their family, although it has been adapted to what nausea makes possible. It provides resources to undergo a second course of treatment and nausea.

Conclusions
Our study suggests that the guidance of the patient must be organized individually. The individual patients’ experiences should be more in demand by the nurses who must use this knowledge as the basis for an individual nursing care.
**11-52-P**

**EFFECTIVENESS OF ANTIEMETIC PROPHYLAXIS IN CONTROLLING NAUSEA-VOMIT ASSOCIATED WITH CHEMOTHERAPY**

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**Introduction**
Nausea and vomiting induced by chemotherapy (CINV) constitute the most difficult symptoms to be controlled in cancer patients, and is considered the worst chemo side-effect. In cancer patients, emesis may be caused by the cancer itself, brain or hepatic metastases, by metabolic disorders or by treatment (chemotherapy, radiation therapy, targeted therapies). Inadequate control of these symptoms contributes to decreased quality of life and could be related to complications. Inadequate control of these symptoms contributes to decreased quality of life and could be related to complications like dehydration, electrolyte disturbances, anorexia, malnutrition and Mallory-Weiss syndrome. Either it could interfere with indication and treatment continuation.

**Objectives**
This study aims to identify, characterize and graduate CINV, and evaluates the effectiveness of prescribed prophylactic antiemetic schema.

**Methods**
It was included 217 patients who were interviewed and collected medical records information.

**Results**
Complete response to prescribed antiemetic prophylaxis was observed in 56.2% patients, and most had low intensity symptoms (grades 1 and 2) according to CTCAE. It was observed that one-fifth of patients received high emesis risk chemotherapy, although we don’t have any NK1 antagonist for antiemetic prophylaxis. It was observed a positive correlation between anxiety and CINV and between gastritis and CINV.

**Conclusions**
We conclude that, at moment, we could not adopt the international guidelines, and it is important to include new prophylactic drugs as NK1 antagonists in order to acquire a greater effectiveness in prophylaxis and treatment control of CINV.

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**11-53-P**

**FACTORS INFLUENCING VOMITING REFRACTORY TO TREATMENT IN PATIENTS RECEIVING APREPITANT IN HIGH-EMETIC CHEMOTHERAPY FOR SOLID TUMORS**

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**Introduction**
Nausea and vomiting are one of the main factors affecting the quality of life of patients who receive chemotherapy.

**Objectives**
The aim of this study was to evaluate factors influencing vomiting refractory to treatment in patients receiving aprepitant added to standard antiemetic regimens in high-emetic chemotherapy for solid tumors.

**Methods**
This retrospective analysis was conducted on the medical records of 80 patients who were treated with chemotherapy in years 2012–2014 in MSC Cancer Center and Institute of Oncology in Gliwice (COI).

**Results**
Patients were treated with cisplatin regimens due to ovarian (6%), breast (8%, lung (16%), testis (9%), head and neck cancer (40%), gastrointestinal cancer (14%) or Hodgkin lymphoma (3%). In 7 (8%) of patients vomiting occurred despite the use of anti-emetic prophylaxis containing aprepitant. Grade 1 and grade 2 nausea and vomiting was observed in 4 and 5% of patients, respectively. The most common other toxicity was neutropenia (21%). There was observed tendency to vomiting during anti-emetic prophylaxis in women in comparison to men (16% vs. 4%, p=0.08). Vomiting was reported insignificantly more frequently in patients with head and neck cancer (13% vs. 6%, p=0.282) or lymphoma (50% vs. 8%, p=0.168) than in other cancers. There was no association between patients age (p=0.503), stage of disease (p=0.379), number of chemotherapy cycles (p=0.613), cisplatin dose and vomiting. Patients with neutropenia were prone to develop nausea and vomiting during anti-emetic prophylaxis (p=0.004).

**Conclusions**
Factors influencing refractory to treatment nausea and vomiting was gender, type of cancer and hematological side effects.

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**11-54-P**

**ACCEPTANCE OF UNINTENDED SEDATION AS A SIDE-EFFECT OF PAIN OR ANTI-EMETIC MEDICATION, AMONGST PATIENTS REFERRED TO A HOSPITAL SUPPORTIVE CARE TEAM**

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**Introduction**
Analgesics and anti-emetics are prescribed frequently in supportive and palliative care. Both may result in unintended sedation. Current literature reveals a deficit in understanding of patient preference with regard to sedative side effects of these medications.

**Objectives**
To explore preferences of patients regarding unintended sedative side-effects of symptom relieving medication.

**Methods**
We devised a structured patient interview for this exploratory study. A hypothetical scenario was developed and piloted, asking patients to imagine they were experiencing severe symptoms of pain or nausea and vomiting. They were asked how likely they would be to accept four defined levels of sedation, if complete symptomatic relief was attained. Free comments were also recorded. The study was registered as a hospital service evaluation. Interviews were conducted by medical students supervised by senior doctors.

**Results**
Twenty-three patients completed the study: 13 male, mean age 55 years (range 18–84). As hypothetical level of sedation increased, fewer patients were willing to accept it as a side effect. Patients were more likely to accept higher levels of sedation for pain relief (61%), than nausea and vomiting (22%). Men were more likely to accept sedation than women. Patients’ free comments revealed a range of opinions, primarily based on previous experiences of symptom-relieving medication.

**Conclusions**
Patients expressed varying levels of acceptance to sedation as a side-effect of analgesic and anti-emetic medications. Preferences were influenced by the symptom, previous experience and gender. This was a small exploratory study which suggests directions for further research and also for communication in clinical care.

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**11-55-P**

**PERCEPTION OF CHEMOTHERAPY INDUCED NAUSEA AND VOMITING IN THE MODERN ERA: A STUDY FROM THE DEVELOPING WORLD**

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Introduction
Optimal control chemotherapy induced nausea and vomiting (CINV) is the form of prophylaxis is recommended worldwide to reduce morbidity. New and efficacious drugs as well as new guidelines for management of CINV are now available for better control and thereby to improve the patients’ wellbeing. However, in many places CINV data is scarce.

Objectives
The present study aims to find out prevalence of CINV in a group of cancer patients undergoing chemotherapy from India.

Methods
This is a prospective, observational study enrolling all consenting cancer chemotherapy (CT) patients of all cycles in two large multispecialty hospitals of India over a period of 6 months. Patients were followed up in the current cycle of CT for 7 days with a vomiting diary to record acute, delayed and overall CINV. Type of chemotherapy and antiemetic drugs used and possible reason behind failure of CINV prophylaxis were analysed.

Results
The percentage of patients experienced emesis in HEC and MEC are shown in figure 1. Ondansetron and palonosetron were the 5HT3RA used in 47.5 and 49.5 % total patients. Possible reasons of CINV are shown in table 1. Rash, urticarial and peripheral neuropathy was found to be other reported complications.

<table>
<thead>
<tr>
<th>Possible reason of CINV</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dexa not used in standard standard dose</td>
<td>62</td>
</tr>
<tr>
<td>Diversion from guideline</td>
<td>147</td>
</tr>
<tr>
<td>Non-compliance</td>
<td>0</td>
</tr>
<tr>
<td>No 5HT3RA</td>
<td>4</td>
</tr>
</tbody>
</table>

Conclusions
High incidences of CINV were noted among the study patients irrespective of the cycle and type. Though 5HT3RA and dexamethasone were used regularly, adherence to standard CINV guidelines was poor and may be a reason for high CINV.

A PHASE II TRIAL OF PALONOSETRON AND OLANZAPINE WITHOUT DEXAMETHASONE FOR THE PREVENTION OF CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING

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Introduction
Chemotherapy-induced nausea and vomiting (CINV) is associated with a significant deterioration in quality of life. A combination of serotonin antagonist, olanzapine, and corticosteroid has proven effective against this problem. However, concerns exist regarding the potential toxicity of the use of multiple-day dexamethasone to control CINV.

Objectives
The purpose of this study was to determine the safety and efficacy of a antiemetic regimen of palonosetron and olanzapine without dexamethasone to control acute and delayed CINV in patients receiving moderately emetogenic chemotherapy.

Methods
The study antiemetic regimen, combined palonosetron and olanzapine without dexamethasone, was administered to 38 chemotherapy-naïve women who were treated with moderately emetogenic agents on the day of chemotherapy, day 1. Patients continued olanzapine for days 1–4 after chemotherapy administration. A daily patient diary recording episodes of emesis and severity of nausea was then kept for 5 days. Any further antiemetics were considered rescue medication.

Results
Thirty two eligible and evaluable patients (median age 56.2 years, range 25–76) with breast cancer entered in this study. Most were receiving palliative first-line chemotherapy. Complete response (CR) (no emesis, no rescue) was 94 % for the acute period (24 h postchemotherapy) and 78 % for the delayed period (days 2–5 postchemotherapy) and 75 % for the overall period (0–120 h postchemotherapy).

Conclusions
This study showed a combination of palonosetron and olanzapine without dexamethasone effective for protection against both acute and delayed vomiting after moderately emetogenic chemotherapy. Randomized trials comparing to a standard regimen including dexamethasone is warranted.

SIG EMESIS. SPECIAL INTEREST GROUP EMESIS AS A TOOL TO IMPLEMENTATION OF ANTIEMETIC GUIDELINES IN CLINICAL PRACTICE

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Introduction
SIG Emesis is a nationwide group of oncology nurses from almost every cancer center in Denmark. The group was established in 1994 and is organized under “The Danish Nurses Organization”.

Objectives
Expand knowledge regarding antiemetic guidelines and how to use these in clinical practice.
Promote knowledge to improve oncology nursing related to nausea and vomiting.

Methods
How do we communicate and collaborate in SIG Emesis:
We have meetings 5 days a year and correspondence by email. We also have a private Facebook group for frequent discussions, important news and relevant articles.

Results
Activities by SIG Emesis:
The group register data on antiemetic guidelines from cancer centers all over Denmark and relate data to international guidelines in practice.
SIG Emesis has made a booklet for patients and relatives and an electronic printable booklet for primary care nurses.
The group educate oncology nurses on a 2-days nausea and vomiting seminar and have a presentation at the national conference in Danish Cancer Nursing Society once a year.
We update our knowledge through articles, conferences and annual teaching by our Danish MASCC scientific committee member.
SIG Emesis has a Danish website with information regarding nausea and vomiting and how to contact the group.

Conclusions
Special Interest Group Emesis is a successful and effective method to expand and implement antiemetic guidelines in clinical practice in Denmark.

11-58-P

IS NAUSEA A PROBLEM? - A PROJECT ABOUT OF A NAUSEA ASSESSMENT QUESTIONNAIRE AMONGST PATIENTS WITH CANCER

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Introduction
Nausea and vomiting is a clinical problem for both cancer patients, relatives and health care professionals. It is estimated that up to 50 % of the patients experiences nausea despite an emetogenic treatment.
Doctors and nurses tend to underestimate the incidence of nausea and vomiting in patients undergoing treatment for cancer.
It is therefore relevant to investigate whether implementation of a Nausea Assessment Questionnaire may contribute to improving the treatment of nausea for cancer patients.

Objectives
The objective of the project is to implement a Nausea Assessment Questionnaire in order to adequately address the patients’ experience of nausea.

Methods
The nurses will be taught in the use of the Nausea Assessment Questionnaire in order to adequately address the patients’ experience of nausea.
The project will be evaluated through an audit of 20 medical records, before and after implementation of the Nausea Assessment Questionnaire. Selection of medical records will cover patients who have ended treatment with CHOP – chemotherapy. An audit schedule will be prepared, on the basis of knowledge of the Nausea Assessment Questionnaire and local instructions.

Results
Results from before implementation of the Nausea Assessment Questionnaire show that in five out of 20 medical records nausea was documented and medical treatment was started in three out of 20 medical records. Results from after implementation of the Nausea Assessment Questionnaire are not present at the time being. The results are expected to be present at June 2015.

Conclusions
The project is expected to contribute adequate addressing the patients’ experiences of nausea.

11-59-P

EXPERIENCE OF ART THERAPY USE FOR THE PREVENTION OF NAUSEA AND VOMITING IN ONCOGYNECOLOGICAL PATIENTS

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Introduction
Severe nausea and vomiting are often the cause of refuse from chemotherapy. Prevention of conditioned-reflex nausea and vomiting is today one of priority directions of modern oncology. Visual arts in the process of art-therapy (AT) often gives impetus to inclusion of reserve opportunities of an organism.

Objectives
AT as method of prevention and cupping the conditioned-reflex nausea and vomiting in oncogynecological patients during repeated chemotherapy.

Methods
AT can be attributed, facilitating internal resources and capabilities of the patient. Improvement of psycho-emotional and mental state is directly connected with the improvement of the quality of life of the patient. We have chosen the method of artistic expression in the form of the figure. The study included 15 patients with advanced ovarian cancer or cervical cancer under 40 years who received highly emetic chemotherapy. All patients were asked to voluntarily apply the AT in each day of chemotherapy. Patients were spontaneously chosen the way of drawing of paint (gouache, colored pencils).

Results
No one patient has refused the proposed AT and responded positively. 6 patients (40 %) were no registered episodes and 9 patients (60 %) – nausea and vomiting were mild and moderate severity. 3 patients (20 %) – the use of art therapy helped to arrest the conditioned-reflex nausea and vomiting.

Conclusions
AT is not a medical method, but our experience of its application in complex treatment of cancer patients indicates its effectiveness. We consider it appropriate to further study art therapy for rendering maximum assistance oncogynecological patients.

11-60-P

INNOCENT PRESENTATION OF BREAST CANCER METASTASES TO THE GASTROINTESTINAL TRACT: CASE SERIES

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Introduction
Metastases of breast carcinoma (BC) to the gastrointestinal tract are rare. Early diagnosis and treatment remain a challenge.

Objectives
We present four patients with BC and erratic bowel function seen in our unit in the last year.

Methods
Biopsies from innocent looking lesions at gastrointestinal endoscopies revealed metastatic lobular BC.
Results
Case 1: A 63-year-old woman with right BC presented intermittent epigastric pain, episodes of diarrhoea and steatorrhoea 5 years after the end of the treatment. Gastroscopy described mild antral erythematous gastritis (Figure 1) and at colonoscopy a small polyp in the left colon was found. All biopsies revealed metastatic lobular BC (Figure 2).
Case 2: A 49-year-old patient with de novo metastatic BC developed diarrhoea. Gastroscopy described gastroduodenitis. The biopsies demonstrated extensive lymphovascular invasion by pleomorphic adenocarcinoma of breast origin.
Case 3: A 48-year-old lady with BC suddenly developed constipation and abdominal pain. An urgent CT scan revealed 10-cm long sigmoid stricture; biopsies identified metastatic lobular BC. Palliative treatment with stent insertion was performed. Case 4: A 40-year-old patient with BC metastasising to spine and liver developed vomiting and abdominal pain. Upper GI endoscopy described marked oesophageal desquamation and gastric nodules, also compatible with BC metastases.

Conclusions
The GI tract is an uncommon localization of BC metastases that are observed in <1% of patients. Only few cases of metastases to colon were described. The diagnosis may be challenging because symptoms are often non-specific and appear years after the primary diagnosis. Despite the advances in diagnostic methods, the final diagnosis often depends on an experienced histopathologist. The prognosis remains poor.

11-61-P

EFFECTIVITY OF GRANISERON AND APREPITANT IN A PATIENT WHO FAILED ONDANSETRON IN THE PROPHYLAXIS OF RADIATION INDUCED NAUSEA AND VOMITING: A CASE REPORT

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Introduction
Radiotherapy-induced nausea and vomiting (RINV) is a toxicity that can occur in 40–80% of individuals who receive radiation treatment. Current guidelines recommend 5-hydroxytryptamine3 receptor antagonists (5-HT3 RAs) for prophylaxis of RINV for moderate and highly emetogenic radiotherapy; however, certain patients may suffer from RINV despite prophylaxis.

Objectives
To determine if switching 5-HT3 RAs is successful in the treatment and further prophylaxis of RINV.

Methods
This report details the case of a 47-year-old female with extensive bony involvement to the spine from breast cancer presenting with lower back pain. To palliate her symptoms, the patient underwent a course of irradiation to the lumbar spine and was prescribed ondansetron as an antiemetic. However, the patient experienced severe nausea and emesis and was subsequently switched to granisetron and aprepitant.

Results
The patient completed the remainder of the radiation treatment with no further emesis and minimal nausea, representing the first documented success of granisetron and aprepitant for RINV after failure on ondansetron.
Conclusions
In chemotherapy, switching 5-HT₃ RAs after failure on the first is successful in preventing chemotherapy-induced nausea and vomiting (CINV), yet this has not been previously observed in radiation. In this patient, granisetron and aprepitant were successful in substantially reducing nausea and preventing further emesis, and may represent an alternative antiemetic regimen for RINV prophylaxis and salvage.

 Neurological Complications
12-01-O

CHEMOTHERAPY-INDUCED PERIPHERAL NEUROPATHY IN MULTIPLE MYELOMA PATIENTS: INFLUENCE ON QUALITY OF LIFE AND VALIDATION OF A QUESTIONNAIRE FOR DAILY CLINICAL PRACTICE

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Introduction
Chemotherapy-induced peripheral neuropathy (CIPN) may negatively influence patients’ health-related quality of life (HRQOL). Dose modification is the only way to minimize CIPN in multiple myeloma (MM) patients.

Objectives
To (1) perform a psychometric evaluation of the Indication Common Toxicity Criteria (CTC)-grading Peripheral Neuropathy (ICPN) questionnaire, which can be used in daily clinical practice and (2) to examine the occurrence of CIPN and its influence on HRQOL in MM patients.

Methods
One hundred thirty MM patients, diagnosed between 2000 and 2014, completed the ICPN, EORTC QLQ-CIPN20, EORTC QLQ-C30 and EORTC QLQ-MY20 (74 % response).

Results
Cronbach’s alpha of the sensory, motoric and autonomic subscale of the ICPN were 0.77, 0.73 and 0.59 respectively. Test-retest reliability and construct validity were good for all subscales. Overall, 54 % of patients reported neuropathy symptoms according to the EORTC QLQ-CIPN20 and 65 % of patients reported grade 2–3 neuropathy according to the ICPN. Patients with the highest CTC-grades (grade 2 with neuropathic pain and grade 3) according to the ICPN reported significantly worse scores on all EORTC QLQ-C30 and QLQ-MY20 subscales compared to patients with lower CTC-grades (p<0.05). Patients with many sensory symptoms (e.g. upper 25 %) on the EORTC QLQ-CIPN20 reported statistically significant and clinically relevant worse HRQOL scores on all EORTC QLQ-C30 and QLQ-MY20 subscales.

Conclusions
CIPN is a common side-effect in MM patients, which has a negative impact on their HRQOL. The ICPN is a valid instrument to distinguish the highest CIPN CTC-grades from the lower CTC-grades needed for applying dose modifications of chemotherapy in daily practice.
Objectives
The purpose of this pilot study was to obtain data to support or refute the utility of pregabalin for the prevention of P-APS and CIPN.

Methods
Patients scheduled to receive adjuvant weekly paclitaxel (80 mg/m²/dose) were randomized to receive pregabalin 75 mg or a placebo, twice daily, during the 12 weeks of chemotherapy. Patients completed the EORTC QLQ-CIPN20 questionnaire at baseline, prior to each dose of paclitaxel, and monthly for 6 months post treatment. Patients completed an acute pain syndrome questionnaire for 6 days after each dose of paclitaxel. The primary endpoint was to determine the effect of pregabalin on the maximum of the worst acute pain scores for the week following paclitaxel administration for cycle 1.

Results
46 patients were randomly assigned to the treatment or placebo arm. There was no suggestion of a difference between the two study arms with regards to paclitaxel-induced acute pain syndrome measures. While there was a suggestion that pregabalin decreased numbness, there was no suggestion that it decreased tingling, pain, or the EORTC QLQ-CIPN20 subscale scores. There were no evident toxicity differences between the two study arms.

Conclusions
The results of this pilot trial do not support that pregabalin is helpful for preventing P-APS or paclitaxel CIPN.

12-03-P

NEURONE SPECIFIC ENOLASE, A BIOMARKER FOR THE BREAST CANCER BRAIN METASTASIS: A FEASIBILITY, TWO GROUPS, NON RANDOMIZED, PARALLEL STUDY

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³Supportive Care Unit, Institut Jules Bordet, Brussels, Belgium

Introduction
Neuron Specific Enolase (NSE) is a specific molecular marker for mature nerve cells dosed at high levels in fetal and early postnatal brain. Known as a marker of the neuroendocrine tumor it is also increased in the neuronal destruction.

Objectives
The main objective of this study is to evidence the diagnostic and prognostic value of the NSE in brain metastases due to breast cancer (BC).

Methods
The study was conducted on two groups of twenty patients each, all women diagnosed with BC. One group included patients with no brain metastasis (NBM), and the other group patients with brain metastasis (BM). In both groups the absence or the presence of cerebral metastasis was demonstrated by a cerebral magnetic resonance.

For patients with NBM the NSE has been measured only once. BM patients had two NSE measures: at the diagnosis and at least 1 month after any cerebral radiotherapy (RT).

Results
We observed a significantly increased level of the NSE in the BM with a median value of 80.77 ng/mL (21–335.3 ng/mL), while in the NBM group the median value was of 16.87 ng/mL (8.2–26.3 ng/mL) (Figure 1).

Conclusion
The ROC curve (Receiver Operating Characteristic) shows a specificity of 85 % and a sensitivity of 95 % (cut-off value ≥ 21) (Figure 2).

Conclusions
Data resulting from the above study proves its interest in the early diagnosis of brain metastasis in the breast cancer patients, even before MRI examination. Results of the NSE value 1 month after the RT will be presented.

12-04-P

CHANGES IN BRAIN GREY MATTER DENSITY IN TEST ICULAR CANCER PATIENTS UNDERGOING CHEMOTHERAPY

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Introduction

Treatment with the combined cytostatic regimens of bleomycin, etoposide, and cisplatin (BEP) has dramatically reduced the mortality rate in testicular cancer (TC). Cisplatin-based chemotherapy has well-known neurotoxic side effects and neural populations such as progenitor cells, oligodendrocytes, and hippocampal neurons are exceptionally vulnerable to even small concentrations of cisplatin with possible adverse effects on cognition.

Objectives

The aim of the present study was to investigate the possible adverse effects of BEP chemotherapy on brain grey matter (GM) density in TC patients undergoing treatment.

Methods

Twenty-two recently orchiectomized TC patients (age: 18–54 years.) with histologically pure and mixed germ cell tumors at stages I-III participated in the present study. All participants were scheduled for 3–4 cycles of BEP. Participants underwent MRI scanning at baseline prior to chemotherapy and approximately 3 months after its completion. The MRI scan included a T1-weighted sequence to investigate GM morphology. Changes in GM density were analyzed with voxel-based morphometry (VBM) using the VBM8 toolbox for the Statistical Parametric Mapping software.

Results

TC patients evidenced reductions in GM density in six statistically significant clusters (p_{FWE-corrected} < 0.001–0.02) encompassing prefrontal and parieto-frontal regions. Prefrontal reductions included the right paracingulate gyrus and the right frontal pole, while bilateral parieto-frontal reductions were observed in the central opercular cortex and in clusters including the precentral gyrus and juxtapositional lobule cortex (Figure 1). Increase in GM density was also observed in a small cluster in the cerebellum.

Conclusions

Our results suggest that BEP chemotherapy may be associated with morphological changes in the brain.

THE IMPACT OF DIABETES ON NEUROPATHIC SYMPTOMS AND RECEIPT OF CHEMOTHERAPY AMONG COLORECTAL CANCER PATIENTS: RESULTS FROM THE PROFILES REGISTRY

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Introduction

Despite the high prevalence of neuropathy among cancer and diabetes patients, little is known about neuropathic symptoms among patients with both cancer and diabetes.

Objectives

This study assessed differences in neuropathic symptoms between colorectal cancer (CRC) patients with and without diabetes. Moreover, we aimed to explore whether neuropathic symptoms could be explained by the receipt of chemotherapy as cancer patients with diabetes less often receive chemotherapy.

Methods

Data from a cross-sectional study among CRC patients (2–11 years after diagnosis) was used. Data was collected by the PROFILES registry which is linked to clinical data from the population-based Eindhoven Cancer Registry. Diabetes status was self-reported and neuropathic symptoms were measured with the EORTCQLQ-CIPN20.

Results

Two hundred eighteen CRC patients with diabetes were matched on age and sex to 975 CRC patients without diabetes. After adjustments for cancer treatment including chemotherapy and other covariates, logistic regression models showed that CRC patients with diabetes experienced more mild to severe neuropathic symptoms, including tingling fingers or hands (OR=1.40; 95 %CI:1.00–1.94), tingling toes or feet (OR=1.47; 95 %CI:1.04–2.07), numbness in toes or feet (OR=1.83; 95 %CI:1.28–2.62) and erection problems among men (OR=1.83; 95 %CI:1.11–3.03) as compared to CRC patients without diabetes. No differences in cancer treatment were found between CRC patients with and without diabetes.

Conclusions

CRC patients with diabetes experienced more neuropathic symptoms, regardless of cancer treatment, suggesting that diabetes itself rather than treatment with chemotherapy results in more neuropathic symptoms among cancer patients with diabetes compared to those without.

VENLAFAXINE TO PREVENT OXALIPLATIN-INDUCED NEUROPATHY? A PILOT RANDOMIZED PLACEBO CONTROLLED TRIAL

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12-05-P

12-06-P
Introduction
Previous data by Durand et al. suggested venlafaxine could prevent acute and chronic oxaliplatin-related neuropathy.

Objectives
The purpose of this randomized, placebo-controlled, double-blinded pilot study was to try to obtain additional data to support conducting a phase III trial to test the use of venlafaxine to prevent oxaliplatin neurotoxicity.

Methods
Fifty patients scheduled to undergo oxaliplatin-based therapy (FOLFOX) for stage II-III (67 %) or stage IV (33 %) colon cancer were randomized to receive venlafaxine XR (37.5 mg) or placebo, twice daily, through last dose of oxaliplatin. Acute neuropathy was evaluated with a standard patient questionnaire. Prior to each oxaliplatin dose, neurotoxicity was evaluated via several mechanisms: EORTC QLQ CIPN20, NCI CTCAE v4.0, an oxaliplatin-specific scale, and a Rydel-Seiffer graduated tuning fork.

Results
There was a trend toward benefit for the venlafaxine arm for the first 2 oxaliplatin doses when evaluated by the oxaliplatin-specific neuropathy scale and by measures of 1) discomfort swallowing cold liquids and 2) throat discomfort. These trends were outweighed by a lack of any such trends in all other measurements including: 1) the CIPN20 sensory subscale (P=0.55, primary endpoint), 2) CIPN20 motor, or autonomic neuropathy subscales, 3) NCI CTCAE assessment, 5) cumulative administered oxaliplatin dose when evaluated by the oxaliplatin-specific scale, and a Rydel-Seiffer graduated tuning fork.

Conclusions
The present study does not support either the use of venlafaxine for preventing oxaliplatin-induced neuropathy in clinical practice or the initiation of a phase III trial to investigate venlafaxine in this setting.

12-07-P
REAL WORLD IMPACT OF TREATMENT INDUCED PERIPHERAL NEUROPATHY (TIPN) ON PATIENT REPORTED OUTCOMES (PROS) IN PATIENTS WITH MULTIPLE MYELOMA (MM) IN THE US

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2Health Economics, Onyx Pharmaceuticals Inc. an Amgen subsidiary, South San Francisco, USA
3Medical Oncology, California Pacific Medical Center, San Francisco, USA
4Medical and Scientific Affairs, Onyx Pharmaceuticals Inc. an Amgen Subsidiary, South San Francisco, USA
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6Health Outcomes, Vector Oncology, Memphis, USA

Introduction
Some MM treatments can cause TIPN, impacting multiple aspects of patients’ lives.

Objectives
The PRO impact of TIPN in MM patients using real world data in the US was examined.

Methods
Adults with ≥1 disease progression and ≥1 Patient Care Monitor (PCM) records (Vector Oncology Data Warehouse) were included. Index scores (General Physical Symptoms, Treatment Side Effects, Acute Distress, Despair, Impaired Ambulation, and Impaired Performance) and 4 individual items (numbness/tingling; burning sensation in hands/feet; physical pain; weakness of body parts) (0=no problem–10=as bad as possible) were compared before and after the 1st TIPN occurrence using fixed effect models.

Results
Three hundred four patients were included (mean age: 63.5; 50.3 % male; ≥1 comorbidity conditions: 50.0 %; 39.1 % had ≥1 TIPN during follow up. General Physical Symptoms and Impaired Performance, and all 4 individual items significantly worsened after TIPN. Increased Impaired Performance, numbness/tingling, and burning in hands/feet were considered clinically relevant (Table).

Conclusions
Following TIPN events, MM patients experienced significant and clinically meaningful worsening of symptoms and performance in daily activities. Novel MM agents with lower TIPN rates might provide better quality of life. Unadjusted Change in PCM after 1st TIPN

<table>
<thead>
<tr>
<th>Index score</th>
<th>Mean</th>
<th>Standard error</th>
</tr>
</thead>
<tbody>
<tr>
<td>General physical symptoms</td>
<td>0.91</td>
<td>0.27</td>
</tr>
<tr>
<td>Treatment side effects</td>
<td>−0.12</td>
<td>0.25</td>
</tr>
<tr>
<td>Acute distress</td>
<td>−0.57</td>
<td>0.37</td>
</tr>
<tr>
<td>Despair</td>
<td>0.16</td>
<td>0.31</td>
</tr>
<tr>
<td>Impaired ambulation</td>
<td>−1.29</td>
<td>0.52</td>
</tr>
<tr>
<td>Impaired performance</td>
<td>1.69*</td>
<td>0.47</td>
</tr>
</tbody>
</table>

Individual Item

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>Standard error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numbness/tingling</td>
<td>1.03*</td>
<td>0.10</td>
</tr>
<tr>
<td>Burning in hands/feet</td>
<td>1.60*</td>
<td>0.10</td>
</tr>
<tr>
<td>Physical pain</td>
<td>0.29</td>
<td>0.12</td>
</tr>
<tr>
<td>Weakness of body parts</td>
<td>0.64</td>
<td>0.13</td>
</tr>
</tbody>
</table>

*p<0.05

12-08-P
A PROSPECTIVE OBSERVATIONAL STUDY OF COGNITIVE FUNCTION CHANGES AFTER DOCETAXEL AND CISPLATIN CHEMOTHERAPY IN HEAD AND NECK CANCER PATIENTS

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Introduction
The combination of docetaxel and cisplatin (DP) is a standard chemotherapy regimen in the treatment of squamous cell carcinoma of the head and neck (SCCHN).

Objectives
This prospective observation study evaluated the incidence of cognitive impairment after three-cycle DP combination chemotherapy and associated risk factors.

Methods
We enrolled 23 patients who underwent DP with cisplatin. Baseline measures were recorded within 2 weeks before starting the first DP chemotherapy cycle. The protocol included a standardized neuropsychological battery and other characteristics detailed below, including: Mini Mental State Examination (MMSE), ECOG, Edmonton Symptom Assessment Scale (ESAS), VAS of neuropathic pain, Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), morphine equivalent daily dose (MEDD), admission duration, main caregiver, and education level.

Results
On baseline evaluation, all 20 patients showed normal MMSE (>25). Cognitive impairment (MMSE<25) was found in 25 % of SCCHN patients who received three-cycle DP combination chemotherapy. Associated factors with...
Peripheral neuropathy (PN) is a common complication of some chemotherapy. Its management methods frequently ineffective. Understanding how patients cope with PN can be an initial step in identifying better methods of symptom management.

**Objectives**

The objective of this research is to understand how patients manage treatment-induced PN.

**Methods**

This descriptive exploratory qualitative analysis is a part of a larger study to understand the overall patient experience of PN. Thirty-one patients with PN signed IRB-approved written informed consent and participated in semi-structured interviews about their experiences. The interviews were recorded, transcribed, and analyzed by experienced qualitative researchers.

**Results**

A theme that emerged in the analysis was “managing the PN.” In managing PN, patients sought to “control symptoms,” “lead a normal life,” or “be safe.” Methods of controlling symptoms included taking medications prescribed by physicians, massage, and using alternative therapies. Methods of leading a normal life included accepting the PN and seeking support from other patients. Methods of being safe included using vision to compensate for lack of feeling, wearing “sensible” shoes, avoiding walking on uneven surfaces, and giving up driving. Many patients expressed the hope that the PN would resolve with time.

**Conclusions**

Most patients report seeking methods of managing PN. Many methods prove unsuccessful. Helping patients to effectively cope with PN while testing more effective therapies is important for the quality of life of survivors of cancer.
Conclusions
Irinotecan-induced pain is associated with central astrocyte activation, which is likely to be mediated through TLR4. Given our recent research showing TLR4 as a mediator of gut toxicity, these results indicate TLR4 may be a common underlying mechanism of both gut and neurotoxicity, and highlights the possibility of a targetable gut/CNS axis.

12-12-P
EXPANSION AND QUALITY IMPROVEMENT OF A METASTATIC SPINAL CORD COMPRESSION SERVICE: A THREE YEAR PROSPECTIVE REVIEW
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Introduction
The South West Metastatic Spinal Cord Compression Service (MSCC) evolved in 2011 with the aim of providing early detection and a timely treatment plan for patients suspected of having metastatic malignant disease.

Objectives
To review the expansion and progress of a regional service for metastatic spinal cord compression (MSCC) due to implementation of a clinical lead and nurse specialist.

Methods
Prospectively collected database of all patients referred to the St George’s Hospital MSCC service over 2012–2014. We studied demographics, route of referral into the service, decision for surgical or oncological treatment and time taken for senior level decision making.

Results
A table showing the relevant data collected.

Conclusions
The MSCC service has expanded from 2012 to 2014, with a 46 % increase in referrals in 2014. Patients waiting longer than 24 h for a definitive decision decreased (1.3 % in 2012 to 0.3 % in 2014). The improved service is associated with increased demand and a small (3.1 %) increase in referrals from outside the 9 regional hospitals. The expanded service now treats a higher proportion of patients with surgery. The improved service generates an increase in workload and will generate a new set of challenges in the next few years.

<table>
<thead>
<tr>
<th></th>
<th>2012 n (%)</th>
<th>2013 n (%)</th>
<th>2014 n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Referrals</td>
<td>148</td>
<td>283</td>
<td>323</td>
</tr>
<tr>
<td>- MSC</td>
<td>108 (73)</td>
<td>207 (73)</td>
<td>217 (67)</td>
</tr>
<tr>
<td>- Oncall</td>
<td>52 (22)</td>
<td>52 (16)</td>
<td>76 (24)</td>
</tr>
<tr>
<td>- MSC / Oncall</td>
<td>7 (4.7)</td>
<td>17 (8.2)</td>
<td>19 (5.9)</td>
</tr>
<tr>
<td>- Other</td>
<td>1 (0.7)</td>
<td>7 (2.5)</td>
<td>11 (3.4)</td>
</tr>
<tr>
<td>Referral Source</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- In Region</td>
<td>147 (99)</td>
<td>278 (99)</td>
<td>313 (97)</td>
</tr>
<tr>
<td>- Out Region</td>
<td>1 (0.7)</td>
<td>5 (1.8)</td>
<td>10 (3.1)</td>
</tr>
<tr>
<td>Decision made by spinal sub-specialist</td>
<td>70 (47)</td>
<td>207 (73)</td>
<td>183 (57)</td>
</tr>
<tr>
<td>Time to definitive decision (minutes)</td>
<td>105</td>
<td>97.5</td>
<td>127</td>
</tr>
<tr>
<td>Patients waiting &gt;24 hours for definitive decision</td>
<td>2 (1.4)</td>
<td>5 (1.8)</td>
<td>1 (0.3)</td>
</tr>
<tr>
<td>Decision to treat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Surgery</td>
<td>30 (20)</td>
<td>63 (22)</td>
<td>90 (28)</td>
</tr>
<tr>
<td>- Radiotherapy</td>
<td>84 (57)</td>
<td>100 (35)</td>
<td>75 (23)</td>
</tr>
<tr>
<td>- Other</td>
<td>34 (23)</td>
<td>120 (42)</td>
<td>158 (49)</td>
</tr>
</tbody>
</table>

12-13-P
CANCER-RELATED INSOMNIA: WIRELESS MONITORING OF SLEEP METRICS IN ADVANCED DISEASE
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Introduction
Insomnia is difficulty with sleep onset, maintenance, early morning waking or non-restorative sleep. Cancer prevalence is 30–75 %. Daytime consequences include fatigue. It is under-reported and impairs quality of life. Measurement previously required sleep laboratories. Advances in medical technology help real-time measurement in the natural environment.

Objectives
1. Feasibility of a wireless monitor to measure sleep in cancer.
2. Evaluate device acceptability:
   a. Patient
   b. Family
   c. Nurse

Methods
Prospective observational study:
- Stage A: 10 consecutive in-patient hospice admissions
- Stage B: 20 consecutive community patients

Participants used a wireless non-contact bedside monitor (SleepMinder™) for 3 nights. Acceptability questionnaires were completed by participant and nurse (Stage A) or family member (Stage B). Descriptive statistics were generated by Microsoft Excel.

Results
Thirty participants had metastatic cancer (gastrointestinal [11]; lung [8]; breast [4]; other [7]). Median age: 63 years (47–84). Median Eastern Cooperative Oncology Group (ECOG) performance status: 2 (0–3).

In-patient (n=10)
In 50 %, sleep onset was delayed >30 min. Median awakenings per night: 1 (0–8). Median sleep efficiency (proportion of time in bed spent asleep): 89 % (74–100 %). All participants and nurses reported 100 % device acceptability.

Community (n=20)
Sleep onset was delayed >30 min in 25 %. Median awakenings per night: 3 (0–10). Median sleep efficiency: 91 % (46–100). All participants and family reported 100 % device acceptability.

Conclusions
1. A wireless bedside monitor effectively measures sleep in cancer.
2. Clinical utility demonstrated in inpatient and community settings.
3. High patient acceptability supports clinical use.
4. Sleep metrics better than expected.
5. Further research should use device to evaluate sleep interventions.

12-14-P
TRANSFERRIN COUPLED LIPOSOMES FOR BRAIN TARGETING OF 5-FLOOROURACIL
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Introduction
The drug delivery to the brain has been particularly challenging because of the presence of blood brain barrier (BBB). Therefore, active targeting to the brain is crucial for the effective treatment of brain disease.

Objectives
The objective of this study is to achieve enhanced delivery of 5-fluorouracil (5-FU) to brain through transferrin coupled liposomes via receptor mediated endocytosis.

Methods
5-FU was radiolabelled with $^{99m}$Tc-DTPA. Liposomes were prepared by cast film method and the surface was coupled with transferrin in presence of EDC as a chemical crosslinker and characterized for particle size, shape, entrapment efficiency & in-vitro drug release. In-vitro cytotoxicity assay was performed with various CNS cell lines. In-vivo percent brain uptake of $^{99m}$Tc-DTPA labelled 5-FU was determined.

Results
The optimized ratio exhibited a particle size of 194-214 nm with maximum entrapment efficiency of 37.60 & 33.06 % for uncoupled and coupled liposomes. The in-vitro drug release studies shows 74.8 % drug release in 24 h from uncoupled liposomes which was decreased to 66.7 % on coupling of liposomes with transferrin. In-vitro cytotoxicity studies show 80 % reduction with IMR-32 & SK-NS-H cell lines. Biodistribution studies show the enhanced delivery of drug to brain.

Conclusions
The brain uptake of transferrin-coupled liposomes was found to be approximately 17 and 10 times higher as compared to plain drug and uncoupled liposomal formulations respectively. Therefore, the transferrin coupled liposomes as a drug delivery transport vector can be used for the transport of drug molecules across the BBB. Such systems would be useful in the treatment brain tumor and neurological diseases.

12-15-P
ORTHOSTATIC HYPOTENSION IN THE DIAGNOSIS OF AUTONOMIC NERVOUS SYSTEM DYSFUNCTION IN CANCER

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Introduction
Limited studies suggest autonomic nervous system dysfunction (AD) is common in advanced cancer. It predisposes to problems that include falls, fatigue, and sudden death. Orthostatic hypotension (OH) is a feature of AD; a fall in blood pressure (BP) of 20 mmHg systolic or 10 mmHg diastolic within 3 min of standing. OH that persists beyond 3 min suggests severe AD. Prevalence in cancer remains unknown.

Objectives
1. Evaluate the prevalence of OH in cancer inpatients
2. Determine the proportion with persistent OH
3. Examine the relationship between orthostatic symptoms and hypotension

Methods
Prospective observational study. Consecutive oncology inpatient admissions to a tertiary referral centre were recruited over 4 weeks. Autonomic symptoms were evaluated by questionnaire. OH was assessed by one Active Stand Test. Postural BP and symptoms were recorded. Descriptive statistics generated by Microsoft Excel.

12-16-P
NEUROLOGICAL COMPLICATIONS ASSOCIATED WITH CAPECTABINE-OXALIPLATIN (CAPOX) AND INFUSIONAL 5-FLUOROURACIL-OXALIPLATIN (FFOX) IN THE ADJUVANT TREATMENT (AT) OF RESECTED HIGH-RISK COLON CANCER

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Introduction
Patients with high-risk Stage II or Stage III colon cancer are at risk for neurological complications, associated with adjuvant CAPOX or FFOX chemotherapy.

Objectives
Our primary outcome was to identify the utilization rates of CAPOX versus FFOX chemotherapy. Secondary outcomes were to review the patient characteristics, dose-delivery and toxicities associated with both protocols.

Methods
All patients receiving adjuvant CAPOX or FFOX (given as mFOLFOX6) for Stage II or Stage III colon cancer from October 2011 to January 2014 were identified using the pharmacy database. Data was collected from electronic patient health records and pharmacy database.

Results
Three hundred fifteen patients were eligible for inclusion, 87 % with stage III disease. Two hundred eighteen patients (69 %) received FFOX, while 97 patients (31 %) received CAPOX. Patients assigned to CAPOX were significantly younger (age <=50 years: 29 % vs 11 %; p=0.022), were more frequently working (48 % vs 38 %, p=0.19), and were less likely to require a central line (10 % vs 100 %). More patients on CAPOX experienced DLTs (95 % vs 81 %, p=0.004). Peripheral neuropathy occurred in 38 % on CAPOX versus 42 % on FFOX, p=0.66. Other common DLTs included diarrhea (32 % CAPOX vs 11 % FFOX, p=0.0004), neutropenia (7 % CAPOX vs 28 % FFOX, p<0.0001), and fatigue (16 % CAPOX vs 11 % FFOX, p=0.41). Seventy-seven percent of patients on FFOX completed the planned number of cycles versus 64 % on CAPOX (p=0.045).

Conclusions
Peripheral neuropathy is a common complication of CAPOX and FFOX chemotherapy regimens. CAPOX was less commonly prescribed, was associated with more DLTs and led to lower treatment completion rates, compared to FFOX.
12-17-P

PALLIATIVE SURGICAL RESECTION OF BRAIN METASTASES FROM NON-SMALL CELL LUNG CANCER

M. Byon1

Introduction
Brain metastases (BM) are found in approximately 20–40% of all patients with non-small-cell lung cancer (NSCLC). The overall survival (OS) of these patients is generally poor, ranging from 3 to 6 months.

Methods
We performed a single-center, retrospective review of 36 patients with NSCLC who had neurologically symptomatic, synchronous brain metastasis.

Results
In survival, there was no difference between patients with NSR (OS, 12.7 months) and non-NSR (OS, 10.4 months; p=0.6419). In case of intracranial PFS, there was no significant survival difference (8.4 months in the NSR and 5.4 months in non-NSR group; p=0.0624). Reliable neurological 1-month follow-up by the Medical Research Council neurological function evaluation scale was available in 22 symptomatic patients. The scale improved in eight (73%) patients in the NSR group, but only improved in three (27%) patients in the non-NSR group.

Conclusions
Patients with synchronous brain metastasis from NSCLC presenting with neurological symptoms showed no survival benefit from combined treatment with NSR, but local brain metastasis control and quality of life were improved.

12-18-P

PANCREATIC CANCER WITH RARE LEPTOMENINGEAL DISEASE: A CASE REPORT AND LITERATURE REVIEW

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Introduction
Metastases from pancreatic cancer are a common occurrence; however, neurological involvement is relatively rare. Even less common is leptomeningeal disease, with very few documented cases occurring secondary to pancreatic cancer.

Objectives
The purpose of this report is to document a rare case of leptomeningeal disease secondary to pancreatic cancer and to examine other cases found in the literature.

Methods
The current report documents the case of a 50-year-old male with pancreatic cancer who presented with diplopia, as well as a left ptosis and marked limitation of upward gaze in the left eye, indicating a third cranial nerve palsy. Further investigation revealed that the patient had developed leptomeningeal disease secondary to pancreatic cancer. The patient received whole brain radiation of 2000 cGy in 5 fractions. A literature review was conducted to examine the incidence and varying presentations of similar cases.

Results
In a review of the literature, only 8 other documented cases of patients suffering from both leptomeningeal disease and pancreatic cancer were found. In these cases, there was a wide variety of symptoms, presentations, and treatments of leptomeningeal disease. Notably, our review revealed that this report is the first documented case of leptomeningeal disease secondary to pancreatic cancer where the patient presented with a third cranial nerve palsy.

Conclusions
Our patient’s diagnosis of leptomeningeal disease secondary to pancreatic cancer represents a rare incidence, with only a few reported cases in the literature. Physicians should not rule out leptomeningeal disease in pancreatic cancer patients despite its relatively low occurrence.

12-19-P

USING THE KAMPO GOSHAIJINKIGAN, PREGABALIN AND THEIR COMBINATION THERAPY FOR TREATING PERIPHERAL NEUROPATHY IN BREAST CANCER PATIENTS

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Introduction
Chemotherapy-induced peripheral neuropathy (CIPN) not only reduces patients’ QOL but also significantly interferes with the completion of cancer chemotherapy. However, there are few effective strategies to treat the pain.

Objectives
Effectiveness of peripheral neuropathy pain due to pregabalin (PGB) is reported recently, but by side effects such as fatigue and drowsiness, it sometimes be forced to stop or reduce the medicine. Goshajinkigan (GJG), herbal medicine in Japan, is familiar to reduce peripheral pain in diabetic patients, and is also prescribed to CIPN patients in breast cancer patients. So, we examined effectiveness about choosing GJG, or PGB, depending on the condition of the patient, or combination therapy.

Methods
From July 2011 to November 2014, we analyzed the prescriptions in CIPN for 119 breast cancer patients. They were treated using PGB, GJG, or other drugs over 6 months for CIPN.

Results
Over the past 4 years, 54 patients received GJG, 82 patients received PGB for CIPN. Gradually, the ratio of PGB prescription had been increasing. On the other hand, in 4 years, 20 patients who prescribed in combination with GJG and PGB, there was an increasing gradually. Mainly, there were prescribed to CIPN in use of taxanes.

Conclusions
GJG has been suggested since the effect appears to relatively mild, when side effects are strong by taking PGB, and combination of using GJG and small dose of PGB may be taken into account.
12-20-P

SOLITARY INTRAMEDULLARY SPINAL CORD METASTASIS AS A FIRST PRESENTATION OF LUNG CANCER

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Introduction
Intramedullary spinal cord metastasis (ISCM) is an unusual complication of the cancer, but since the advent of MR imaging (MRI) it has been found with increasing frequency. In most cases, cancer will be diagnosed in early stages and rarely will it be first diagnosed with ISCM.

Objectives
The purpose of this study is to present our experience of a rare case report of a solitary ISCM of the thoracic spine as a first presentation from lung cancer adenocarcinoma, and discuss the clinical characteristics of the disease.

Methods
A 67 – years – old male, with no history of systemic disease, presented with progressive paraparesis, hypoesthesia in both lower limbs, and a 12th thoracic sensory level impairment since 5 weeks. MRI scan revealed an enhancing intramedullary lesion over T11 and T12 vertebrae, with no perilesional edema (Fig. 1)

Results
The patient underwent T11 and T12 laminectomy, with consecutive gross - total micro excision of the mass (Fig. 2). The patient showed immediate motor improvement. Histopathology was compatible with a poorly differentiated metastatic adenocarcinoma. Postoperative studies revealed that primary focus was determined in right lung.

Conclusions
ISCM can be the first manifestation of a primary cancer. Our patient had no preoperative signs suggesting disease in other organs, making the diagnosis of lung adenocarcinoma metastatic to the intramedullary cord surprising. Although some times it’s an unexpected diagnosis, microsurgical excision of the mass, not only provides tissue for histopathological diagnosis, but also allows recovery of neurological function, although it does not affect the survival duration.

12-21-P

CARRIER MEDIATED DELIVERY SYSTEM BEARING DOPAMINE FOR EFFECTIVE MANAGEMENT OF PARKINSONISM

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Introduction
Delivery of drug and sustaining it in effective concentration in brain is challenging due to blood brain barrier.

Objectives
In the present investigation, amino acid coupled liposomes bearing dopamine-HCl were prepared to deliver drug to the brain utilizing receptor-mediated transcytosis for effective management of Parkinsonism.

Methods
L-lysine stearylamine conjugate (LSC) was synthesized & LSC coupled liposomes bearing dopamine HCl was prepared by lipid cast film method. Formulations were analyzed for average vesicle
size, drug entrapment, in-vitro drug release and in-vivo efficacy of
the formulations was assessed by measuring the reduction in the
degree of drug induced catatonia in albino rats.

Results
Average particle size was found in range of 1.92–0.80 mm. There was
increase in the size for coupled liposomes due to the inclusion of LSC in
liposomal bilayers. The percent encapsulation efficiency decreased from
46.82±2.17 % in uncoupled to 38.13±1.18 % in coupled liposomes. The
in-vitro drug release after 24 h was 58.9±2.94 % with uncoupled while the
coupled liposomes showed 43.7±2.18 % drug release. The lower value for coupled formulation could be due to the retardation of drug
release caused due to the incorporation of LSC in the liposomal bilayers,
which enhanced the structural integrity of the bilayer. In-vivo study re-
veals that the animals receiving uncoupled liposomes showed partial
reduction and animals that received coupled liposomes showed almost
complete reduction in catatonia.

Conclusions
Fluorescence study clearly indicates the uptake of 6-CF in blood vessels
and accumulated in brain. This could be due to enhanced uptake of Lysine
coupled liposomes through amino acid transporters present at BBB sur-
face.

Neutropenia-Infections
13-01-O
BIOSIMILAR FILGRASTIM AND CHEMOTHERAPY-
INDUCED NEUTROPENIA: OVERALL RESULTS OF THE
NEXT STUDY
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Introduction
Biosimilar filgrastim (Nivestim™, Hospira Ltd) is a Granulocyte-Colony
Stimulating Factor (G-CSF) licensed for the treatment of chemo-induced
neutropenia and febrile neutropenia (FN).

Objectives
The NEXT (Nivestim™ safety profile in patients treated with cyto-
toxic chemotherapy in real-life clinical practice) study assessed the biosimilar
filgrastim safety in patients undergoing cytotoxic chemotherapy for ma-
lignancies (excluding chronic myeloproliferative and myelodysplastic
syndrome).

Methods
NEXT was a non-interventional, national, prospective, multicentre
study. Recorded data included patient (pt) characteristics, biosimilar filgrastim treatment-related data and treatment emergent adverse events (AEs) including FN. Pts were followed-up for a maximum of six CT cycles with three visits at inclusion, during treatment, and following CT.

Results
Two thousand one hundred two pts were analyzed (mean age 63.5±
12.7 years; 50.2 % male). Seventy-five percent of pts had solid tumours
and 25.0 % had haematological malignancies. 98.2 % of pts received
prophylactic biosimilar filgrastim. Of these, 79.9 % received a dose of
30 MIU and therapy was administered subcutaneously in 99.4 % pts.
Mean treatment duration was 6.0±3.8 days. 14.5 % of pts received anti-
infective prophylaxis.

4.9 % of pts treated prophylactically experienced FN and were hospitalized
for 8.7±10.9 days; 3.1 % of pts had an infection. Overall, 4.7 % of pts had
≥1 CT dose reduction and 7.4 % of pts had a delay in ≥1 cycle of CT.
During the study, 20.4 % of pts experienced ≥1 AE. 12.7 % of pts report-
ed bone, muscular and chest pain.

Conclusions
Biosimilar filgrastim (Nivestim™) is an alternative therapeutic option for
patients with prophylactic or curative chemotherapy-induced neutropenia.

13-02-O
Practical Application of a Febrile Neutropenia Pre-Printed Order / Algorithm Incorporating the MASCC Index within a Large Regional Emergency Department

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Introduction
Febrile Neutropenia (FN), a life threatening complication of chemother-
apy, requires urgent recognition and effective empiric broad spectrum
antibiotic. Emergency Departments (ED) manage initial presentations of
FN for adults treated with out-patient chemotherapy in British Columbia.
The MASCC index has been previously published as a possible means to
allow prompt, appropriate antibiotic choice in FN.

Objectives
To evaluate the feasibility of a pre-printed order (PPO)/algorithm incor-
porating the MASCC index, for use by ED physicians in patients present-
ing with FN.

Methods
Chart review of FN cases (ANC

< 500 cells/µL).

Results
Two hundred sixty-three ED presentations with ANC 38.3 °C), 47 (55.3 %)
exhibited tachycardia, and 7 (8.2 %) had fever history. Twenty (23.5 %)
patients were not admitted and only 2 of these were associated with PPO
utilization; 14 were discharged without antibiotics. PPOs were utilized in 37
(56.9 %) of 65 admitted cases, but 15 of these (37.8 %) were left predom-
nantly blank. Mean time to first antibiotics was 269 min with PPO, and
588 min without PPO. The MASCC index portion of the PPO was included
on the chart in 26 cases, but only 15 (17 %) of these were in fact scored.

Conclusion
While the presence of PPOs reduced time to first antibiotic, PPOs were
inconsistently utilized, resulting in treatment not conforming to published
guidelines. ED physicians were unable to score the MASCC within their
setting.

13-03-O
ASSESSMENT OF A NOMOGRAM FOR PREDICTING
SERIOUS COMPLICATIONS IN PATIENTS FROM THE
UNIVERSITY OF SALAMANCA HOSPITAL FEBRILE
NEUTROPENIA REGISTRY

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Introduction

The Clinical Index of Stable Febrile Neutropenia (CISNE) nomogram has been recently developed for predicting serious complications in patients with solid tumors and seemingly stable episodes of febrile neutropenia (FN).

Objectives

To validate the CISNE nomogram in a single-institution cohort of patients with FN.

Methods

In 2010, the University of Salamanca Hospital (USH) created a database of patients with FN. The main objective of this registry was to understand the epidemiological characteristics and outcomes after the center instituted a program for ambulatory management. The CISNE nomogram (Fig. 1) was evaluated by means of a retrospective analysis by two different researchers, in accordance with detailed instructions and objective definitions of the variables. The nomogram’s calibration and discriminatory ability was evaluated in this series.

Results

Two hundred seventy-six consecutive episodes from the USH registry were analyzed (Table 1). 72.5 % (n=200) were classified as “seemingly stable episodes” according to the nomogram developers’ specifications. Complications and mortality rates in this subset were 17.1 % (95 % confidence interval [CI], 12.5 %–22.9 %), and 3.6 % (95 % CI, 1.8–3.9 %). ECOG performance status, chronic obstructive pulmonary disease, monocytopenia <200 per μL and stress-induced hyperglycemia were associated with complications (p<0.05). The nomogram’s predictions appeared to be well calibrated in our dataset (Hosmer-Lemeshow test, p=0.9). The c-index was 0.902 (95 % CI, 0.852–0.940).

Conclusions

The CISNE nomogram performed well when applied to a dataset of patients at the USH. This nomogram may assist in treatment decisions of patients who begin hospitalized treatment.

13-04-O

NORTHERN IRELAND’S EXPERIENCE OF IMPROVING INITIAL NEUTROPENIC SEPSIS MANAGEMENT THROUGH A MULTIDISCIPLINARY INTEGRATED CARE PATHWAY AND CARE BUNDLE

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Introduction

Neutropenic sepsis (NS) remains a time dependent and potentially fatal complication of systemic anti-cancer therapy. In the UK a target ‘door to needle’ time of 1 h for first dose intravenous antibiotics is promoted nationally to ensure prompt management of potentially high risk patients and minimise septic complications.

Objectives

A baseline audit (June 2011) of Northern Ireland practice highlighted shortfalls in care, with only 18 % of patients receiving antibiotics within 60 min. Staff needed to be equipped to recognise and manage NS promptly to improve patient care.

Methods

An integrated care pathway (ICP) for NS was developed and is used by nursing and medical staff for patients presenting with suspected NS through acute cancer assessment areas and emergency departments, as well as inpatients developing NS.

Results

An initial reaudit of Belfast Trust practice June 2012 demonstrated improvements (62 % meeting 1 h target), but a subsequent audit, January 2013 was disappointing (only 50 % meeting 1 h target). In response a more compact, user friendly ICP was introduced and further education provided. The most recent audits demonstrate significant sustained
improvements (November 2013 - 80 % meeting 1 h target, July 2014 - 86 % meeting 1 h target).

Conclusions
A simple ICP ensures NS is considered and basic clinical care delivered quickly and safely through a co-ordinated approach. A care bundle is now used across the service to continually monitor patients’ management, with results fed back monthly to staff, ensuring continued momentum in improving care and an opportunity to encourage and identify areas for improvement.

13-05-P
BONE PAIN PREDICTOR FACTORS DURING BIOSIMILAR FILGRASTIM TREATMENT: A NEXT STUDY
HEMATOLOGICAL MALIGNANCIES SUBANALYSIS

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Introduction
Granulocyte-Colony Stimulating Factor (G-CSF) treatment is often associated with Bone Pain (BP). Biosimilar filgrastim (Nivestim™, Hospira Ltd) is a G-CSF licensed for the treatment of neutropenia and febrile neutropenia (FN) induced by myelosuppressive chemotherapy. This abstract presents the BP predictor factors analysis in patients with haematological malignancies receiving chemotherapy and treated with biosimilar filgrastim in the NEXT (Nivestim™ safety profile in patients treated with cytoxicxic in real-life clinical practice) study.

Objectives
Assess the biosimilar filgrastim safety in patients undergoing chemotherapy for malignancies (excluding chronic myeloproliferative and myelodysplastic syndrome).

Methods
NEXT was a prospective, post-marketing, non-interventional, longitudinal, national multicenter study. Potential predictor factors of BP occurrence were tested by univariate analyzes and included in a logistic regression model if significant (p<0.20).

Results
This subanalysis includes 1516 patients with ST (454 breast cancers, 277 lung cancers, 197 colorectal cancers and 588 other ST). Of these, 43.4 % were aged>65 years, 55.2 % were female; 12.4 % had bone pain. Using logistic regression, female gender (OR [95 % CI]: 1.7 [1.2–2.4]), history of prior chemotherapy (1.8 [1.2–2.5]), Haemoglobin ≥ 12 g/dL at baseline (1.7 [1.2–2.4]), FEC (5-fluorouracil, epoxodorubicin and cyclophosphamide) regimen (2.7 [1.7–4.3]), antibiotic prophylaxis (3.2 [1.5–6.7]) and not-high G-CSF dose (1.6 [1.1–2.2]) were statistically associated with BP.

Conclusions
Mechanisms and predictors of BP are not precisely identified. Among predictor factors identified here, clinically relevant ones are female gender, Haemoglobin ≥ 12 g/dL at baseline and FEC regimen.

13-06-P
BONE PAIN PREDICTOR FACTORS DURING BIOSIMILAR FILGRASTIM TREATMENT: A NEXT STUDY SOLID TUMORS SUBANALYSIS

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Introduction
Granulocyte-Colony Stimulating Factor (G-CSF) treatment is often associated with Bone Pain (BP). Biosimilar filgrastim (Nivestim™, Hospira Ltd) is a G-CSF licensed for the treatment of neutropenia and febrile neutropenia (FN) induced by myelosuppressive chemotherapy. This abstract presents the BP predictor factors analysis in patients with Solid Tumor (ST) receiving chemotherapy and treated with biosimilar filgrastim in the NEXT (Nivestim™ safety profile in patients treated with cytoxicxic in real-life clinical practice) study.

Objectives
Assess the biosimilar filgrastim safety in patients undergoing chemotherapy for malignancies (excluding chronic myeloproliferative and myelodysplastic syndrome).

Methods
NEXT was a prospective, post-marketing, non-interventional, longitudinal, national multicenter study. Potential predictor factors of BP occurrence were tested by univariate analyzes and included in a logistic regression model if significant (p<0.20).

Results
This subanalysis includes 1516 patients with ST (454 breast cancers, 277 lung cancers, 197 colorectal cancers and 588 other ST). Of these, 43.4 % were aged>65 years, 55.2 % were female; 12.4 % had bone pain. Using logistic regression, female gender (OR [95 % CI]: 1.7 [1.2–2.4]), history of prior chemotherapy (1.8 [1.2–2.5]), Haemoglobin ≥ 12 g/dL at baseline (1.7 [1.2–2.4]), FEC (5-fluorouracil, epoxodorubicin and cyclophosphamide) regimen (2.7 [1.7–4.3]), antibiotic prophylaxis (3.2 [1.5–6.7]) and not-high G-CSF dose (1.6 [1.1–2.2]) were statistically associated with BP.

Conclusions
Mechanisms and predictors of BP are not precisely identified. Among predictor factors identified here, clinically relevant ones are female gender, Haemoglobin ≥ 12 g/dL at baseline and FEC regimen.
FEBRILE NEUTROPENIA RISK FACTORS: A SUBANALYSIS OF THE NEXT STUDY

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Introduction
Biosimilar filgrastim (Nivestim™, Hospira Ltd) is a Granulocyte-Colony Stimulating Factor (G-CSF) licensed for the treatment of chemo-induced neutropenia and febrile neutropenia (FN). This NEXT (Nivestim™) study subanalysis assesses the impact of each of the FN risk factors defined in EORTC guidelines for the use of G-CSF.

Objectives
Assess the biosimilar filgrastim safety in patients undergoing chemotherapy for malignancies (excluding chronic myeloproliferative and myelodysplastic syndrome).

Methods
NEXT was a prospective, non-interventional, national multicenter study. FN risk factors defined in EORTC guidelines were tested by univariate analyzes and included in a logistic regression model.

Results
One thousand eight hundred thirty-eight pts who received primary prophylaxis with biosimilar filgrastim were included in this subanalysis. Apart from chemotherapy-related FN risk, other factors that may increase the FN risk are: age >65 years, advanced disease, history of prior FN, no antibiotic prophylaxis, no G-CSF use, poor performance status, female gender, Haemoglobin <12 g/dL, liver, renal or cardiovascular disease. The analysis of age distribution of NEXT patients with FN shows a threshold at 62 years. The only factor statistically associated with FN among those included in the logistic regression model is age >62 years (OR [95% CI]: 2.1 [1.1–4.0]), confirming the age-related high risk of FN.

Conclusions
This analysis raises the question of G-CSF prophylactic use in >62-years patients with a CT-related FN risk 10%.

LONG-ACTING GRANULOCYTE-COLONY STIMULATING FACTORS AS PRIMARY PROPHYLAXIS FOR FEBRILE NEUTROPENIA IN FEMALE PATIENTS RECEIVING DOSE-DENSE BIWEEKLY CHEMOTHERAPY

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Introduction
Febrile neutropenia/leukopenia (FN/FL) is the most frequent dose-limiting toxicity of myelosuppressive chemotherapy. FN/FL is burdensome for patients and its management is associated with significant resource consumption.

Objectives
To update a study on costs associated with routine FN/FL management in German hospitals [Ihbe-Heffinger et al. Onkologie, 2011].

Methods
Resource consumption originated from a prospective, multi-center, longitudinal, observational cohort-study with lymphoma, NSCLC and primary breast cancer (PBC) patients enrolled until 2007. Costs related to FN/FL episodes were estimated by multiplying resource consumption with updated unit costs obtained from German tariffs and hospital databases in December 2014. Costs are presented from hospital perspective and stratified according tumour type.

Results
Among 338 treatment courses, 52 FN/FL-episodes (lymphoma n=31, NSCLC n=10, PBC n=11) associated with at least one hospital stay were available for cost analysis. Median (mean) cost per FN/FL-episode requiring hospital treatment amounted to €3,236 (4,724) and varied between lymphoma €3,761 (5,579), NSCLC €2,977 (4,536) and PBC €2,555 (2,485). Hospital basic services represented 73.4% of total costs, followed by expenses for drugs (8.6%). Median (mean) cost per FN/FL-episode increased by 37.4% (19.6%) within 7 years. The rise of mean basic hospital costs (+45.3%) was partially offset by lower drug (e.g. antibiotics) costs (~47.5%). 12 FN/FL-episodes (lymphoma n=9, NSCLC n=3) accounted for 57% of total economic burden.

Conclusions
In comparison to 2007, FN/FL-associated costs show a substantial increase. The cost-driving rise in hospitalization costs was attenuated by decreased drug costs, mainly triggered by generic substitutes. FN/FL-associated costs are widely spread and highest for lymphoma patients.

COSTS OF ROUTINE MANAGEMENT OF FEBRILE NEUTROPENIA/LEUKOPENIA IN THREE TUMOUR TYPES IN GERMAN HOSPITALS - A COST STUDY UPDATE

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Introduction
Long-acting granulocyte-colony stimulating factors (laG-CSFs) are widely used as primary prophylaxis (PP) for chemotherapy (Ctx)-induced febrile neutropenia (FN). However, data on these agents used with q2w dose-dense (dd) Ctx (ddCtx) are still limited.

Objectives
This prospective non-interventional study (NIS) was initiated to study laG-CSFs, both pegfilgrastim (PegFG) and lippegfilgrastim (LipFG), as PP for FN (FNPP) associated with ddCtx in a real-world population of pts with various gynecologic cancers.

Methods
Fifty-three pts were treated: PegFG at 6 mg, 27 (cohort A); LipFG and 6 mg, 26 (cohort B). Both Ctx-induced hematological and G-CSF-related toxicities were scored according to CTCAE 4.03. For both cohorts, mean white blood cell count (WBC), absolute neutrophil count (ANC), and absolute lymphocyte count (ALC) was determined at baseline (BL) and for subsequent 1–4 Ctx cycles (C1–4).
Results
Both cohorts were well balanced. However, the hematological effectiveness of LipFG concerning mean WBC, ANC, and ALC was significantly higher compared to PegFG in all Ctx cycles except for ALC in C2 and C4. The incidence of FN, G3-4 neutropenia, and G3-4 lymphopenia during C1-4 was 2.2, 5.6, and 5.6 % in cohort A, and 0, 3.5, and 7.0 % in cohort B. C-CSF-related toxicities were manageable with cohort A vs B: fever (non-FN), 2 (7.4 %) vs 1 (3.8 %) pts; chills, 2 (7.4 %) vs 0 (0 %) pts; bone pain, 2 (7.4 %) vs 4 (15.4 %) pts. All aforementioned differences in clinical activity lacked statistical significance.

Conclusions
PegFG and LipFG were safe and active as FNPP for ddCtx. The higher hematological efficacy of LipFG vs PegFG was not associated with more toxicities.

13-10-P
COMPARATIVE EFFECTIVENESS OF GRANULOCYTE COLONY-STIMULATING FACTORS (G-CSFS) IN PATIENTS AT RISK OF FEBRILE NEUTROPIA (FN) AND FN-RELATED HOSPITALIZATION (FNH) IN CLINICAL PRACTICE: A SYSTEMATIC REVIEW

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Introduction
FN is a serious side effect of myelosuppressive chemotherapy associated with increased risk of hospitalization and other complications. Prophylactic G-CSFs can reduce FN risk, but no systematic reviews have focused on effectiveness of G-CSFs in real-world clinical practice.

Objectives
To perform a systematic review assessing comparative effectiveness of prophylaxis with long-acting (pegfilgrastim) and short-acting G-CSFs (filgrastim, lenograstim) in cancer patients in real-world clinical settings.

Methods
Consistent with the Cochrane Collaboration Handbook (2009) and the Centre for Reviews and dissemination’s Guidance for undertaking Reviews in Health Care (2009), MEDLINE, Embase, BIOSIS, Cumulative Index to Nursing and Allied Health Literature, and Cochrane Library databases were searched for published articles (January 2002-June 2014), and congress databases (MASCC/ASCO/ESMO) and Google Scholar were searched for published abstracts (January 2012-August 2014).

Results
Of 1259 unique records identified, 18 met predefined inclusion criteria (15 retrospective and 3 prospective observational studies; multiple tumor types and chemotherapy regimens). The risks of FN and FNH were statistically compared in 13 studies (FN:7; FNH:6). For patients receiving prophylaxis with pegfilgrastim, FN risk was significantly lower in 3 studies, numerically lower in 3 studies, and numerically higher in 1 study, and FNH risk was significantly lower in all 6 studies compared with short-acting G-CSFs. Prophylaxis with pegfilgrastim versus short-acting G-CSFs was generally associated with fewer chemotherapy dose delays/reductions and less antibiotic use. Costs varied. Few FN-related deaths were reported.

Conclusions
These real-world findings suggest that risks of FN and FN-related complications were generally lower for prophylaxis with pegfilgrastim versus short-acting G-CSFs.

13-11-P
EFFECTIC AND SAFETY OF EMPEGFILGRASTIM, A NOVEL PEGYLATED G-CSF: RESULTS OF DOUBLE-DUMMY PHASE III STUDY IN PATIENTS RECEIVING MYELOSUPPRESSIVE CHEMOTHERAPY

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Introduction
Empegfilgrastim is an innovator drug product of pegylated G-CSF indicated for prophylaxis of neutropenia in patients receiving myelosuppressive chemotherapy.

Objectives
To compare safety and efficacy of a single dose of empegfilgrastim and daily dosing of filgrastim in patients receiving chemotherapy (dorozetaxel 75 mg/m2 + doxorubicin 50 mg/m2).

Methods
One hundred thirty-five patients with breast cancer were randomly assigned at a ratio of 1:1:1 to receive either single s.c. injection of empegfilgrastim at doses of 6 mg or 7.5 mg, or daily s.c. injections of filgrastim at a dose of 5 mcg/kg (until ANC≥1010/L). The primary endpoint was duration of grade 4 neutropenia during the 1st chemotherapy cycle.

Results
Mean duration of grade 4 neutropenia was the shortest in empegfilgrastim 7.5 mg group: 0.905 (6 mg), 0.791 (7.5 mg) and 1.725 days (difference between filgrastim and 7.5 mg groups was -0.934 days, 95 % CI: -1504 to -0.364, p<0.05). Febrile neutropenia was observed in 1 patient at each group. Empegfilgrastim at both doses was as safe and well tolerated as...
daily filgrastim administration. Frequency of G-CSF-specific reactions (ossalgia, arthralgia, weakness, etc.) was equivalent in all groups.

Conclusions
The results of this study demonstrated therapeutic superiority of empegfilgrastim compared to filgrastim, especially at a dose of 7.5 mg.

13-12-P
EARLY ANTIBIOTIC ADMINISTRATION REDUCES LENGTH OF STAY IN SEPTIC PATIENTS WITH CANCER
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Introduction
Sepsis is a time-dependent emergency with early interventions and goal directed therapies shown to improve outcomes. Sepsis is more prevalent in patients with cancer and is associated with poorer outcomes. Neutropenic sepsis, in particular, has high mortality rates and prolonged inpatient hospital stays.

Objectives
To analyse whether early antibiotic administration improves outcome in septic patients with cancer in regards to mortality and length of hospital stay.

Methods
A retrospective study was performed at a specialist oncology hospital in the North West of England. Data was collected and compared for two periods (April–July 2008 and April–July 2012). The nurses on the admission unit have given the responsibility of assessing patients with sepsis, prescribing and administering the first dose of intravenous antibiotics with the aim of improving the speed of this intervention.

Results
During the observation periods data for 225 patients in 2008 and 301 patients in 2012 was collected. The nurse led protocol increased administration of the first dose of intravenous antibiotics within 1 h of admission from 40 to 88.6 %. Earlier antibiotic administration resulted in a statistically significant improvement in length of hospital stay, which was more pronounced in neutropenic patients (see table 1 and figure 1). There was a trend to improved mortality in patients with earlier administration of first dose intravenous antibiotic with a 0.8 % absolute decrease in 30 day mortality.

Conclusions
Early administration of intravenous antibiotics in cancer patients with sepsis is associated with a shorter length of inpatient stay.

13-13-P
SPECTRUM EFFECTS IN THE ACCURACY OF SERUM BIOMARKERS FOR DIAGNOSING INFECTIONS AMONG PEDIATRIC CANCER PATIENTS WITH FEBRILE NEUTROPENIA
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Introduction
C-reactive protein (CRP) and procalcitonin have inconsistent accuracy for diagnosing infections among pediatric cancer patients, which we hypothesize may be attributable to spectrum effects (i.e. subgroup variation).

Objectives
We aimed to explore spectrum effects in the diagnostic accuracy of CRP and procalcitonin among pediatric cancer patients with febrile neutropenia.

Methods
Our eligible population comprised cancer patients aged <20 years who were admitted to Hospital Infantil de Mexico Federico Gomez (Mexico City) for febrile neutropenia between November 2009 and September 2010. Both CRP and procalcitonin were assessed on admission using standard assays. Our outcome of interest was microbiologically-documented infection (MDI). We used random-effects logistic regression to estimate overall and stratum-specific predicted probabilities of MDI separately for CRP and procalcitonin. Predicted probabilities were subsequently used to estimate the area under the receiver operating characteristic curve (AUC) and 95 % binomial exact confidence limits (CL) for each biomarker.

Results
Our study population comprised 133 febrile neutropenia episodes among 104 patients. Overall, the diagnostic accuracy of CRP was higher than procalcitonin (CRP: AUC=0.74, 95 % CL: 0.65, 0.81; procalcitonin: AUC=0.67, 95 % CL: 0.58, 0.75). The accuracy of CRP and procalcitonin varied by subgroups of patients (Table 1), with the greatest absolute difference for cytarabine (e.g. PCT: cytarabine exposed: AUC=0.48, 95 % CL: 0.29, 0.67; cytarabine unexposed: AUC=0.74, 95 % CL: 0.65, 0.82).

Conclusions
Our results suggest marked spectrum effects in the diagnostic accuracy of CRP and procalcitonin, particularly for cytarabine exposure. Our findings may inform more targeted use of CRP and procalcitonin testing among pediatric cancer patients.

Table 1. Overall and stratum-specific accuracy of C-reactive protein (CRP) and procalcitonin for diagnosing microbiologically-documented infections among pediatric cancer patients.

13-14-P
DO PATIENTS NEED TO HAVE BLOOD TESTS EVERY TIME THEY HAVE CHEMOTHERAPY?
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Introduction
Chemotherapy options for advanced non-small cell lung cancer include platin+vinorelbine, the latter often administered day 1 and 8 in 3 week series. Practice is that patients have a blood sample taken everytime they come in for chemotherapy. However, there is only limited data on leucopenia at day 8 and the value of blood tests before vinorelbine-alone administrations is unknown.

Objectives
Frequency of leukopenia at day 8.

Methods
One hundred patients who received cisplan+vinorelbine or carboplatin+vinorelbine from 2010 to 2013 were identified in hospital files. Platin+vinorelbine was administered at day 1 and vinorelbine alone on day 8. Results of bloodtests taken day 8 were sought in the central laboratory system. A leucocyte count of 2.5 or more was considered sufficient for vinorelbine administration.

Results
Twenty-eight patients received cisplatin+vinorelbine for a total of 77 treatment series. In none of these, leucopenia was found. Fifty-six patients received carboplatin+vinorelbine for a total of 155 series. In five instances leucopenia was found: two patients had leucocytes of 1.7 in the 3rd series, 1 patient had leucocytes of 2.0 in the 3rd series and two patients had leucocytes of 2.2 in the 2nd series. None had signs of infection.

Conclusions
Leucopenia was found in 2.1 % of 232 day 8 vinorelbine administrations. The low frequency of leucopenia and the absence of related infections indicate that routine measurement of leucocytes before administration of vinorelbine is perhaps not needed. Not having to do blood test on day 8, would lead to fewer visits to the clinic and save valuable time for the patient.

13-15-P

MYELO001 – A NOVEL SMALL MOLECULE FOR THE TREATMENT OF CHEMOTHERAPY-INDUCED MYELOSUPPRESSION

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Introduction
Chemotherapy remains the most frequent treatment option for patients with malignant tumors. Myelosuppression is a dose-limiting or delaying toxicity of mono and polychemotherapies. Most frequent toxic effects are neutropenia and thrombocytopenia which increase the risk of infections and haemorrhagic syndrome. Infections associated with leucopenia often require hospitalization, G-CSFs and antibacterial or antiviral therapy, with mortality rates of 2–10 %.

Objectives
Summary of recent data of Myelo001, Imidazolyl Ethanamide Pentandoic Acid (IEPA), a novel molecule, that demonstrated efficacy to reduce chemotherapy-induced myelosuppression. At a dose of 100 mg Myelo001 (administered orally once daily starting 5 days prior to the first chemotherapy cycle (CC) until termination of the last CC) significantly reduced grade III/IV toxicity events of neutropenia by about 50 %.

Conclusions
Myelo001 is well tolerated and has a good safety profile. It is a promising novel molecule that warrants further investigation. Myelo001 is planned to enter clinical development in Europe in 2015 to confirm its efficacy in a randomized, double-blind, placebo-control study.
Results

There were 54 males and 56 females with a median age of 56. 83 of 110 (75 %) patients experienced no delays after initiation of G-CSF with 67 (61 %) of those patients receiving four or five injections per cycle. The remaining 27 of 110 (25 %) patients experienced a delay in treatment after G-CSF initiation. Significantly, only seven of those 27 (26 %) patients had a neutropenic delay that occurred as a result of a failed dosing strategy after G-CSF was initiated; five (71 %) were the result of a four dose injection pattern, but none were the result of the five dose injection pattern scheme.

Conclusions

Only 7 of 110 (6.4 %) patients experienced a G-CSF failure. It is recommended that G-CSF be administered on day 4, 6, 8, 10, and 12 of each mFOLFOX6 cycle to maintain absolute neutrophil counts and prevent treatment delays.

13-17-P

GOOD USAGE OF BIOSIMILAR FILGRASTIM: A SUBANALYSIS OF THE NEXT STUDY

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Introduction

Febrile neutropenia (FN) is a major risk factor for infection-related morbidity and mortality in patients receiving chemotherapy. European guidelines recommend prophylactic use of granulocyte-colony stimulating factor (G-CSF) when using chemotherapy regimens associated with a >20 % risk of FN or in less intensive chemotherapy regimens if certain risk factors (eg >65 years, advanced disease) are present. Biosimilar filgrastim (Nivestim™, Hospira Inc.) is a G-CSF licensed for the treatment of neutropenia and FN induced by myelosuppressive chemotherapy.

Objectives

This subanalysis of the NEXT (Nivestim™ safety profile in patients treated with cytotoxic chemotherapy in real-life clinical practice) study compared the use of prophylactic biosimilar filgrastim in patients undergoing chemotherapy with European guidelines for G-CSF use.

Methods

NEXT was a prospective, non-interventional, longitudinal, multicentre study conducted in France. Patients were monitored for 1–6 chemotherapy cycles with three visits at inclusion, during treatment, and following chemotherapy. Individual FN risk factors were analysed.

Results

Overall, 2114 patients were enrolled; this subanalysis includes 2065 patients who received prophylactic biosimilar filgrastim. Of these, 19.4 % received chemotherapy associated with a high risk of developing FN (intermediate risk: 55.6 %; low risk: 25.0 %). Of the patients receiving chemotherapy regimens associated with an intermediate or low risk of FN, 95.4 and 96.5 %, respectively, had ≥1 risk factor for FN (Table 1).

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Patients (%)</th>
<th>Chemotherapy regimen associated with a high risk (&gt;20%) of FN</th>
<th>Chemotherapy regimen associated with an intermediate risk (10-20%) of FN</th>
<th>Chemotherapy regimen associated with a low risk (&lt;10%) of FN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>51.5</td>
<td>58.6</td>
<td>47.9</td>
<td></td>
</tr>
<tr>
<td>Age &gt;65 years</td>
<td>35.9</td>
<td>40.2</td>
<td>55.9</td>
<td></td>
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<td>Advanced disease</td>
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<tr>
<td>≥1 severe comorbidity</td>
<td>25.6</td>
<td>27.5</td>
<td>35.2</td>
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<tr>
<td>Poor nutritional status*</td>
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<td>3.1</td>
<td>7.0</td>
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</tr>
<tr>
<td>WHO performance grade ≥2</td>
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<td>0.1</td>
<td>0.3</td>
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<tr>
<td>Haemoglobin &lt; 12 g/dl at inclusion</td>
<td>37.7</td>
<td>39.1</td>
<td>50.9</td>
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</tr>
<tr>
<td>Concurrent radiotherapy</td>
<td>2.3</td>
<td>2.8</td>
<td>5.0</td>
<td></td>
</tr>
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<td>Prior FN</td>
<td>7.6</td>
<td>6.1</td>
<td>11.5</td>
<td></td>
</tr>
</tbody>
</table>

*Defined as a body mass index <18.5 kg/m²

WHO, World Health Organization

Conclusions

The majority of patients received prophylactic biosimilar filgrastim according to European guidelines for G-CSF use.

13-18-P

HIV TESTING IN PATIENTS WITH CANCER AT THE INITIATION OF THERAPY AT A LARGE US COMPREHENSIVE CANCER CENTER

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Introduction

National and international guidelines recommend HIV testing if the HIV prevalence exceeds 0.1–0.2 %. In cancer patients, routine HIV testing may improve patient outcomes; however, rates of testing among cancer patients before chemotherapy are unknown.

Objectives

To determine rates of HIV testing and positivity before chemotherapy among patients with AIDS-defining and non-AIDS-defining malignancies.

Methods

Retrospective cohort study of adults at a comprehensive cancer center from 01/2004-04/2011 and received chemotherapy. We identified rates of HIV-1/2 testing and positivity before chemotherapy. Multivariable logistic regression determined predictors of HIV testing among patients with AIDS-defining and non-AIDS-defining cancers.

Results

Eighteen thousand eight hundred seventy-four patients with cancer received cancer therapy. Three thousand five hundred fourteen patients (18.6 %) were tested for HIV before chemotherapy. Prevalence of positive HIV test results was 1.2 % (41/3514), and prevalence of newly diagnosed HIV was 0.3 % (12/3514). HIV testing rate was lower in Black than White patients (13.7 % vs 19.2 %), but the prevalence of positive test results was higher in Black patients (4.5 %) than in any other racial/ethnic
Among patients with AIDS-defining cancers, history of NHL, younger age, and registration after 2006 significantly predicted HIV testing. Patients with non-AIDS-defining cancers, younger age and registration after 2006 also predicted HIV testing, as did male sex, history of illicit drug use or sexually transmitted disease, and having a hematologic malignancy, while Black patients had 30% lower odds of HIV testing than White patients.

**Conclusions**

Prevalence of HIV infection was 1.2% among patients with cancer and above thresholds recommended for routine opt-out testing, but the overall HIV testing rate was low.

### 13-19-P

**MICROBIOLOGICAL PROFILE IN HAEMATOLOGY HIGH DEPENDENCE UNIT FROM A TERTIARY CARE CENTRE IN NORTH INDIA**

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**Introduction**

The microbiological profile to suggest the type of infections in any hospital setting is of vital importance. The infection profile primarily in hematology units dictates the type of treatment outcomes and duration of hospital stay, as in any other ICU settings.

**Objectives**

We tried to study the microbiological profile in Hematology High Dependence Unit (HHDU) of a tertiary care center and its impact on the patient outcomes.

**Methods**

We retrospectively reviewed culture reports of blood, urine and sputum of last 6 months in all patients admitted to HHDU with fever. All cultures for aerobic, anaerobic and fungal growth were done using Bactec® technique with secondary plating for antibiotic resistance and organism identification. The type of organisms and antibiotic sensitivities were recorded.

**Results**

Of total 187 culture records, 130 were sterile (Fig 1). Of 57 positive cultures, the organisms grown were Acinetobacter (n-3), Aspergillus (n-2), Burkulderia (n-1), E Coli (n-16), Enterococcus (n-5), Klebsiella (n-4), Lactose Fermenting GNB (N-3), Pseudomonas (n-7), Staphylococcus (n-7), Stenotrophomonas (n-1) and yeast (n-4). The duration of hospital stay was lower by 12 days in patients with sterile cultures (p<0.01). Most of the positive cultures were sensitive to carbapenems and third generation cephalosporins. Despite of low positivity of fungal cultures, most patients received antifungals owing to prolonged neutropenia in these patients.

**Conclusions**

The microbiology profile suggests changing profile of cultures in hematology patients with more gram negative organisms and resistant to the routine antibiotics with sensitivity only to carbapenems and higher generation cephalosporins.

### 13-20-P

**NEUTROPENIA IN ACUTE LEUKEMIA PATIENTS: CONSEQUENCES AND MICROBIOLOGICAL PATTERN OF BLOODSTREAM ISOLATES**

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**Introduction**

The Acute Leukemia (AL) is one of the most important hematological diseases with adverse prognosis and complications.

**Objectives**

Determination of the prognostic impact of the Absolute Neutrophil Count (ANC) on the development of bloodstream infections (BSI)/catheter related bloodstream infections (CRBSI) and the microbiological pattern of pathogens related.

**Methods**

Single-center retrospective study conducted in AL patients [Acute Myeloid Leukemia (AML) and Acute Lymphoblastic Leukemia (ALL)], followed between 1 January 2012 and 31 June 2013, who were
undergoing increasingly myelotoxic induction chemotherapy. The patients’ were compared with a chi-square and Mann–Whitney tests. Groups were compared with a log-rank test. A p value below 0.05 was considered as being statistically significant.

Results
We evaluated 48 patients in 282 episodes of hospitalization (table 1). The number of BSI was superior in patients with AML (p<0.001) although we registered a similar number of CRBSI between AML and ALL patients (p<0.40). The number of negative blood cultures was higher when ANC>500 cells/mm3 (p<0.01) and the number of positive blood cultures decreased in consecutive samples collected from patients with refractory fever. All the third blood cultures were negative (p<0.001).

Table 1

<table>
<thead>
<tr>
<th>Microorganism</th>
<th>AML (31 patients)</th>
<th>ALL (17 patients)</th>
<th>Total (48 patients)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>L.Dominii</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>.37</td>
</tr>
<tr>
<td>L.Pneumoniae</td>
<td>5</td>
<td>2</td>
<td>7</td>
<td>.01</td>
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<td>E.Coli</td>
<td>7</td>
<td>2</td>
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<td>.72</td>
</tr>
<tr>
<td>P.Aeruginosa</td>
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<td>2</td>
<td>.30</td>
</tr>
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<td>S.Aureus</td>
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<td>1</td>
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</tr>
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<td>S.Mitis</td>
<td>4</td>
<td>2</td>
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<td>.16</td>
</tr>
<tr>
<td>S.Epidermidis</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>.22</td>
</tr>
<tr>
<td>Candida Glabrata</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>.47</td>
</tr>
</tbody>
</table>

Table 2

Conclusions
This study suggest that AML patients have more febrile syndrome compared to ALL patients and exists an impact of the ANC on the probability of obtained positive blood cultures.

Introduction
Intravenous iron support simultaneous to erythropoietin administration improve hemoglobin response in myelodysplastic patients. There are many evidences that iron, useful for bacterial growth, might increase risk of infection.

Objectives
Aim of this study is to verify incidence of number of febrile episodes in low-risk myelodysplastic patients supported with iron.

Methods
This study is a retrospective, multicentric study. Between july2008 and december 2014, 107 patients affected by low-risk refractory anemia were studied. Median follow-up was 24 months (R12-60). Twenty patients had no support, 27epo support, 30epo + liposomal iron (14 mg 2 tablets orally/day for 3 months), 15 epo+iron sulfate (525 mg 2 tablets orally/day for 3 months), 15 epo+iv sodium ferrigluconate (62.5 mg iv in NS100 ml in 1 h/day for 5 day/month). Statistical analysis was performed by Chi Square test and Fisher exact test.

Results
In group with no support median packed red blood cells unit (PRBCU) transfused was 0.2/month (R0-0.5). Median number of febrile episodes/year was 1.5 (R0-2). In group supported with epo only medianPRBCU transfused was 0.4/month (R0-0.7). Median number of febrile episodes/year was 2 (R0-2). In group supported with epo + iron sulfate medianPRBCU transfused was 0.3/month (R0-0.6). Median number of febrile episodes/year was 3 (R0-3). In group supported with i.v. sodium ferrigluconate medianPRBCU transfused was 1.5/month (R1-3). Median number of febrile episodes/year was 6(R0-9). In group supported with liposomal iron medianPRBCU transfused was 0.2/month (R0-1). Median number of febrile episodes/year was1(R0-2).

Conclusions
Number of febrile episodes seem not related to basal neutrophil count or hemoglobin level reached after 3 month treatment. Number of febrile
episodes is higher in group with higher transfusion need and in group treated with i.v. sodium ferrigluconate (p = 0.02). Probably liposomal iron support provides a reduced amount of non transferrin bound iron that might block bacterial growth. These data need confirmation on a larger cohort of patients.

13-22-P

CEFTAZIDIME MONOTHERAPY IN PATIENTS WITH COLORECTAL CANCER (CC) AND FEBRILE NEUTROPENIA (FN) AFTER CHEMOTHERAPY

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Introduction

Febrile neutropenia can develop in any form of neutropenia, but is most generally recognized as a complication of chemotherapy.

Objectives

The aim of this study was to confirm the safety and efficacy of ceftazidime monotherapy in patients with FN after chemotherapy.

Methods

We studied all cases with hospital treatment by FN and ceftazidime monotherapy in patients with FN after chemotherapy.

Results

There were 42 patients with CC and 54 FN events. The median age was 44, 2, female 24, male 18. Neutropenia grade: 1–2 (27 %) and 3–4 (73 %). Performance status (ECOG): 1–2 (75 %), 3–4 (25 %). The infection sites were: non-clinical infection evidence 39 %, gastrointestinal 15 %, pneumonia 28 %, genitourinary 14 %, other 4 %. Median duration of hospitalization was 5.6 days and the median duration of neutropenia was 3.2 days. The median duration with fever was 1.5 days, 92 % of cases responded in the first 48 h of treatment.

Conclusions

Ceftazidime is a safety and efficacy empirical treatment in patients with colorectal cancer and febrile neutropenia induced by chemotherapy.

13-23-P

SIGNIFICANT RISK FACTORS OF NEUTROPENIA IN PATIENTS WITH SOLID TUMORS AFTER CHEMOTHERAPY

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Introduction

The risk of serious infection increases as the absolute neutrophil count (ANC) falls to the severely neutropenic range. Patients with neutropenia are more susceptible to bacterial infections and the condition may become life-threatening.

Objectives

The aim of this study was to evaluate the risk factors of chemotherapy-induced neutropenia in patients with solid tumors.

Methods

Sixty-five cases of patients with solid tumors and neutropenia after chemotherapy were retrospectively analyzed. The selection of significant risk factors of neutopenia has been done with logistic regression analysis.

Results

Among 65 patients with solid tumors, 99 episodes of 44 patients experienced neutropenic events, grade 3 and 4 neutropenia was 21 and 11.4 % respectively. Patients who experienced one neutropenic event had a higher risk of a second event, p = 0.04. Advanced age, poor staging and anorexia were associated with greater risk of neutropenia, p = 0.01. Multiple logistic regression analysis indicated that anorexia and poor staging were the most significant risk factors of grade 3 and 4 neutropenia, and anorexia was the most significant risk factor of grade 1 and 2 neutropenia.

Conclusions

Anorexia, poor staging and advanced age were the significant risk factors of neutropenia in patients with solid tumors.

13-24-P

A RARE CASE OF ACHROMOBACTER SPECIES SUBDURAL EMPYEMA IN A PATIENT WITH HAEMATOLOGIC MALIGNANCY

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Introduction

Achromobacter species are gram-negative coccobacillary rods found chiefly in water supplies. They are opportunistic pathogens that affect immunosuppressed patients and are usually involved in sepsis, pneumonia, and urinary tract infections. Infections from Achromobacter species cause significant morbidity and mortality in debilitated individuals.

Objectives

Report a rare case of a subdural empyema from a chromobacter species in a patient with haematologic malignancy.

Methods

A 39-year-old female with multiple myeloma was admitted with fever, headache, vomiting, gait disturbance, and seizures since 4 days. Neurological examination revealed left hemiparesis, nuchal rigidity, and positive Babinski and Kernig’s sign. CT and MRI brain scan were suggestive of right frontal subdural empyema and abscess formation with perifocal edema and contrast enhancement.

Results

The patient underwent right frontal craniectomy and complete removal of subdural empyema and abscess. Achromobacter species was identified from blood samples collected in triplicate and pus cultured on MacConkey agar. The patient received a combination of Piperacillin–tazobactam and TMP/SMX intravenously and gradually recovered. Brain inflammation disappeared during the course of antibiotic therapy within 2 weeks, and the patient was maintained on oral TMP/SMX for a total of 3 months.

Conclusions

Achromobacter species is rarely recognized as a human pathogen. However, it can cause serious infections in patients with certain underlying illnesses. Eradication of these infections requires prolonged therapy with antimicrobial agents and treatment of any pathogenic source. Isolation of Achromobacter from subdural space was a completely unusual finding. Microbiology laboratories must be vigilant and meticulous about the laboratory diagnosis of Achromobacter family.

13-25-P

SUCCESSFUL OUTCOME OF MUCORMYCOSIS WITH ANTFUNGAL TREATMENT AND SURGERY IN A CHILD WITH ACUTE LEUKEMIA

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Introduction
Mucormycosis is a fungal infection with high morbidity and mortality in children with hematologic malignancies.

Objectives
We present a pediatric case treated successfully with antifungal agents, surgery and continued with posaconazole (which is not widely used in children).

Methods
Retrospective case report.

Results
An 8 year old boy was treated for ALL with BFM-ALL protocol. At the end of of delayed intensification, he was hospitalised with febrile neutropenia. Cefepime iv was initiated. At 48 h, fever continued, the patient began to complain of mild pain in the left orbita. There was no pathology in the examination by the ophthalmologist and otolaryngologist. An MRI revealed orbital cellulitis and sphenoid sinus infection. Voriconasole iv was initiated, after a day, periorbital swelling was observed, iv amphotericin B was added. After 5 days, fever continued in an MRI progressive infection signs and periorbital abscess formation was observed. Surgical drainage, curettage and liposomal amphotericin containing absorbable gelatin sponge was inserted locally. Fever subsided in 24 h. Chemotherapy was initiated again. No pathogen was detected in cultures. Mucormycosis was diagnosed by pathology. Liposomal amphotericin was continued during delayed intensification and the first month of ALL maintenance treatment. Then antifungal treatment was continued with oral posaconazole as ambulatory treatment for a total of 6 months of antifungal treatment. The patient has remained in remission for ALL and free of fungal infection.

Conclusions
Mucormycosis has a high morbidity and mortality. Suspecting a fungal infection, timely diagnosis and appropriate aggressive treatment including antifungal treatment and surgery are key component for a successful outcome.

13-26-P
INTRATHecal MORPhine PUMP INFECTION TREATED SUCCESSFULLY BY ITRAREservoir TEICOPlANIN INFUSION
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Introduction
Intrathecal morphine (ITM) administration is a widely accepted therapy for intractable cancer pain. One serious complication of this technique is pump infection. Treatment of this, according to traditional worldwide practice, requires removal of the device.

Objectives
This article reports our experience in treatment of infection of an ITM pump, without removal of the device via continuous intrareservoir antifungal administration.

Methods
A 68 year old female suffering from final stage lung cancer underwent an ITM programmable infusion pump. She was admitted because of fever, without removal of the device. After emptying of the reservoir and the catheter, oral morphine and fentanyl patch were started, and teicoplanin were instilled into the reservoir, programming the pump to deliver a continuous rate of 0.00694 ml/h (20 mg per day).

Results
After 15 days of simultaneous intravenous and intrareservoir treatment, the patient was improved and became afebrile. Culture of aspirated reservoir fluid and CSF via catheter access port became sterile. Morphine was reintroduced, and the patient reportedly had a significant pain relief.

Conclusions
Infection of an intrathecal pump most often necessitates removal of the device. However, in certain patients, with mild symptomatology, an initial attempt could be made for conservative management. In cancer patients with limited life expectancy who are receiving intrathecal opioids, suppression of the infection without removal of the high cost device should be considered.

13-27-P
NOCARDIAL CEREBRAL ABSCESS IN A PATIENT WITH LYMPHOMA
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Introduction
Nocardial infection is not infrequently found in patients with immunosuppression, neoplastic diseases, and recipients of organ transplants. However, large series in patients with cancer have not been described.

Objectives
Report a case of pulmonary and brain nocardiosis in a lymphoma patient.

Methods
A 52 year old female, known case of non-Hodgkin lymphoma for 6 years was treated with steroids and chemotherapy and developed steroid induced diabetes mellitus. She was admitted because of a nonproductive cough and fever since 2 months. Five days ago, she became confused and developed right hemiparesis. Brain MRI scan was consistent with abscess formation in the left tempo-parieto-occipital region with significant perifocal edema. CT scan of the chest revealed diffuse bilateral infiltrates.

Results
She was initially treated with broad empiric intravenous antibiotic coverage, and became afebrile within 96 h. Since there was no significant neurological improvement, the patient underwent craniotomy and the abscess was excised with its capsule. Nocardia asteroides was identified from pus by conventional and PCR techniques. The patient received a combination of TMP/SMX and Meropenem and gradually recovered. Brain and lung inflammation disappeared during the course of antibiotic therapy within 2 months, and the patient was maintained on oral TMP/SMX for a total of 12 months.

Conclusions
Nocardiosis, although infrequent, is an important cause of morbidity and mortality in patients with cancer. Because of its low incidence, nocardiosis is usually not considered in the initial diagnosis and delay until detection from a surgery specimen could have serious consequences.

Nutrition
14-01-O
SWALLOW ASSESSMENT IN HEAD AND NECK CANCER PATIENTS TREATED WITH MULTI-MODALITY THERAPY: COMPARISON OVER TIME OF SELF-REPORT, PHYSICAL EXAM FINDINGS AND OBJECTIVE MEASURES (R01 CA149113-01A1)
M. Maddalo, M. Dietric, J. Dong, S. Ridner, B. Murphy
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Department of Biostatistics, Vanderbilt Ingram Cancer Center Vanderbilt University Medical Center, Nashville, USA
Introduction
We reported a cross sectional analysis demonstrating a correlation between the Vanderbilt Head and Neck Symptom Survey (VHNSS) subscales swallowing/nutrition and objective measures of swallowing function (both NOMS and DOSS scales). We now present the prospective longitudinal data related to swallowing function.

Objectives
Describe the trajectory of patient reported dysphagia, assessment of internal lymphedema, feeding tube status, weight and objective measures of swallowing function post treatment in HNC patients.

Methods
Ninety-six patients with locally advanced HNC planned for chemoradiation were enrolled. Symptoms were assessed at baseline, end-of-treatment, every 6 weeks during the first year of follow-up, and two times during the second year. Assessment included: self-reported swallowing function, endoscopic assessment of lymphedema (Patterson Scale), weight, and feeding tube status. Patients were seen routinely by Speech and Language Pathologists. Modified barium swallows were done at baseline and 18 months post treatment in all patients, and if clinically indicated).

Results
Swallow function deteriorated during treatment. Swallowing liquids improved quickly post treatment. Swallowing solids improved over time but remained problematic. At 72 weeks post treatment 44.8 % of patients had mild, 10.3 % moderate and 3.4 % severe self-reported dysphagia. Only 3 (5.2 %) of patients remained feeding tube dependent. Similar to self-reported dysphagia, internal lymphedema increased immediately post treatment, improved over time but did not return to baseline.

Conclusions
Aggressive swallow therapy is associated with low rates of feeding tube dependence. Swallowing solids remains a long term problem requiring assessment. The causal relationship between internal lymphedema and dysphagia warrants study.

14-02-O
DIETARY AND EXERCISE INTERVENTIONS TO IMPROVE QUALITY OF LIFE, METABOLIC RISK FACTORS AND ANDROGEN DEFICIENCY SYMPTOMS IN MEN WITH PROSTATE CANCER UNDERGOING ANDROGEN DEPRIVATION THERAPY
L. Telen1, R. Chan2, A. Chan3, E.A. Isenring1, I. Vela4, W.J. Inder5, A.L. McCarthy6
1Faculty of Health and Medicine, Bond University, Gold Coast, Australia
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3Department of Urology, Princess Alexandra Hospital, Brisbane, Australia
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6Faculty of Health, Queensland University of Technology, Brisbane, Australia

Introduction
Lifestyle interventions might be useful in the management of adverse effects of androgen deprivation therapy (ADT) in men with prostate cancer.

Objectives
To examine the effects of dietary and exercise interventions on quality of life (QoL), metabolic risk factors and androgen deficiency symptoms in men with prostate cancer undergoing ADT.

Methods
CINAHL, Cochrane library, Medline and PsychINFO were searched to identify randomised controlled trials published from January, 2004 to October, 2014. Data extraction and methodological quality assessment was independently conducted by two reviewers. Meta-analysis was conducted using RevMan® 5.3.5.

Results
Of 2183 articles retrieved, 11 studies met the inclusion criteria and had low risk of bias. Nine studies evaluated exercise (resistance and/or aerobic and/or counselling) and three evaluated dietary supplementation. Median sample size = 79 (33–121) and median intervention duration was 12 weeks (12–24). Exercise improved QoL measures (SMD 0.26, 95 % CI −0.01 to 0.53) but not body composition, metabolic risk or vasomotor symptoms. Qualitative analysis indicated soy (or isoflavone) supplementation did not improve vasomotor symptoms; however, may improve QoL.

Conclusions
Few studies have evaluated the efficacy of lifestyle interventions in the management of adverse effects of ADT. We found inconclusive results for exercise in improving QoL and negative results for other outcomes. For soy-based products, we found negative results for modifying vasomotor symptoms and inconclusive results for improving QoL. Future work should investigate the best mode of exercise for improving QoL, and other interventions such as dietary counselling should be investigated for their potential to modify these outcomes.

14-03-O
CANCER MALNUTRITION AND CLINICAL OUTCOMES: RESULTS FROM TWO POINT PREVALENCE STUDIES IN AUSTRALIA
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1School of Nursing, Vanderbilt University Medical Center, Nashville, USA
2Department of Medicine, Vanderbilt University Medical Center, Nashville, USA

Introduction
We searched to identify randomised controlled trials published from January, 2004 to October, 2014. Data extraction and methodological quality assessment was independently conducted by two reviewers. Meta-analysis was conducted using RevMan® 5.3.5.
Introduction
Cancer-related malnutrition is a significant supportive care need in the cancer population, requiring timely screening, assessment and invention to improve patient outcomes.

Objectives
To compare the prevalence of malnutrition and associated clinical outcomes for in-patient and ambulatory adult patients receiving chemotherapy and/or radiotherapy.

Methods
A point prevalence study of adult cancer patients conducted at multiple sites across the state of Victoria, Australia in March 2012 and repeated in May 2014. The Malnutrition Screening Tool (MST) and Patient-Generated Subjective Global Assessment (PG-SGA) were used to determine the risk and presence of malnutrition, respectively.

Results
A total of 1679 patients from 16 sites were included in 2012, and 1913 patients from 24 sites in 2014. There were no differences in demographics, tumour type or treatment modality between the two cohorts, except for a higher proportion of patients with metastatic disease in 2014 (35 % vs 40 %, p<0.01). Overall malnutrition prevalence reduced from 31 % in 2012 to 26 % in 2014. This reflects a significant reduction in malnutrition prevalence in patients receiving ambulatory chemotherapy, those with upper gastro-intestinal tract or colorectal tumours and those residing outside of metropolitan areas (Table 1).

Malnutrition was consistently associated with poorer outcomes in both cohorts (Table 2).

Conclusions
Malnutrition prevalence is high and associated with poorer outcomes in cancer patients. Overall prevalence reduced between 2012 and 2014, possibly a result of increased awareness, improved governance practices and targeted interventions to address cancer malnutrition.

Introduction
Upper gastrointestinal cancer patients are a unique population as their illness predisposes them to multiple nutritional co-morbidities. Specific nutritional interventions are often not sought until severe malnutrition is evident thus limiting the patient’s response to therapy, diminishing their Quality of Life (QOL) and overall survival.

Objectives
This pilot study compared early and intensive nutrition intervention (INI) to standard nutrition care (SNC) for improving health outcomes amongst patients with primary oesophageal or stomach cancer.

Methods
Patients were randomised to either INI or SNC. INI commenced within 1 week of diagnosis, continued weekly for 18 weeks and was delivered via telephone or face-to-face. SNC involved no dietetic intervention until admission for treatment. Outcome measures were collected at baseline, during the intervention period and at week 26. The primary outcome was Health-Related Quality of Life (HR-QOL) using the global EQ-5D, and the cancer specific EORTC QLQ-C30 tools. Nutritional status a secondary outcome was evaluated using the Patient Generated-Subjective Global Assessment (PG-SGA).

Results
At baseline the prevalence of malnutrition was similar between groups (90 %). Five deaths occurred in the SNC group and one in the INI group (p=0.06). At week 26, HR-QOL scores (baseline-adjusted) were higher in the INI group (n=10) compared with SNC group (n=11) (EQ-5D p=0.001; EORTC QLQ-C30 p<0.001). Overall the INI group had greater weight gain (regression coefficient 6.46, 95 % CI 3.01, 9.92, p<0.001)
and lower nutritional risk (PG-SGA score −10, −12.8, −7.2, \(p<0.001\)), compared with SNC.

**Conclusions**

This study demonstrates the potential of a novel nutrition care model in benefitting health outcomes in newly diagnosed upper gastrointestinal cancer patients.

14-05-P

**IMPACT OF NUTRITIONAL STATUS ON TREATMENT TOXICITY IN CONCOMITANT CHEMO-RADIATION**

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**Introduction**

Nutritional support is an indispensable component of supportive care and QOL. Its role as adjunctive therapy in certain cancers also exists. In addition there are sporadic observations of higher incidence of treatment-related adverse effects in patients with poor nutrition.

**Objectives**

To explore the impact of nutritional status on toxicity of concomitant chemoradiation in laryngopharynx, cervix and esophageal cancer.

**Methods**

Total 743 patients (laryngopharynx=280, cervix=415, esophagus=48) receiving concomitant chemoradiation were studied. Patients were categorized as *under-nourished* and *well-nourished* on the basis of assessment criteria including clinical examination, anthropometric measurements, hematological parameters, DNCB challenge and 24h urinary BUN. Major treatment variables e.g. radiotherapy dose-fractionations and chemotherapy protocols (Cisplatin 40 mg/\(M^2\) weekly) were evenly matched for both groups. All patients were assessed for early and late reactions (as per RTOG criteria) during treatment and follow up.

**Results**

Minimum follow up was 48 months. For laryngopharynx patients grade 3/4 mucositis occurred in 106/186 ‘Under-nourished’ and 6/94 ‘Well-nourished’ (\(P<0.001\); odds ratio 19.43 with C.I. 7.74–52.07). Cervix patients had grade 2/3 proctitis in 57/272 ‘Under-nourished’ and in 27/143 ‘Well-nourished’ (\(P=NS\); odds ratio 1.14 with C.I. 0.66–1.90); grade 3 cystitis in 15.4 % ‘Under-nourished’ and 14.7 % ‘Well-nourished’ (\(P=NS\)). Corresponding data for grade 3 acute esophagitis for esophageus patients were 13/38 in ‘under-nourished’ and in 1/10 (\(P<0.005\)) in ‘well-nourished’. Incidence of late toxicity was comparable for both groups of all three cancer sites.

**Conclusions**

Nutritional status has significant influence on acute reactions in head & neck and esophagus though has no statistically significant impact on pelvic radiotherapy.

14-06-P

**THIAMINE (VITAMIN B1) WOULD NOT AFFECT PROGNOSIS IN END-STAGE CANCER**

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**Introduction**

Thiamine is an essential vitamin in glucose metabolism. Deficiency of this leads to very serious clinical conditions known as metabolic acidosis and Wernicke’s encephalopathy.

It had been reported that thiamine deficiency in patients admitted to a palliative care unit, but the influence to prognosis and QOL in end-stage cancer patients was unknown. Moreover, thiamine deficiency has also known for the relevance of the end-of-life delirium, this affects the QOL of patients.

**Objectives**

The aim of this study was to clarify prognosis and QOL of end-stage cancer patient depending on thiamine medication.

**Methods**

A case–control study, admitted more than 30 days for palliative care in cancer from June 2013 through January 2015 at Higashi Sapporo Hospital in Japan.

Thiamine was administered intravenously by decision of the attending physician. Delirium was defined by those that satisfies diagnostic criteria. The primary objective was to compare survival time on thiamine medication; secondary end points were delirium to require pharmacological treatment.

**Results**

Of 1243 patients who were admitted for palliative care in cancer, 713 patients were enrolled.

There were 434 patients (60.8 %) with thiamine medication. In analyses comparing at the survival time with (vs. without) thiamine, there were no statistically significant differences (53.4 days vs. 50.4 days; \(p=0.5\)).

Of 388 patients (52.9 %) with delirium, there were no difference on delirium between with (vs. without) thiamine; (33.8 % vs. 20.6 %; odds ratio, 1.04; 95 % CI, 0.92 to 1.18).

**Conclusions**

Thiamine would not affect prognosis in end-stage cancer. We think a thiamine deficiency would not be relevance of end-stage-delirium than any other factors.

14-07-P

**TOTAL PARENTERAL NUTRITION (TPN) UTILIZATION IN A LARGE CANCER CENTER**

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3Department of Bistatistics, UT MD Anderson Cancer Center, Houston, USA

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**Introduction**

Available literature information on TPN in cancer patients, such as its utilization among different cancer types and long term survival, is limited. A large scale description of TPN utilization in cancer patients is completely lacking in current literature.

**Objectives**

To characterize the utilization of TPN in a large comprehensive cancer center.

**Methods**

We reviewed the Nutritional Support Team computer records of 4105 consecutive patients who received TPN support at our cancer center in 08/01—08/08/13. Patients under 18 years old, nonmalignant diseases, and missing data were excluded. Data regarding cancer type, duration of...
TPN support, mortality rate, and first day of TPN support to death were collected.

**Results**

Of 3842 patients, the mean age at the time of initiation of TPN was 57 years and 56% male. Gastrointestinal, pancreatic, and hepatobiliary cancer patients accounted for 31.42% TPN requirements, gynecological, genitourinary, pelvic, and peritoneal 25.2%, hematologic 24.42%, head, neck, and thoracic 8.88%, and other 10.08%. (table 1) During the study period 2549 (66%) had died. Figure 1 shows Kaplan-Meier curve for overall survival from initiation of TPN by cancer type. The median duration of TPN is 9 days with the range of 0 and 1947 days. Table 2 shows duration of TPN by cancer type.

<table>
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<th>Cancer Type</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
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<td>24.42%</td>
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<tr>
<td>GI/Hepatobiliary/Pancreas</td>
<td>1207</td>
<td>31.42%</td>
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<tr>
<td>Gyn/GU/Pelvis/Peritoneum</td>
<td>996</td>
<td>25.20%</td>
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<tr>
<td>Head and Neck/Thoracic/Lung/Mediastinum</td>
<td>341</td>
<td>8.88%</td>
</tr>
<tr>
<td>Others</td>
<td>387</td>
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</table>

**Conclusions**

This study is the largest on cancer patients who received TPN support and highlights the differences of TPN utilization among different cancer types and the association with short term and long term survival in different patient populations.

**14-08-P**

**INCREASED PREVALENCE OF BILE ACID MALABSORPTION IN PATIENTS WITH BREAST CANCER AND CHRONIC DIARRHOEA**

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**Introduction**

Bile acid malabsorption (BAM) is has been increasingly recognized as a cause of chronic diarrhoea, and forms part of differential diagnosis of new-onset diarrhoea after pelvic radiotherapy. Its prevalence in patients with erratic bowel function after treatment for breast cancer has not been studied.

**Objectives**

Establish the proportion of breast cancer patients with chronic loose stools/diarrhoea and bile acid malabsorption.

**Methods**

Between January 2006 and September 2014, 108 patients with breast cancer were referred to our clinic due to gastrointestinal symptoms. Of those, 66 had chronic diarrhoea (intermittent on continuous type 6–7 stools on Bristol Stool Chart) and/or other symptoms. 23 of them were included in the study as they underwent a SeHCAT scan (Figure 1). The baseline characteristics, most frequent gastrointestinal symptoms and types and doses of cancer treatment received were recorded.

**Results**

BAM was then diagnosed in 13/23 patients (56.5%). Their baseline characteristics and most frequently reported symptoms are summarized in Table 1. There were no statistically significant differences between
patients with and without BAM in types of treatment administered, dose of chemotherapy or total radiation dose and both groups of patients had similar baseline characteristics. BAM was treated with low fat diet in 10/13 patients, and bile acid sequestrant colesveleam was added in 7/13 patients.

Conclusions

The prevalence of BAM in breast cancer patients treated with multiple therapy modalities and erratic bowel function is higher than in normal population. Further studies are necessary to establish possible aetiological associations for its development.

NUTRITIONAL CONCERNS EXPERIENCED BY HEAD AND NECK CANCER PATIENTS RECEIVING CHEMORADIATION AT BC CANCER AGENCY, VANCOUVER CENTRE (BCCA-VC) IN 2013

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2Clinical Nutrition, BC Children’s Hospital Sunnyhill Campus, Vancouver, Canada
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Introduction

Eighty percent of head and neck cancer (HN) patients are expected to experience significant weight loss while undergoing concurrent chemoradiation resulting in malnutrition. Malnutrition may decrease response to treatment, reduce quality of life, delay healing and impact mortality and morbidity. To date, there is limited literature that documents HN patients’ nutritional concerns from diagnosis through to treatment and acute post-treatment recovery.

Objectives

To describe the nutritional concerns experienced by HN patients receiving concurrent therapy at BCCA-VC at 4 time points.

Methods

A retrospective study was conducted on 81 newly admitted outpatients using the Cancer Agency Information System (CAIS) and the Outcomes and Surveillance Information System (OaSIS) databases. Data were analyzed using frequency distributions at initial nutrition screening (T0), first dietitian consult (T1), treatment conclusion (T2) and 4–6 weeks post-treatment (T3).

Results

At T0, 10% of patients were identified at high risk for malnutrition. Predominant symptoms impacting nutritional status at T2 and T3 were dysgeusia, odynophagia, xerostomia and anorexia. Most patients consumed a regular diet at T0, liquid diet at T2 and dental soft/minced diet at T3. Twelve percent of patients received enteral nutrition support. Ninety percent of patients lost weight during treatment with an average loss of 9%. Almost all (98%) patients continued to lose weight at T3.

Conclusions

The results support the need for ongoing nutrition screening and aggressive nutrition intervention for this patient population. A comprehensive approach to supportive care in the post-treatment period is warranted as weight loss and eating concerns persist weeks after treatment.

MALNUTRITION IN PATIENTS WITH LUNG CANCER: RESULTS FROM CANCER SERVICES IN VICTORIA, AUSTRALIA


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Introduction

Cancer-related malnutrition is a significant supportive care need, requiring timely screening, assessment and invention to improve patient
outcome. Patients with lung cancer are at increased risk of malnutrition due to the metabolic impact of the tumour and treatment toxicities.

**Objectives**
To (1) determine the prevalence of malnutrition in patients with lung cancer and (2) explore demographic and clinical variables associated with malnutrition in this group.

**Methods**
Malnutrition prevalence studies of adult cancer patients were conducted at across the state of Victoria, Australia in 2012 and 2014. The Malnutrition Screening Tool (MST) and Patient-Generated Subjective Global Assessment (PG-SGA) were used to determine the risk and presence of malnutrition, respectively.

**Results**
A total of 2592 patients participated in these two studies, of which 12 % (n=315) had a primary diagnosis of lung cancer. Overall 35 % of lung cancer patients were malnourished, representing the third highest volume of malnutrition by tumour stream.

The only demographic variable associated with increased odds of malnutrition was living alone (OR 1.8, 95 % CI 1.0–3.3, p=0.03) with 48 % of all patients who live alone found to be malnourished.

Malnutrition was increased in those patients admitted to hospital (OR 7.2, 95 % CI 3.9–13.5, p<0.0001). Patients with lung cancer receiving radiotherapy were more likely to be malnourished (OR 2.9, 95 % CI 1.1–3.5, p=0.0094) compared to other tumour groups.

**Conclusions**
Malnutrition prevalence is high in patients with lung cancer. Patients living alone, admitted to hospital and receiving radiotherapy are at greater risk and should be monitored closely.

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**14-11-P**

**LONG TERM USE OF A POLYPHENOL RICH FOOD SUPPLEMENT AFTER THE UK POMI-T STUDY – PROSTATE TUMOUR GROWTH ON MRI MATCHES PSA DYNAMICS**

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**Introduction**
A recent double blind randomised of evaluation of a polyphenol rich food supplement containing pomegranate, green tea, broccoli and turmeric showed a significant slowing of PSA progression in men with prostate cancer, managed with surveillance. This effect was likely to be via its anti-cancer properties of its ingredient reported in laboratory experiments, although there was no formal correlation of disease seen on MRI images with PSA.

**Objectives**
To correlate PSA with tumour volume seen on MRI among long term users of Pomi-T.

**Methods**
One hundred two men with prostate cancer managed with surveillance who had at least two high resolution diffusion weighted MRI 1 year apart, who were taking Pomi-T were identified. All images were reviewed within our multidisciplinary team meeting.

**Results**
The average PSA at the first MRI was 7.98 and second MRI was 5.8 microg/dl (27.3 % improvement). 82 % had no disease progression. The PSA dynamics were:

<table>
<thead>
<tr>
<th>Category of disease (MRI)</th>
<th>1st PSA</th>
<th>2nd PSA</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>None seen</td>
<td>11.9%</td>
<td>8.25</td>
<td>2.75</td>
</tr>
<tr>
<td>Improved</td>
<td>6.9%</td>
<td>5.1%</td>
<td>5%</td>
</tr>
<tr>
<td>Stable</td>
<td>63.4%</td>
<td>5.9%</td>
<td>2%</td>
</tr>
<tr>
<td>Progression</td>
<td>17.8%</td>
<td>11.1%</td>
<td>2%</td>
</tr>
</tbody>
</table>

No man with MRI progression had a falling PSA, all men with MRI improvement had a falling PSA. There was a 93.5 % difference of mean PSA between men with MRI improvement and deterioration (chi² p>0.0001).

**Conclusions**
There was a strong link between PSA dynamics and MRI tumour definitions which provides strong reassurance that PSA effect of pomi-T correlates with MRI tumour status.


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**14-12-P**

**THE EATING EXPERIENCE IN LONG TERM SURVIVORS OF HEAD AND NECK CANCER: ADAPTIVE AND MALADAPTIVE BEHAVIORS**

H. Ganzer, P. Rothpletz-Puglia, B.A. Murphy, L. Byham-Gray, R. Touger-Decker

**Introduction**
The diagnosis and treatment for head and neck cancer (HNC) may result in late effects that impact eating.

**Objectives**
To obtain a deeper understanding of the eating experience in long term survivors of HNC (>3 years post treatment). This study explored adaptive and maladaptive techniques used by participants

**Methods**
Purposive sampling was utilized and ten long term survivors of HNC participated. A mixed-methods approach was used; exploratory qualitative research using content analysis and summary statistics were used to describe demographic, clinical characteristics and the Vanderbilt Head and Neck Symptom Survey version 2.0 scores (VHNSS 2.0).

**Results**
The eating experience was viewed favorably; in contrast findings from interviews and the VHNSS 2.0 identified late effects that impacted participants’ daily lives. Symptom burden remained problematic (xerostomia, mucosal sensitivity, dysphagia and dygeusia) resulting in 1) dietary adaptation 2) maladaptive food selection and 3) downplaying of symptoms. Adaptation resulted in participants being able to more comfortably consume food. Mal-adaptation identified strategies that adversely impacted oral intake (i.e. avoiding fruit/vegetables, meat, and bread).

**Conclusions**
In long term survivors of HNC symptom burden impacted eating; despite challenges participants reported enjoyment in eating. Adaptation allowed participants to consume food; however maladaptive diet strategies resulted in the avoidance of food/food groups. This may adversely impact diet quality which may result in micro/macronutrient deficiencies. Health professionals should explore the eating experience throughout the trajectory of care, utilizing techniques such as a dietary recall and probing questions that identify potential nutritional deficiencies in long term survivors of HNC.
ORAL SUPPLEMENTS AND NUTRITIONAL SUPPORT

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Introduction

- Cancer malnutrition is frequent and causes poor patient outcomes.
- Individual dietary interventions can improve nutritional intake.
- Oral supplements provide nutritional support when dietary intake is low.
- Success depends on patient acceptability and compliance.
- Four low-volume, nutritionally complete oral products were tested.

Objectives

- Record compliance with nutritionally complete Oral Nutritional Supplements (ONS) in the elderly.
- Measure palatability across a range of products and flavours.
- Test gastro-intestinal tolerance

Methods

- Healthy volunteers (n=120)>65 years recruited in seven locations.
- Compliance: Participants consumed ONS twice daily for 4 weeks and maintained daily compliance diaries.
- Palatability: On days 1, 3 and 7, palatability was rated (1–9) for: a) smell b) taste c) texture d) aftertaste.
- Gastric Tolerance Symptoms: Daily symptom ratings recorded for 7 days.
- Descriptive statistics analysed compliance, palatability and gastric tolerance.

Results

- Compliance: ≥90 % consumed the amount prescribed across all 4 products for each of 30 days. Rest took at least half the prescribed amount.
- Palatability: Palatability ratings indicated all four products were acceptable. Median: 6.2. Range: 5.5–6.7.
- Gastric Tolerance Symptoms: Tolerance was high with only a few mild symptoms in some volunteers.

Conclusions

1. Oral nutritional supplements are an acceptable and user friendly way to assist nutrition.
2. Low-volume, nutrient-dense supplements may improve both compliance and dietary intake.
3. Tolerance was good and the effect sustained.
Objectives

1. Review the prevalence of nutritional supplement use in hospice inpatients
2. Document commonly prescribed supplements and routes of administration
3. Evaluate rationale for initiation and discontinuation
4. Review prevalence of appetite stimulant prescription

Methods

A retrospective medical record review of 102 consecutive deceased patients was conducted at a palliative medicine unit. A data recording form evaluated nutritional supplement use. Descriptive statistics were generated by Microsoft Excel.

Results

The study cohort comprised 92 cancer and ten non-cancer diagnoses. Forty-two percent (43/102) were prescribed a supplement, with 33% prescribed more than one. 14% (6/43) received supplements by enteral/parenteral routes. Eighty-six percent (37/43) were administered orally. The majority were prescribed prior to admission, most commonly iron. Thirty-five percent (15/43) started supplements during admission. Vitamin C was most frequently commenced (5/15), but for oral hygiene rather than nutrition. Prescription and discontinuation rationales were recorded in less than half. In 43% (17/43) supplements were continued until the day of death. Forty-nine percent (50/102) were prescribed steroids. Although used for multiple indications, they may have had an appetite stimulant effect.

Conclusions

1. Almost half received one or more oral supplements
2. Rationales were recorded in less than 50% of cases
3. Supplement polypharmacy is a key issue
4. Vitamins and minerals were most used
5. Future studies should focus on the impact of supplements and stimulants on appetite, weight and quality of life

14-16-P

NUTRITION AND QUALITY OF LIFE IN ADVANCED CANCER PATIENTS

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4Oncology, Leumit Healthcare Service, Ashdod, Israel

Introduction

Proper nutrition an important factor in helping cancer patients cope with the difficulties of the disease and its treatments. However, the ability to eat well is hampered by symptoms, such as nausea, diarrhea, constipation, mouth sores, and fatigue. Many cancer patients suffer from nutritional difficulties, which often exacerbate their physical and psychological state.

Objectives

To examine nutritional characteristics in advanced cancer patients, to determine their relation to demographic and medical factors and to explore their impact on quality of life (QOL).

Methods

The participants were 61 advanced cancer patients, living at home, getting palliative treatment, without parenteral nutrition. They were administered questionnaires about demographic and medical background, nutritional habits and difficulties and the Multidimensional QOL Inventory. Medical information was extracted from the files.

Results

Most patients were eating less than before, due to difficulties in eating and symptoms e.g., bizarre taste, nausea. Regression analyses showed that (a) demographic and medical variables predicted the indices of nutritional difficulties and changes in nutrition, with mobility and gender (being female) as the major predictors; and (b) the index of nutritional difficulties and demographic and medical factors, mainly mobility and gender, predicted QOL.

Conclusions

Nutritional difficulties are common, they are lower when mobility is high, and they affect negatively QOL. For improving QOL it is advisable to minimize maximally nutritional difficulties.

14-17-P

CLINICAL AND NUTRITIONAL CHARACTERISTICS OF BRAZILIAN CANCER PATIENTS IN PALLIATIVE CARE

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Introduction

In Brazil, most patients with cancer still have late diagnosis, with metastatic disease. In this scenario, it is essential to promote quality of life of patients and their families through palliative care assistance. Nutritional evaluation, assessment and prescription had no specific guidelines for palliative and end of life cancer patient’s care.

Objectives

To characterize, using data from electronic medical records, clinical nutrition status and prescription of oncology patients in palliative care assisted from June 2011 to June 2013.

Methods

Retrospective descriptive study.

Results

In this period there were 805 admissions in palliative care of HEAB; and 128 of these were oncology patients in palliative care. Considering oncology patients, 57.03% were male, with a mean age of 64.27±16.64 years, and with primary tumor located predominantly in the digestive, urological and lung organs. About one-half of patients underwent any previous oncological treatment and about 60% had metastases. Comorbidities or other concomitant diseases were present in 65.25% of patients. Performance status by Karnofsky scale averaged 19.77±7.15%; 60.83% of patients were malnourished, with significant weight loss and nutritional deficits. Regarding the feeding of patients, the estimated energy and macronutrients supply were superior to the daily nutritional needs.

Conclusions

Cancer patients analyzed in were close to the terminal illness, considering the low performance status identified at admission. About nutritional aspects, most of patients had important deficits in nutritional status. Calories and nutrients were the focus of nutritional supplementation and this offer was higher than the estimated nutritional needs.

14-18-P

EMU OIL PROMOTES BODYWEIGHT GAIN IN A MOUSE MODEL OF INFLAMMATION-ASSOCIATED COLORECTAL CANCER

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Introduction

Emu oil (EO) has been used traditionally in Indigenous Australian medicine for the treatment of wounds, burns, and other inflammatory conditions. Recent studies have suggested that EO may have therapeutic potential in inflammatory diseases such as arthritis and Crohn’s disease. The aim of this study was to investigate the effects of EO on bodyweight and weight gain in a mouse model of inflammation-associated colorectal cancer.

Methods

Male C57BL/6 mice were assigned to one of three groups: control, colon carcinoma (CC), and colon carcinoma + emu oil (CC+EO). Mice were fed a standard chow diet and drank water ad libitum. Bodyweight and food intake were monitored daily. At the end of the experiment, the mice were sacrificed, and the colon tissues were collected for histological analysis.

Results

EO significantly increased bodyweight gain in the CC+EO group compared to the CC group. Histological analysis revealed a decrease in inflammation and tumour formation in the colon tissues of the CC+EO group.

Conclusions

EO administration promotes bodyweight gain in a mouse model of inflammation-associated colorectal cancer, possibly by reducing inflammation and tumour formation.

Acknowledgments

This study was supported by the Cancer Research UK (Grant Ref: C1399/A10695). The authors would like to thank the staff of the animal facility at the University of Oxford for their technical support.

References


Objectives

The primary end point is the rate of the patients who completed the course. The secondary end points are body weight, BMI, serum albumin, prealbumin and proportion of adverse events.

Methods

Therefore we planned this study to confirm the feasibility of 3 months home enteral nutrition using gastrostomy catheter for patient who underwent radical esophagectomy. To be eligible for this study, patients must fulfill all of the following criteria: (i) Histologically diagnosed esophageal cancer. (ii) Clinical stage I, II, III, IV. (iii) Curative resection. (iv) Life expectancy >= 6 months. (v) Written informed consents. A total of 24 patients will be accrued at single institution over a period of 2 years.

Results

This trial has been registered in the UMIN Clinical Trials Registry as UMIN000016286 (http://www.umin.ac.jp/ctr/index.htm).

Conclusions

We have begun this test from February, 2015.

Oral Care
15-01-O

STIMULATED RESIDUAL SALIVARY GLAND FUNCTION IS CORRELATED TO MEAN RADIATION DOSE DELIVERED TO THE MAJOR SALIVARY GLANDS DURING RADIOTHERAPY FOR HEAD AND NECK CANCER

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3Laboratory of Radiation Physics, Odense University Hospital, Odense, Denmark

Introduction

Salivary glands are often involved in the high dose field during radiotherapy for head and neck cancer. Depending on dose prescription, a subjective feeling of oral dryness (xerostomia) may occur, being one of the most invalidating and rarely reversible late side effects.

Objectives

We aimed to explore the ability to increase residual salivary flow from the parotid and submandibular salivary glands (MSG), considering the mean radiation dose given to them.

Methods

Thirty one patients, 2-8 month after completed curative intendened radiotherapy for HNC, were included. An EORTC H&N35-inspired questionnaire was used to evaluate the subjective complains of salivary function. The objective salivary gland function was measured as mean saliva flow rate (g/min) before and after mechanical stimulus by tasteless sugar free chewing gum. Mean doses (DMean) given to the four MSG were extracted from the radiotherapy planning system.

Results

No relation between xerostomia and radiation dose were found, whereas subjective feeling of enough saliva to chew and swallow food was correlated to DMean received by MSG (p=0.05). DMean given to the four MSG correlated to the ability to increase salivary flow (g/min) of salivary when stimulated with tasteless chewing gum (p=0.07) (Figure).

Conclusions

The results of this pilot-study show that both subjective and objective post-radiotherapy salivary gland functions are dependent of DMean given to the four MSG. Data suggests that involvement of the salivary glands affects the ability to stimulate vital residual
salivary gland function, but that it is possible to increase it with additional mechanical stimuli.

**15-02-O**

**ORAL AND DENTAL STATUS IN LONG-TERM SURVIVORS OF ALLOGENEIC HSCT PERFORMED IN CHILDHOOD, ADOLESCENTS OR YOUNG ADULTHOOD - PRELIMINARY RESULTS**

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²Department of Pediatric Medicine Women and Children’s Division, Oslo University Hospital Rikshospitalet, Oslo, Norway
³Department of Hematology, Oslo University Hospital, Oslo, Norway

**Introduction**

Long-term survivors (LTSs) of allogeneic hematopoietic stem cell transplantation (HSCT) may experience oral late effects such as chronic graft versus host disease (cGvHD) and disturbance of dental development. In contrast to many other countries, the Norwegian conditioning regimen is mainly busulfan-based chemotherapy and less frequently total body irradiation (TBI).

**Objectives**

The primary aim of the study is to investigate late effects to the oral mucosa and teeth in LTSs after allogeneic HSCT.

**Methods**

This on-going observational study, performed at Oslo University Hospital, has requested the participation of 158 LTSs treated with HSCT before the age of 30. Data is collected through i) a validated questionnaire survey and ii) an oral examination performed by a dentist.

**Results**

So far, 58% (91/158) have agreed to participate with 36 LTSs currently examined. Mean follow-up is 15 years (6–23). Mucosal disturbances were observed in several LTSs (Table 1). Six LTSs had lichen planus-like changes which is sufficient to establish the diagnosis cGvHD (NIH criteria). The mean number of decayed, missing, or filled teeth was 9.7 (n=32). Dental developmental disturbances such as microdontia, arrested root development, hypoplasia and agenesis were identified in 86% (18/21) of the LTSs treated ≤15 years (Table 2).

**Conclusions**

These preliminary results indicate that a large proportion of LTSs after HSCT experience late effects to their oral mucosa and teeth, even after a conditioning regimen based on mainly myeloablative chemotherapy.

**Table 1. Dental developmental disturbances in LTSs treated ≤15 years**

<table>
<thead>
<tr>
<th>Age treated</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 &gt; ≤ 5 years</td>
<td>8</td>
<td>7 (87.5)</td>
</tr>
<tr>
<td>5 &gt; ≤ 10 years</td>
<td>2</td>
<td>2 (100)</td>
</tr>
<tr>
<td>10 &gt; ≤ 15 years</td>
<td>11</td>
<td>9 (82)</td>
</tr>
</tbody>
</table>

**Table 2. Oral mucosal disturbances and symptoms in 36 LTSs after HSCT.**

<table>
<thead>
<tr>
<th>Mucosal disturbance</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lichen planus-like</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>Mucosal atrophy</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>Xerostomia</td>
<td>14</td>
<td>39</td>
</tr>
<tr>
<td>Taste dysfunction</td>
<td>5</td>
<td>14</td>
</tr>
</tbody>
</table>

**15-03-P**

**CORRELATION BETWEEN ORAL HEALTH INDICATORS AND NUTRITIONAL STATUS IN SENIOR CANCER PATIENTS: AN OBSERVATIONAL STUDY**

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**Introduction**

Oral toxicities induced by cancer treatment in elderly could independently affect their nutritional status and therefore decrease their life expectancy. The role of anticancer treatment in inducing oral complications and thus malnutrition in ageing cancer patients has not been studied so far in Lebanon.

**Objectives**

This study aims to assess the oral health, the nutritional status and their relationship in senior cancer sufferers.

**Methods**

This is an observational cross-sectional study. A convenience sample of non-institutionalized elderly patients was recruited from oncologic and primary care outpatient units in Beirut.
Data were collected from a questionnaire including the Mini-Nutritional Assessment (MNA), the Geriatric Oral Health Assessment Index (GOHAI) and questions on the perception of xerostomia. The oral examination recorded the number of functional dental units (FU) and the presence of oral lesions.

**Results**

One hundred ninety-two elderly patients from medium socio-economic status participated in the study: 46 patients receiving chemotherapy, 48 patients receiving non-chemotherapy regimen, 45 patients in complete remission without treatment and 53 non-cancer patients. Parameters that explain the MNA variations according to the multivariate analyses were the presence of oral lesions (OR=4.51; p-value=0.003), cancer treatment regimen (OR=4.17; p-value=0.017), xerostomia (OR=3.54; p-value=0.012), number of FU (OR=2.51; p-value=0.046) and GOHAI score (OR=1.62; p-value=0.019).

**Conclusions**

Elderly cancer patients on chemotherapy have a very poor oral health, which may lead to malnutrition. This outcome emphasizes the need to monitor the oral health of senior cancer patients, and to collaborate with dentists, especially in the presence of clinical evidence of oral problems.

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**15-04-P**

**TASTE DYSFUNCTION IN PATIENTS UNDERGOING HEMATOPOIETIC STEM CELL TRANSPLANTATION: CLINICAL EVALUATION IN CHILDREN**

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**Introduction**

Taste dysfunction (TD) is a common cancer-therapy related oral complication, both in adults and in children, so the knowledge of TD features and prevalence in children could be extremely useful to define a targeted diet for these patients.

**Objectives**

The aim of this study was to determine the variability of taste dysfunction (TD) in children undergoing HSCT.

**Methods**

This study was designed as a case-consecutive study. Cases were identified as consecutively enrolled children in the period January 2011- January 2013 among patients candidate to HSCT. The taste evaluation test (TST) was conducted in two phases: identification of threshold values and identification of perceived stimulus intensity. Sixteen sapid solutions with 4 flavours (sucrose, sodium chloride, citric acid and quinine hydrochloride) at four different concentrations were administered in randomly sequence. The same protocol was used at different phases from ten countries compliant with the EORTC QLQ-C30, the OH-QoL module and the psychometric properties of an EORTC QLQ-C30.

**Results**

Fifty-one children (29 female and 22 male, mean age 5.2 years ± 0.7) were enrolled. Threshold values means for the four flavours increased during HSCT conditioning therapy (T1) (p value).

**Conclusions**

Changes of the taste perception in children undergoing HSCT seem to occur especially during the conditioning therapy and to resolve in about 6 months after engraftment post-HSCT.

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**15-05-P**

**INTERNATIONAL FIELD TESTING OF THE RELIABILITY, VALIDITY AND PSYCHOMETRIC PROPERTIES OF AN EORTC QUALITY OF LIFE MODULE FOR DENTAL AND ORAL HEALTH; THE EORTC QLQ-OH15**

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13Department of Otorhinolaryngology / Head & Neck Surgery, VU University Medical Center, Amsterdam, Netherlands

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**Introduction**

Short and easy-to-use questionnaires for assessment of oral health (OH) in clinical care and follow-up of cancer patients are few.

**Objectives**

This study followed the EORTC guidelines for module development (phase IV), aiming to test the psychometric properties and hypothesised scale structure of a quality of life (QoL) related OH-module.

**Methods**

The tested module consisted of 17 items. Four multi-item scales (pain/discomfort, xerostomia, eating, information) and three single items (use of dentures/future worries) were hypothesised. Five hundred eighty-five patients with heterogeneous cancers in different treatment phases from ten countries completed the EORTC QLQ-C30, the OH-module and a debriefing interview. Test-retest assessments and response to change analysis (RCA) were performed after 2 weeks in 60 and 117 patients respectively.

**Results**

Records from 572 patients (median age 60.3, 54 % females) were analysed. Compliance was high and patient acceptability and understanding was good. Completion time was <10 min for 50 %, stability and responsiveness were good. The hypothesised four-factor structure was not supported by the Rasch analysis. One eight-item scale emerged to form an OH-QoL score with a PSI of 0.60, supplemented by a two-item information scale, one scale regarding dentures and three single items (sticky saliva/mouth soreness/sensitivity to food/drink). Two items were
dealt, based on statistical misfit and patient feedback. The resulting QLQ-OH15 discriminated between clinically distinct patient groups; e.g. those undergoing chemo vs. not, head-and-neck cancer patients versus other cancers ($p<0.003$).

**Conclusions**
The EORTC QLQ-OH15 module is useful for screening, measuring and aiding the management of adverse oral effects, and should be used with the EORTC QLQ-C30.

**15-06-P**

**IMPAIRED ORAL MUCOSA: APPLICABILITY OF INTERVENTIONS FROM THE NURSING INTERVENTION CLASSIFICATION FOR PATIENTS SUBMITTED TO HEMATOPOIETIC STEM CELL TRANSPLANTATION**

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**Introduction**
Oral alterations are frequent in hematopoietic stem cell transplantation (HSCT). The interventions proposed in the Nursing Intervention Classification (NIC) are broad and cover several realities, with nurses being responsible for choosing the interventions and activities applicable to certain clinical situations.

**Objectives**
Analyze the applicability of interventions proposed by the NIC to the nursing diagnosis of impaired oral mucosa in HSCT.

**Methods**
Descriptive study using cross-mapping. First phase: nurses working in an HSCT unit for over a year listed activities performed for the aforementioned diagnosis. Second phase: the activities listed were mapped, by the main researcher, with the 51 NIC intervention activities (oral health promotion, maintenance and recovery) and were validated by five experts. Third phase: the initial nurses assessed the 51 NIC activities using a Likert scale (1 = not used/5 = frequently used) regarding their use applicability in HSCT. Interventions were deemed a priority when the weighted mean (WM) obtained was $\geq 0.80$, a suggestion when WM $>0.50$ and $<0.80$ and disregarded when WM $\leq 0.50$.

**Results**
Ten nurses mentioned 56 activities to handle oral alterations; those related to oral hygiene (25 %) stood out. In the mapping, of the 56 activities, 42 corresponded to 30 of the 51 presented in the NIC. Regarding their applicability, 24/51 (47 %) were considered a priority, 23/51 (45 %) a suggestion and 4/51 (8 %) disregarded, namely using toothpicks, flossing with platelet count over 50,000/mm³, avoiding mouthwash and gum massage.

**Conclusions**
Most of the activities mentioned by the nurses are found in the NIC and may be applied in the HSCT clinical practice.

**15-07-P**

**PROGNOSTIC SIGNIFICANCE OF ALTERED BLOOD AND TISSUE GLUTATHIONE LEVELS IN HEAD AND NECK SQUAMOUS CELL CARCINOMA CASES**

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**Introduction**
Glutathione is a thiolic compound that plays an important role in the antioxidant defense system of the cell and its deficiency leads to an increased susceptibility to oxidative stress and, thus, progression of many disease states including head and neck cancer.

**Objectives**
In the present study, alterations of glutathione levels were investigated in study cohort of 500 samples (cohort 1 consisting of 200 head and neck cancer blood samples along with 200 healthy controls and cohort II with 50 head and neck squamous cell carcinoma tissue samples along with 50 control tissues) by high performance liquid chromatography.

**Methods**
Apparatus
PerkinElmer series 200 HPLC system

Samples collection and patient identifications
Blood sample preparation
Tissue sample preparation

Chromatographic settings
Column material MZ Inertsil ODS, 5 µm

**Statistical analysis**

**Results**
The results indicated that mean blood glutathione levels were significantly reduced in head and neck cancer patients ($p<0.001$) compared to respective controls. In contrast, the levels of glutathione total ($p<0.05$) and glutathione reduced ($p<0.05$) were significantly elevated in head and neck squamous cell carcinoma tissues compared to the adjacent cancer-free control tissues. In addition to this, pearson correlation performed to correlate different tissue glutathione levels (GSH) with clinical/pathological parameters demonstrated a significant negative correlation between pT-stage and GSH level ($r=-0.263**; p<0.01$), C-stage and GSH level ($r=-0.335**; p<0.01$), grade and GSH ($r=-0.329**; p<0.01$) and grade versus redox index ($r=-0.213**; p<0.01$) in HNSCC tissues.

**Conclusions**
Our study suggests that dysregulation of glutathione levels in head and neck cancer has the potential to predict metastasis, and may serve as a prognostic marker.

**Figure 1. Scatter Plot Showing Blood and Tissue Glutathione Levels of HNSCC Patients**

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*Springer*
15-08-P

ORAL HYGIENE AND BACTEREMIA IN PEDIATRIC ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANT PATIENTS: PRELIMINARY RESULTS

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Introduction
Patients undergoing allogeneic hematopoietic stem cell transplant (HSCT) are severely immunosuppressed and are at risk for opportunistic infections.

Objectives
To evaluate the association between oral hygiene and bacteremia in children receiving allogeneic HSCTs.

Methods
Nineteen children (mean age: 8.3 years ± 5.1) were recruited in this prospective study. One child received 2 transplants within the study period.

Results
Majority (90%) were caries free/controlled except for 2 children with untreated asymptomatic dental decay. All had good gingival health or mild gingivitis at the start of HSCT. The median plaque accumulation during HSCT was negligible/minimal for 13 (60%) and moderate/high for the rest. Highest plaque accumulation tended to coincide with periods of the worst mucositis (p=0.053). More than half (55%) developed oral mucositis (OM). Children who received haploidentical HSCT had milder OM (p<0.005) compared to matched HSCTs recipients. Using T Cell depletion for Graft versus Host Disease prophylaxis also resulted in less (p=0.034) and milder (p=0.020) OM compared to other strategies. Seven patients (35%) developed bacteremia during HSCT, one had bacteremia twice and another had 2 positive strains from a single culture (Table 1). The diagnosis of acute myeloid leukemia (AML) (p=0.051) and the presence of partially erupted teeth (p=0.035) were possible risk factors for the development of bacteremia.

Conclusions
It was evident that oral mucositis encountered in haploidentical HSCTs are lower than that of matched HSCTs. The diagnosis of AML and presence of partially erupted teeth may pose risks for bacteremia.
15-10-P
PERIOPERATIVE DENTAL CHECKUP AND MANAGEMENT MAY REDUCE A RISK OF BACTEREMIA WITH ORAL BACTERIA

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Introduction
It is well known that periodontal and oral pathogens sometimes cause bacteremia. And it may cause infection/inflammation of remote organs, sepsis, fever of unknown origin, etc. Perioperative dental checkup and management (PODM) is expected to reduce systemic infection and/or some adverse events caused by oral bacteria.

Objectives
The purpose of this retrospective study is to assess whether PODM had a positive effect on reducing the incidence of bacteremia caused by oral bacteria.

Methods
The result of blood culture and number of the patients who underwent PODM in our hospital were reviewed through the period from 2007 to 2013.

Results
Prevalence of bacteremia was constant ranging from 12.6 to 17.0 % during the study period. During years from 2007 to 2011, the incidence of oral bacteria in the positive blood culture was also uniform ranging from 5.7 to 8.7 % (mean 7.1±1.2 %, 95 %CI. 5.69~8.59 %), However, the incidence of oral bacteria dropped to 4.1 % (2012) and 2.6 % (2013) after 2012. On the other hand, significant increase of patients who underwent PODM was confirmed after 2012 (patients who underwent PODM/ newly ill patients: 2007~2011, 0.90 % vs. 2012~2013, 3.64 %, Chi-square test, p<0.01). There was a significant correlation between the number of patients who underwent PODM and the prevalence of oral bacteria (n=7, r=-0.87, Pearson’s correlation coefficient p<0.01).

Conclusions
The results of this study suggested the possibility that an increase of the patients who underwent PODM may bring a positive effect on reducing the incidence of bacteremia with oral bacteria.

15-11-P
ADULT STEM CELL TRANSPLANTATION TO RESCUE RADIATION-DAMAGED SALIVARY GLANDS

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Introduction
Hyposalivation is a common and often irreversible side-effect of head and neck radiotherapy. It has a major detrimental impact on health-related quality of life. Stem cell therapy may be a therapeutic option.

Objectives
To investigate the potential of adult salivary gland stem cell transplantation.

Methods
Mouse (1) and human salivary gland (SG) stem cells were cultured as salispheres of which multiple populations of stem cells marker expressing cells were isolated. In vitro self-renewal and differentiation into SG organoids was used to assess stemness of salisphere-derived cells. In vivo potential was assessed after (xeno-) transplantation in irradiated mouse SGs.

Results
Salisphere cultures of cells were generated from human and mouse SG. Single cells expressing stem cell markers derived from these salispheres could generate new salispheres and were maintained, indefinitely (mouse) or up to 12 (human) 'passages'. SG-like structures were differentiated from single cell-derived salispheres to form organoids containing salivary gland lineages as assessed by immunohistochemistry. Most importantly, after (xeno-)transplantation saliva production could be largely restored depending on the population injected.

Conclusions
Our results demonstrate that stem/progenitor cell populations exist in mouse and human SG. By rescuing hyposalivation in vivo, we also show that salispheres represent a feasible source of cells for cell therapy for hyposalivation. Currently, our method is under GMP translation for future clinical application.

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1) Nanduri et al. 2014, Stem Cell Reports

15-12-P
EFFECTS OF LASER PHOTOTHERAPY ON SUBLINGUAL SALIVARY GLAND OF HAMSTER TREATED WITH 5-FLUOROURACIL

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Introduction
The chemotherapeutic agent 5-Fluorouracil (5-FU) can induce salivary gland hypofunction (SGH) in most part of patients, however, there are not final conclusions about the influence of this drug on glandular tissue.

Objectives
Thus, the aim of this study was to investigate the effects of 5-FU on sublingual salivary glands (SLs), as well as, the effect of laser phototherapy (LPT) on SGH induced by 5-FU in hamsters.

Methods
In order to do that, eighty-five hamsters were divided into three groups: control (C), chemotherapy (CT) and chemotherapy with laser (L), and the SGH was induced by two injections of 5-FU in groups Ct and L. The irradiation was performed daily, using a diode laser, with wave-length of 780 nm, power of 20 mW and a dose of 5 J/cm², 10s per point and the spot size of 0.04 cm². On the euthanasia day, the SLs were removed to biochemical analyses, immunocytochemistry, light microscopy and transmission electron microscopy.

Results
The 5-FU induced an increase of lactate dehydrogenase, peroxidase and catalase activities in group CT when compared with group C (P<0.05), a decrease of superoxide dismutase activity (P<0.05); as well as, decrease of mucin and salivary protein 1 expression and structural change (<0.05); as well as, decrease of mucin and salivary protein 1 expression and structural change (<0.05); as well as, decrease of mucin and salivary protein 1 expression and structural change (<0.05).


Author's personal copy
Conclusions
In summary, our finding confirm previous studies and indicates that the 5-FU may causes structural and functional changes in SLs, however, suggest the LPT as a promising therapy to modulate the 5-FU harmful effect.

15-13-P
EXPERIENCE AND EXPERTISE REGARDING ORTHODONTIC MANAGEMENT OF CHILDHOOD AND ADOLESCENT CANCER SURVIVORS
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Introduction
Advances in pediatric cancer treatment are allowing hundreds of thousands of children to survive into adulthood. Nonetheless, these treatments can cause long-term medical and dental complications that may alter the patients’ dental health and require modifications to standard orthodontic care.

Objectives
The objective of this study was to examine knowledge and clinical experience regarding orthodontic management of childhood cancer survivors.

Methods
A 12 question online survey consisting of three sections was sent to members of the American Association of Orthodontists and Southern Association of Orthodontists. The survey included questions about the respondents’ practice characteristics, how many childhood cancer survivors the respondent had treated, and the specific patient experiences and treatment modifications needed due to oral complications.

Results
There were 381 responses. It appears that more experienced orthodontists have indeed treated survivors of childhood cancer. However, orthodontic education and training regarding the treatment of these patients is limited. Although most orthodontists reported having treated such patients, few had treated more than 10. Some treatment modifications included the use of lighter forces, longer time for completion of therapy, and antibiotic prophylaxis. Root stunting and microdontia made the treatment more complex. In 2% of cases therapy could not be provided and 15% of patients discontinued therapy.

Conclusions
There is a need for more information regarding dental complications of pediatric cancer treatment and for development of guidelines for the orthodontic treatment of these patients.

15-14-P
EUROPEAN ORAL CARE IN CANCER GROUP (EOCC): SUPPORTING BEST PRACTICE
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Introduction
Amidst the advances being made in the field of cancer treatment and care, the prevention and treatment of oral complications continues to be a challenge in the cancer and supportive care setting. This abstract presents the work of the European Oral Care in Cancer Care Group (EOCC).

Objectives
EOCC is multi-professional group of experts in oral care who support best practice in the assessment, care, prevention and treatment of oral complications secondary to malignant disease and treatment. The group puts patients at the centre of all that they do, bringing together experts from clinical and academic disciplines to ensure that best practice is promoted and delivered. Using and developing guidance from Europe and International Cancer Organisations, the group ensures its work is applicable across all countries and settings.

Methods
The work includes designing, delivering and disseminating training to support practice. The group considers all aspects of the patient pathway including treatment and supportive modalities with curative and palliative intent.

Results
This group promotes guidance and advice based on the literature and expert opinion, developing recommendations for health care professionals and patients to promote excellence in oral care. The group collaborates with other European and International Cancer Organisations, Charities and industry partners to encourage education and research in this area of practice.

Conclusions
By working with international partners and taking a broader European approach to oral care practice, EOCC aims to support health professionals in this challenging aspect of cancer care and improve the care of patients undergoing care and treatment for cancer.

15-15-P
XEROSTOMIA AFTER RADIOThERAPY FOR ORAL AND OROPHARYNGEAL TUMORS: CHEWING GUM AS PART OF ORAL REHABILITATION
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Introduction
Xerostomia is a common late side-effect after radiotherapy for head and neck cancer. Patients are subjected to reduced saliva flow leading to oral discomfort, compromised oral well-being, reduced nutrition intake, speaking difficulties, and diminished quality of life.

Objectives
The purpose of this study was to investigate the possibility to mechanically stimulate residual saliva function by using a tasteless and sugar free
chewing gum, and thereby increase saliva flow and potentially improve oral well-being.

Methods
From October to December 2014, 62 consecutive head and neck cancer patients treated with radiotherapy and/or concomitant chemotherapy at Odense University Hospital where invited to participate. All patients had completed radiotherapy 2–12 months prior to participation and suffered from xerostomia. Thirty-one patients consented to participation. Samples of unstimulated and chewing gum stimulated saliva were obtained at the entry into the study (visit 1). For 2 weeks, patients were asked to use chewing gum on a regular basis whereupon saliva measurements were repeated (visit 2). An EORTC H&N35-inspired questionnaire was completed for both visits.

Results
Twenty patients completed the study. An increase in saliva flow was observed for 14 patients. For visit 1, mean saliva output for unstimulated saliva was 0.78 g and stimulated saliva 1.07 g (p = 0.08). For visit 2, mean saliva output was 0.62 and 0.89 g (p = 0.05). Ninety-five percent of the patients reported a subjective increase in saliva flow after using the chewing gum and 75% reported increased enjoyment of having a meal.

Conclusions
The chewing gum was able to increase saliva flow and improve oral well-being.

15-16-P

ORAL SQUAMOUS CELL CARCINOMA IN PATIENTS WITH ORAL CHRONIC GVHD

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Introduction
Graft Versus Host Disease (GVHD) mainly arises after allogeneic Hematopoietic Stem Cell Transplantation (HSCT), because of reaction of donor immunocytes, attacking recipient organs.

Objectives
To characterize the clinical features of oral squamous cell carcinoma (OSCC) arising in patients with oral chronic GVHD.

Methods
A literature search for PubMed database publications since 1970. Inclusion criteria were allogeneic HSCT, cGVHD, and OSCC. Exclusion criteria were publications without sufficient clinical data and Fanconi anemia. Additional four cases of OSCC that developed in patients with cGVHD treated in our department were included.

Results
A total of 18 patients were included in the analysis. The mean age of the patients at the diagnosis of OSCC was 43 years (range 14-84y), with male predominance (1:2). The underlying disease was AML (28%), NHL (22%), ALL (16%), CML (11%), and aplastic anemia (11%). In 50% of patients the conditioning protocol included total body irradiation, and additional 6% of the patients received radiotherapy to the head and neck region. OSCC was developed 7.4 years on average after the HSCT (range 2–17 years). The tongue was the most common location of OSCC (55%). From 13 reported smokers, 2 patients were heavy smokers at the time of diagnosis and one was past smokers (quit 40 years ago).

Conclusions
Dental practitioners should be aware of the potential late complication of OSCC in cGVHD patients and routinely follow up with these patients. More research is warranted to explore irradiation as a risk factor and to assess treatment protocols for this unique patient population.

15-17-P

MASTICATORY EFFICACY IN PATIENTS ONE YEAR POST RADIOTHERAPY

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Introduction
Patients recovered from oral cancer faces additional problem of oral rehabilitation. Current study focuses on assessment of the Masticatory status, 1 year post radiotherapy.

Objectives
Assessment of masticatory efficacy of patient recovered of oral cancer 1 year post radiotherapy.

Methods
Sixty patients were enrolled, Masticatory efficacy was assessed by a questionnaire, number of functional tooth units, mouth opening, oral hygiene index and number of dental visit required.

Results
Out of 60 patients 46% case were of tongue lesion, 21.16% of buccal mucosa, 20% of alveolus & hard palate and 11.6% of lip mucosa. Lip lesion had highest Masticatory efficacy followed by tongue lesions, alveolus & hard palate and buccal mucosa (p<0.005). Lip lesions had highest average mouth opening of 34.34±1.23 mm while lowest of 10.54±1.64 mm for buccal mucosa lesion was seen (p<0.005). Average Functional tooth units were highest for upper lip lesions 28.32±1.45, and least for alveolus & hard palate 12.32±1.68 (p<0.005). Oral hygiene index score for lip lesion was lowest of 1.31±1.48, and highest of 4.68±1.52 for buccal mucosa lesion (p<0.005). Highest visit of 31.23±1.54 for buccal mucosa lesion and least for lip lesion of 12.32±1.25 reported. (p<0.005)

Conclusions
Patients with lip and tongue lesion had good Masticatory scores, functional tooth units, good oral hygiene score, lesser dental visits as compared to alveolus & hard palate lesion and buccal mucosa lesion.

15-18-P

TARGETED ORAL HYGIENE PROTOCOLS IN CHILDREN IN ANTI-CANCER THERAPY: IMPACT ON QUALITY OF LIFE

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Introduction
The anti-cancer therapy in children is highly effective, although its side effects, that often impair the Quality of Life (QoL).

Objectives
The aim of this study was to evaluate the improvement of QoL in children undergoing cancer therapy, after specific interventions of oral hygiene with the use of specific devices.

Methods
20 pediatric patients (age range 5–14 years), undergoing radio and/or chemotherapy for hematological diseases, suffering from oral mucositis grade ranging from one to four (according to the WHO CTCE Scale), were enrolled.

Every child or caregiver completed a questionnaire about the oral health and oral hygiene procedures. Then, the dental hygienist gave a handbook explaining all the oral complications during the therapy and the oral hygiene procedures, and taught the different oral hygiene devices to use. After 10 days, the children were asked to complete again the questionnaire.

Results
Patients reported an improvement in their QoL, feeling relief in being able to perform oral hygiene without pain or discomfort. After instruction, patients declared to feel their saliva less dense, less discomfort in speech, and to be able to eat without fear of gingival bleeding.

Conclusions
Targeted oral hygiene protocols had a strong impact on oral hygiene status, children the self-esteem of children, and thus improving QoL.

15-20-P
ORAL SUPPORTIVE CARE FOR CANCER PATIENTS UNDERGOING CHEMOTHERAPY AND RADIOThERAPY

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Introduction
Perioperative oral management received medical insurance coverage in Japan in 2012. Management includes not only the prevention of wound infection and perioperative pneumonia but also the treatment of oral complications during anticancer therapy.

Objectives
This retrospective study evaluated the efficacy of oral supportive care in patients undergoing chemotherapy and radiotherapy.

Methods
Clinical records for 236 consecutive patients from March to December 2014 were analyzed. Oral supportive care was continued to maintain good oral hygiene, and to detect and manage oral complications early.

Results
Patients were 143 males and 93 females aged 17–92 years (median 67). Primary site was the head and neck in 45, lung in 39, esophagus in 37, colon in 17, hematological cancer in 25, and others in 73. We compared the oral hygiene status in 178 patients before the beginning of therapy and at the 1-month check with the original score using O’Leary’s Plaque Control Record. Rates of improved, stable and regression status were 66.5, 6.6 and 26.9 %, respectively. Regression appeared due to worsening of general condition, and also to oral mucositis among head and neck cancer patients undergoing chemoradiotherapy. During treatment, all agents and radiotherapy could be continued as scheduled without dose reduction for oral complications, apart from an interruption of denosumab due to osteonecrosis and a rest period for bevacizumab following tooth extraction in one patient each.
Conclusions
Oral supportive care for cancer patients receiving anticancer therapy should begin before the start of treatment and continue until the successful completion of treatment.

15-21-P

RANDOMIZED CLINICAL TRIALS ON EFFECT OF ORAL CARE USED ON STAGE OF MUCOSITIS IN PEDIATRIC CANCER: INDONESIAN EXPERIENCE

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Introduction
Poor management of mucositis will affect the child’s oral food intake.

Objectives
This research aims to obtain the effectiveness of mead compare to Chlorhexidine (0.12 %) in reducing mucositis stadium in children with cancer.

Methods
The randomized clinical trial, with a double-blind approach applied to measure stadium of mucositis at 3 time points: pre-treatment (T1), T2 (third day), and T3 (sixth day). A total of 11 children in the treatment group received 15 cc of mead mixed with water in the ratio 1:1. A total of 12 children in the control group received Chlorhexidine (0.12 %) 15 cc mixed with water in the ratio 1:1. Children with stage 1–2 mucositis rinsed 4 times a day and children with stage 3–4 mucositis rinsed six times. Mucositis stadium scale use to measure the amount of ulceration, extensive ulceration, pain and the ability to eat.

Results
Results found that nutritional status, chemotherapy and radiation therapy affected the stage of mucositis. Moreover, there was a significant difference between the proportion of children before and after oral treatment in both groups (mead p<0.001; versus chlorhexidine 0.12 % p=0.005). The use of honey as a solution for oral care in children with cancer who experience mucositis can reduce mucositis stage by 75 %, and the difference mucositis among patients who get and do not get mead for oral care was 21 %.

Conclusions
It concludes that honey is clinically proven to reduce the stadium of mucositis in cancer children. Honey is recommended to use as a gargle in children who are intolerant of chlorhexidine.

15-22-P

CANDIDA CARRIAGE, MUCOSITIS, PAIN AND XEROSTOMIA IN HEAD AND NECK CANCER PATIENTS RECEIVING CONFORMAL RADIOThERAPY, WITH OR WITHOUT CHEMOTHERAPY. A PRELIMINARY REPORT

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Introduction
Oral Candida carriage in patients receiving head and neck radiotherapy (RT), reported between 43 and 73 %, oral mucositis, pain and xerostomia are significant complications, with adverse effects on quality of life.

Objectives
We assessed the prevalence of oral Candida carriage, oral mucositis, pain and xerostomia in head and neck patients during conformal RT.

Methods
Thirty-two patients (mean age 61) were included. Seventeen patients (53 %) received concomitant chemotherapy. Mean daily dose was 2Gray and total dose 63.2Gray. Smear for Candida carriage was taken in all patients before RT and in 14 (14/32, 43 %) after RT. Twelve patients (12/32, 37.5 %) completed the EORTC Quality of Life C30 and H&N35 questionnaires before and after radiotherapy.

Results
Candida carriage was 50 % (16/32) before RT; C. albicans was isolated in 14/16 patients (87.5 %). After RT, Candida carriage was 29 %; all were C. albicans. Antifungal and antiral treatment were administered in 9/25 (36 %) and 2/25 (8 %) patients, respectively. Twelve patients 12/25 (48 %) used pain medications. Severe oral mucositis was observed in 9/25 (36 %), severe pain in 8/25 (32 %) and severe xerostomia in 10/25 (40 %) patients. Mean weight loss was 6.1 kg (27/32). Concomitant chemotherapy was related to higher oral toxicity.

Conclusions
A decrease of oral Candida carriage was observed. This seems to be related to the antifungal administration during RT and to the small number of the patients re-tested (14/32). The study is ongoing and the impact of concomitant chemotherapy on oral toxicity and the EORTC QoL questionnaires will be assessed in the final step.

15-23-P

EXAMINE THE EFFECT OF DIFFERENT ORAL CARE MODELS ON ORAL IDENTIFICATION SCORES IN GASTROINTESTINAL CANCER PATIENTS WHO RECEIVED LONG-TERM OR BOLUS 5- FLUOROURACIL CHEMOTHERAPY.

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15-24-P


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OF ARECANUT AND GUTKA CHEWERS
DETECTION OF MICRONUCLEI IN THE BUCCAL MUCOSA

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Introduction
The chewing of Arecanut is a common habit amongst all sections of society in South East Asia. Arecanut and commercially available products like Gutka contain genotoxic components that result in damage to cells leading to oral cancer. The frequency of occurrence of micronuclei has been used as an important dosimeter for assessing the genotoxic effects of chemical mutagens.

Objectives
The objective of the study was to assess the genotoxic effects of arecanut and Gutka and to quantify the number of micronuclei in buccal mucosa of arecanut and Gutka chewers.

Methods
The study was conducted in Manipal College of Dental Sciences, Mangalore, India. The study consisted of 140 individuals which included 3 groups. Group I was the control group that included 70 healthy individuals. Group II (subject) were arecanut chewers and Group III (subject) were Gutka chewers, with 35 individuals in each group. In the present study, the micronucleus test was applied to all 140 individuals.

Results
Out of the two varieties of arecanut, 80 % were red variety and the rest 20 % were white variety of arecanut. The results of this study showed that there was a significant elevation in micronucleated cells from the exfoliated oral mucosal cells obtained from arecanut chewers and Gutka chewers over control samples.

Conclusions
The increase in the number of micronucleated cells observed in chewers reinforced the possible genotoxic damage in chewers.

15-25-P
HUMAN PAPILLOMAVIRUS (HPV) INFECTION AND P53 PROTEIN EXPRESSION IN ORAL SQUAMOUS CELL CARCINOMAS (OSCC): CLINICAL CORRELATES WITH SURVIVAL
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Introduction
Recently, strong evidence for an etiological relationship between human papillomavirus (HPV) and a subset of head and neck cancers has been noted. It has also been shown that HPV association with oral squamous cell carcinoma (OSCC) may be associated with relative better survival. On the other hand p53 gene mutation and overexpression of its protein which are widely recognized markers of many malignancies are also etiologically associated with the development of oral cancer and poor survival.

Objectives
The aim of this study was to determine the prevalence and types of HPV and p53 protein expression in a very high risk Pakistani population and its correlation with overall survival (OS) and disease free survival (DFS).

Methods
HPV general and type specific 16 and 18 were investigated by means of PCR. P53 protein overexpression was investigated by means of immunohistochemistry.

Results
HPV positive patients had comparatively prolonged OS when compared with HPV-negative patients but this difference was not statistically significant (p<0.07). Overexpression of p53 protein was observed in 75 patients (54 %). Patients with p53 negative tumors had improved OS when compared with patients with p53 positive tumors.

Conclusions
Our study found a high prevalence of HPV (type 16) in OSCC of Pakistani patients with male sex showing significant correlation with HPV. However we did not find a statistically significant favourable association between HPV, survival and histologic variables. Borderline significance of HPV positivity was also seen with betel quid chewing. P53 overexpression was not found to be an independent prognosticator in patients with OSCC.
**15-26-P**

THE EFFECTIVENESS OF A NORMAL SALINE MOUTH RINSE ON THE ORAL MUCOSITIS FOLLOWING RADIATION POSTOPERATIVE THERAPY FOR ORAL CAVITY CANCER PATIENT

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Introduction
Radiation-induced oral mucositis is a troubling oral dysfunction problem and reduce quality of life following oral cavity cancer treatment.

Objectives
To assess the effectiveness of a mouth rinse on physical function and social-emotional function, and overall QOL in oral cavity cancer patients treated with radiation.

Methods
A randomized controlled study was used. The data collection tools included WHO Oral Toxicity Scale, MSS-moo, and UW-QOL. Data was collection at three timepoints: before RT (T0), 4- (T1) and 8-weeks (T2) after beginning RT or CCRT.

Results
Experimental group had higher physical and social-emotional function QOL than control group at T1 and T2. Receiving mouth rinse program was the most common predictors for physical, social-emotional, and overall QOL.

Conclusions
Mouth rinse program can promote physical and social-emotional function QOL.

**15-27-P**

ORAL CARE IN PALLIATIVE CARE CENTER REDUCES SALIVARY AMYLASE ACTIVITY, A MAKER OF STRESS CONDITION

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Introduction
Oral care is critical for supportive care in cancer, because oral side effects such as mucositis and xerostomia affect the treatment plan and quality of life. These oral side effects are also major complain in palliative care. Thus oral care is required for palliative care.

Objectives
It is very difficult to assess oral care for palliative care, because physical and mental conditions are not enough to assess oral conditions. Thus aim of this study is to assess our oral care provided by registered nurse for patients in palliative care center with little burden.

Methods
Three registered nurses provided oral care for eight patients, whose performance status was 4. A dental hygienist also assessed oral care process. We monitored salivary amylase activity and oral mucosal moisture before and after oral care and then compared with these data. In order to monitor salivary amylase activity, a dry-chemistry system called a “Cocorometer”, which takes ten seconds saliva collecting, was used. In order to monitor oral moisture, oral moisture checking device “Mucus”, which takes 2 s to indicate results, was used.

Results
Salivary amylase activity was decreased after oral care. Wilcoxon signed-rank test revealed significant difference between before and after oral care (P<0.05). On the other hand, oral mucosal moisture was unchanged.

Conclusions
Alpha-amylase is correlate of sympathetic activity under conditions of stress. In this reports, oral care reduced salivary amylase activity significantly, although oral moisture was unchanged. Thus those results indicated that oral care relax the patients in palliative care.

**15-28-P**

THE EFFECT OF MUTUAL RELATIONSHIP BETWEEN MEDICAL AND DENTAL TEAM IN TOHOKU UNIVERSITY HOSPITAL

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Introduction
The progresses of anti-cancer therapy case new side effects unexpectedly including oral mucositis and dental related disease. Treatment plan was interrupted due to these side effects. Thus supportive care is critical to prevent or reduce these side effects. Dental survey and treatment are also one of supportive care.

Objectives
Although Medical doctor and dentist have realized mutual relationship is critical, this collaboration have not achieved yet. Thus Japanese national health insurance covers the cost visiting dental office for anti-cancer treatment to encourage it. The aim of this research is to review the population of patients visiting our department.

Methods
We review the dental condition of solid tumor patients who have surgery, chemotherapy, or radiotherapy. Number of patients is 277 in 2012 and 249 patients in 2013.

Results
Of these patients, 19 patients (6.9 %) in 2012 and 7 patients (2.8 %) complained pain during cancer therapy in 2012. In terms of timing of dental visiting, ratio of prior to cancer therapy is increased from 2012 (60.3 %) to 2013 (75.9 %). On the other hand, the ratio of patients during therapy was decreased.

Conclusions
Dental survey is critical to prevent dental related compromise during cancer therapy. Furthermore, health insurance covering supportive care by dentist might contribute to build mutual relationship supporting clinical pass way from medical team to dental team.

**15-29-P**

DEMOGRAPHICS AND DENTAL STATUS IN A DEFINED GROUP OF IRANIAN PEDIATRIC CANCER PATIENTS: A COMPARATIVE STUDY

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STUDENTS OF MANGALORE: AN EPIDEMIOLOGICAL STUDY
ASSESSMENT OF ORAL CANCER AWARENESS IN SCHOOL

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Introduction
Oral cancer is a significant component of the global burden of cancer; being more common in developing countries. It is seen primarily in the elderly, rarely affecting young patients (5 %) as reported by Lacy et al. However, recent increase in young patients developing oral cancer has been documented. While there remains no clear evidence in support of any single determinant, tobacco chewing and smoking continue to be the ominous contributors in the development of oral cancer. An important fact is to understand the changing lifestyles of the current generation which has predisposed them to develop cancer at an early phase/stage of their life. In this scenario, a need for effectiveness of interventions is required to raise cancer awareness in adolescents as the cancer determinants come into picture at a young age.

Methods
After ethical approval and approval from schools, students in the age group of 16–18 years, were asked to fill in the cancer awareness measurement questionnaire. The data obtained was compiled and subjected to Pearson’s chi-square test.

Results
Students in the given age group had a basic knowledge regarding oral cancer owing to their greater exposure to various forms of media and mass communication

Conclusions
Although students are aware of cancer, more steps need to be taken to actually make them understand the gravity of the disease.

PREVALENCE OF DENTAL DISEASES IN PATIENTS WHO SUFFERED WITH DIGESTIVE SYSTEM DISEASES

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Introduction
The patients who suffered with digestive system diseases have often been assumed to have more dental treatment needs compared to the general population. However, no studies have been carried out to verify this assumption.

Objectives
The aim of this study was to survey prevalence of dental disease in the patients who underwent treatments of digestive system diseases.

Methods
This study included 315 patients who underwent treatment of digestive system disease in our hospital. Prevalence of dental disease was assessed and compared between the patient group and matched control using Japanese government 2009 Survey of Dental Diseases 10th.

Results
DMF index was 20.0 in the patient group, while 18.9 in the matched control (p<0.01).

Conclusions
The result of this study suggested that the patients with disease of digestive organs were significantly more frequently compromised with dental diseases. There would be a significant relationship between disease of digestive organs and dental condition.


Results

A total of ten oral medicine specialist were surveyed. Oral medicine specialist views and attitudes, prevailing practices, knowledge was explored and unanimously required a need of a specialist who can treat oral complications in palliative care on good oral care which had a significant impact on the clinical outcomes.

Conclusions

There is a strategic need of an oral care program which would design focusing on giving the oral medicine specialist the necessary skills and tools to provide proper oral health advice and care to patients and their families.

15-33-P

CHRONIC GRAFT VS HOST DISEASE (cGVHD) IN PATIENTS UNDERGOING BONE MARROW TRANSPLANT: THE ORAL PERSPECTIVE

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Introduction

Acute and long-term oral complications are often serious and disabling secondary effects of cancer therapy, negatively affecting the patient’s overall quality of life.

Objectives

The author reviews the clinical features of chronic Graft vs Host Disease (cGVHD), with special emphasis on the oral cavity and discusses the management of these patients in order to achieve a successful outcome, decreasing morbidity and increasing the patient’s quality of life.

Methods

The author reviews the clinical features of chronic Graft vs Host Disease (cGVHD), with special emphasis on the oral cavity and discusses the management of these patients in order to achieve a successful outcome, decreasing morbidity and increasing the patient’s quality of life.

Results

Patients undergoing cancer therapy may present mucositis, opportunistic infections, oral bleeding, xerostomia, trismus, tissue necrosis, osteoradionecrosis, and craniofacial/dental developmental problems, especially in children younger than 6 years of age at the time of treatment. Often a chronic form of GvHD, which resembles an autoimmune disease condition, can develop 100 days after allogeneic bone marrow transplantation in patients with a life-threatening hematologic disorder, particularly children. Atrophy, erythema, lichenoid changes of the oral mucosa, xerostomia and oral pain are common clinical features of c-GvHD known to have a severe impact in these patients’ quality of life.

Furthermore, oral chronic Graft vs Host Disease (c-GvHD) may constitute a clinical conundrum, both in terms of diagnosis, as well as in terms of treatment.

Conclusions

It is imperative that those involved in the treatment of bone marrow transplant patients be acquainted with this clinical entity, particularly its clinical features and its management.

Pediatrics

16-01-O

DEVELOPMENT OF CLINICAL PRACTICE GUIDELINES FOR SUPPORTIVE CARE IN CHILDHOOD CANCER IN THE NETHERLANDS – CURRENT VARIATIONS IN SUPPORTIVE CARE PRACTICE

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Introduction

Because of intensive treatment strategies in children with cancer, supportive care plays an increasingly important role. Unfortunately, few evidence-based guidelines are available in this area, which might contribute to suboptimal and conflicting supportive care in children with cancer.

Objectives

To explore current practice variations in supportive care in children with cancer in The Netherlands.

Methods

We conducted an in-depth review of local guidelines and protocols among all 6 Dutch pediatric cancer centers. The compiled list comprised important supportive care topics and was verified by a pediatric oncologist from each center to assess correspondence with daily supportive care practice in their hospital. Subsequently, we evaluated if the clinical practice in the 6 pediatric oncology centers was concordant (same in ≥5 out of 6 centers), partly concordant (almost the same in ≥5 out of 6 centers) or discordant (same in <5 centers).

Results

The questionnaire comprised 67 questions regarding 14 supportive care topics. We found concordance in 11 of 67 items (16.4%), partial concordance in 6 of 67 items (9.0%) and discordance in 50 of 67 items (74.6%). We explored conformity with three current evidence-based guidelines, which varied but was generally low.

Conclusions

In the Netherlands, major variations exist in daily practice of supportive care for childhood cancer patients. The development and integration of clinical practice guidelines in daily practice has the potential to greatly contribute to uniform evidence-based practice, and thereby contribute to better outcomes of childhood cancer patients. Development and implementation of these guidelines is the next step in our project.

16-02-O

TOXICITY IS ASSOCIATED WITH AGE AND BODY MASS INDEX IN NOPHO-AML 2004

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Introduction
Treatment of childhood acute myeloid leukemia (AML) causes severe toxicity.

Objectives
We investigated if toxicity was associated with age and BMI in the NOPHO-AML 2004 protocol (2004–2013).

Methods
We reviewed toxicities of AML-2004 registered the NOPHO-database, including all protocol patients from the Nordic countries and Hong Kong who completed first induction (n=318). Toxicities were registered after each block until end of treatment, stem cell transplantation, relapse or death. Home continent was used as a marker for ethnicity.

Results
Treatment-related mortality (after day 7) occurred in 3.5%. The cumulative incidence of first grade 3 or 4 toxicity was 90% (95%–CI 87–94%). During therapy 19% (14–23%) had been admitted to intensive care unit (ICU), 78% (73–83%) had had an infection (pathogen verified), 13% (10–17%) had experienced septicemia with hypotension, and 11% (7–14%) had needed assisted ventilation.

Toxicity was associated with age 10–17 and overweight. When comparing to age 2–9 and adjusting for sex and home continent, age 10–17 was associated with admission to ICU (hazard ratio (HR) 1.80 95%–CI 0.98–3.30), septicemia (HR 2.23 (1.10–4.50)), and assisted ventilation (HR 2.21 (0.97–5.04)).

Patients (age 2–17) were divided into BMI groups: underweight <–2 SD (n=12), normal –2–1 SD (n=171), and overweight >1 SD (n=56). Overweight patients were more often admitted to ICU (HR 1.88 (0.96–3.70)), had septicemia (HR 2.08 (1.00–4.34)), and needed supplementary oxygen (HR 2.01 (1.10–3.66)) when adjusting for sex, age and home continent.

Conclusions
Treatment for pediatric AML caused considerable toxicity. Older age and overweight was associated with increased toxicity.

16-03-P
DEVELOPMENT OF A TWO-PART EXERCISE MODEL TO ENHANCE PHYSICAL ACTIVITY LEVELS IN PEDIATRIC CANCER PATIENTS DURING ACUTE CANCER TREATMENT

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Introduction
Reduced physical activity levels in children with cancer (Winter et al. 2009) additionally increase the cancer-related burden and presumably lead to further persisting problems like reduced motor performance (Götte et al. 2015).

Objectives
The first objective was to evaluate the current need of exercise interventions by comparing intra-individual physical activity levels before and during treatment and evaluating patient-related barriers and motivations with respect to exercise. Furthermore, we developed a two-part model to promote physical activities during hospital stays and at home.

Methods
Physical activity levels were assessed with a standardized physical activity questionnaire (n=130) and patients’ opinions, barriers and motivations regarding exercise were assessed with guideline interviews (n=40).

Results
Daily physical activities (walking, playing) and minutes of exercise per week decreased significantly during treatment (p<0.001). The most pronounced reductions in physical activities were identified for bone tumor patients, older age and hospital stays in which 50% of the patients left their bed for <1 h/d. In the interviews the patients emphasized the importance of supervised training sessions and individual support in order to be motivated for exercise.

Conclusions
These results underline the importance of individually-tailored and supervised exercise programs during treatment. Therefore, we are currently evaluating a two-part model to enhance physical activity levels. This model consists of 1) a supervised exercise intervention during hospital stays and 2) a personal training plan comprising individual goals and exercises for home stays. An activity tracker (fitbit) provides feedback about daily steps during home stays and regular contact (by email, phone, face-to-face) ensures support and safety.

16-04-P
A MULTI-CYCLE PHASE III STUDY EVALUATING PALONOSETRON EFFICACY AND SAFETY VERSUS ONDANSETRON, AT PREVENTING CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING IN PEDIATRIC PATIENTS RECEIVING MODERATELY/HIGHLY EMETOGENIC CHEMOTHERAPY

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Introduction
Palonosetron (PALO) has been shown to be non-inferior to ondansetron (OND) at preventing chemotherapy-induced nausea and vomiting (CINV) in adult patients receiving moderately/highly emetogenic chemotherapy (MEC/HEC).

Objectives
To demonstrate that PALO is non-inferior to OND at preventing CINV in pediatric patients across multiple cycles of chemotherapy.

Methods
Two PALO doses (10, 20 µg/kg) were evaluated, versus OND (3×150 µg/kg), in pediatric patients receiving up to four MEC/HEC cycles. For the primary objective, statistical analysis was used to demonstrate non-inferiority for PALO (<–15 %) versus OND from complete response rates (CR, no emesis/rescue medication) in the acute phase (0–24 h) after first MEC/HEC dose) of cycle 1. Secondary objectives included CR rate in the delayed (>24–120 h) and overall (0–120 h) phases, and safety.

Results
In 493 patients aged 2.1 months–16.9 years the CR rate was highest in the PALO 20 µg/kg group in all phases of cycles 1, 3 and 4, with statistical non-inferiority demonstrated for this dose versus OND in the acute phase.
16-05-P

REINTEGRATION IN PHYSICAL EDUCATION AT SCHOOL AFTER TREATMENT FOR CHILDHOOD CANCER

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Introduction
Physical education (PE) at school aims at promoting children’s physical and psychosocial abilities and contributes to the development of a long-term active lifestyle. In Germany, childhood cancer patients are often not attending school and therefore not participating in PE during acute treatment. Meanwhile, physical activity levels are reduced dramatically (Winter et al. 2009) and physical limitations persist throughout adulthood (Ness et al. 2009).

Objectives
The primary objective was to analyze the status of participation in PE, because it has not yet been sufficiently examined whether childhood cancer patients return to PE following cancer treatment. Secondly, barriers which handicap reintegration should be identified.

Methods
Data was collected using a standardized questionnaire of the KiGGS-study (German Health Interviews and Examination Survey for Children and Adolescents) supplemented by questions related to PE and barriers against participation.

Results
Childhood cancer patients (n = 114; m = 61 %) aged 13.5 ± 4.0 years and 10.6 ± 9.6 months post-treatment attending school were included (leukemia/lymphoma 46 %, bone tumor 25 %, brain tumor 16 %, other solid tumor 14 %). Although 72 % of the patients desired participation in PE, 38 % were not participating to full extent. 17 % reported no participation at all, 21 % mentioned partly participation. Most problems became obvious in bone tumor patients (68 % partly/ non-participation). Identified barriers included: personal (physical/psychosocial), social (parents/classmates) and structural reasons (teacher/curriculum).

Conclusions
Contrary to the patients’ motivation, a high percentage is not participating in PE. Initial attempts of a reintegration program at our department showed that barriers can be successfully conquered by communication, professional advice and support for patients, teachers and parents.

16-06-P

RELATING PHYSICAL ACTIVITY WITH MOTOR PERFORMANCE AND PHYSICAL FUNCTION IN CHILDREN WHO HAVE COMPLETED TREATMENT FOR ACUTE LYMPHOBLASTIC LEUKEMIA

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Introduction
Children who have completed treatment for acute lymphoblastic leukemia (ALL) are less physically active than their healthy peers. Reduced motor performance and physical function have been recognized as potential side-effect of cancer treatment. Whether physical activity (PA) is associated with motor performance and physical function in these children is unknown.

Objectives
To investigate if motor performance and physical function are associated with PA in children who have completed treatment for ALL.

Methods
PA was measured using the Physical Activity Questionnaire for Older Children (PAQ-C); motor performance using Bruininks-Oseretsky Test of Motor Proficiency, Second Edition, Short Form (BOT-2 SF); and physical function using the Six-Minute Walk Test (6MWT).

Results
Thirteen participants were tested. PAQ-C scores were not related to BOT-2 SF standardized scores (r = 0.282, p = 0.35), 6MWT distance (6MWD) (r = -0.429, p = 0.14), or 6MWD Standard Deviation Score (SDS) (r = -0.094, p = 0.76). One participant performed below average in the BOT-2 SF. Eleven participants walked shorter distances compared with published data from healthy children (mean 6MWD SDS = -1.62). Body mass index (BMI) SDS was significantly associated 6MWD (r = 0.602, p = 0.03) and 6MWD SDS (r = -0.691 p = 0.01).

Conclusions
PA was not associated with motor performance or physical function. Physical function was poorer than healthy children, and shorter 6MWD was related to higher BMI. These results showed feasibility of including weight, motor performance and physical function monitoring in long-
term follow-up to inform healthcare professionals in promoting PA for childhood ALL patients.

16-07-P

SKIN CHANGES AFTER INTRA-ARTERIAL CHEMOTHERAPY IN RETINOBLASTOMA

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Introduction

Treating retinoblastoma via intra-arterial chemotherapy is becoming increasingly available. Low dose intra-arterial chemotherapy minimizes the toxic effects of systemic chemotherapy. This procedure has shown excellent results, but little is known about its potential complications.

Objectives

To describe a skin complication following ocular intra-arterial chemotherapy for the treatment of retinoblastoma.

Methods

We present an 18-month-old girl with retinoblastoma who received bilateral intra-arterial chemotherapy.

Results

A newborn diagnosed with bilateral retinoblastoma at 7 days of age received seven cycles of systemic chemotherapy. Upon reaching the appropriate weight, she began ophthalmic intra-arterial chemotherapy. Usually a catheter is inserted into the femoral artery, up through the internal carotid and into the ophthalmic artery. As anatomy was not favorable in this patient, chemotherapy was injected into the ophthalmic artery via the external carotid artery. Seven days later, the patient showed frontotemporal erythema without fever. It was discovered that some chemotherapy had diverted from the external artery and flowed into its superficial collateral arteries, causing visible skin erythema.

Conclusions

Hyperemia in frontotemporal region should be considered in patients who receive intra-arterial chemotherapy through the external carotid artery. In most cases, the outcome is favorable without treatment.

16-08-P

MENTAL PAIN IN ADULT SURVIVORS OF PEDIATRIC CANCER AND ITS IMPACT ON QUALITY OF LIFE

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Introduction

Studies show that many survivors of pediatric cancer have satisfactory quality of life (QOL) despite the disease and treatments in their past, but their suicide ideation is high. Since it is possible that they still experience distress, it is advisable to examine their scores on a construct such as mental pain (MP) which reflects existential anxiety.

Objectives

To examine the scores of adult survivors of pediatric cancer on MP in the present and in the past during diagnosis and treatments, tolerance for MP and their effect on QOL.

Methods

The participants were 91 adult survivors of pediatric cancer, mostly leukemia and lymphoma, whose mean age at present was 26, and at diagnosis 13 years. The administered tools were questionnaires assessing MP providing scores on 9 factors (Orbach & Mikulincer), and QOL providing scores on 15 scales (Kreitler & Kreitler). Demographic and medical data was extracted from the files.

Results

MP at present was lower than in the past and correlated negatively with it and with most of the QOL scales. Regression analyses showed that MP factors predicted all of the QOL scales except cognitive functioning. Tolerance of MP predicted only body image and negative feelings. High scores of MP in the past were related to lower QOL.

Conclusions

Pediatric cancer survivors suffer from distress in the form of MP which affects adversely their QOL. Reducing their MP in the present and the past will improve their QOL.

16-09-P

PRIMARY CUTANEOUS ASPERGILLOSIS: AN UNUSUAL PEDIATRIC PRESENTATION

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Introduction

Cutaneous aspergillosis is an unusual but potentially serious presentation of an Aspergillus infection. It can be a primary process or, more often, the result of secondary hematogenous dissemination in immunocompromised patients.
Objective
To describe an atypical manifestation of an Aspergillus infection in an immunocompromised patient.

Methods
We report the case of an 8-year-old patient with acute lymphoblastic leukemia who presented with a nodule on his chest.

Results
An 8-year-old boy with newly diagnosed acute lymphoblastic leukemia treated according to BFM ALLIC 2010 protocol developed a nodule, erythematous, mobile and painless lesion on his chest during a febrile neutropenic episode. It was initially treated as a bacterial infection but microbiological culture was positive for Aspergillus. After one month of voriconazole treatment, the lesion developed an ulcer and spontaneously eliminated a whitish, irregular and hard-elastic fragment. The histopathology of the specimen showed spores and thick-angled hyphae. Presence of infection in other organs was ruled out by complementary tests. Complete exeresis of the lesion was successfully performed.

Conclusions
Cutaneous aspergillosis should always be considered in immunocompromised patients susceptible to skin lesions. It is a potentially serious situation due to the angioinvasive trend of Aspergillus infection, which requires early diagnosis and effective systemic antifungal treatment.

16-10-P
INTRODUCTION OF 12 HOURS NURSING SHIFT PATTERN IN PAKISTAN’S FIRST PEDIATRIC HEMATOLOGY ONCOLOGY INTENSIVE CARE UNIT

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Introduction
Twelve hours nursing shift pattern is not a new concept for developed countries but in developing country like Pakistan the introduction and implementation of 12 h nursing shift pattern is a paradigm shift.

Objectives
The objective of this study was to evaluate the effects of 12 h shift on nurse, system and quality patients’ outcome.

Methods
Mixed method approach was taken. Qualitative data was obtained by in-depth interviews guided by standardized questionnaire and quantitative data was gathered from multiple resources, including nurse survey and administrative and patients record. The study was conducted on hospital nurses for Pakistan’s First Pediatric Hematology/Oncology Intensive Care Unit (PHOICU), with outcomes including burnout, job satisfaction, preferences, intention to stay, and employee safety. System outcomes included recruitment and turnover, staffing, absenteeism, and related costs. A variety of quality patient outcomes were measured from 3 different types of data.

Results
Twenty-four nurses working in AMTF-PHOICU participated in this study. The nurses reported to prefer to work in 12 h shift pattern rather than 8 h as on average they more satisfied with their jobs, experienced less emotional exhaustion, and were able to get more time for their families that improves their psychological and emotional health, and their transportation expenses went less. System outcomes depicted acceptable turnover ratio and significance decrease in staff absenteeism. The three patient outcomes were also significantly low.

Conclusions
The study has provided nurse managers of developing countries a suitable cost effective model for nurses, patients and management provided that they are well managed.

16-11-P
CENTRAL VENOUS CATHETERS AND BLOODSTREAM INFECTIONS DURING INDUCTION THERAPY FOR ACUTE LYMPHOBLASTIC LEUKEMIA: A MULTI-INSTITUTIONAL COHORT STUDY IN DENMARK

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Introduction
It is unknown how the type of central venous catheter (CVC) impacts to the risk of bloodstream infections (BSI) in pediatric patients with acute lymphoblastic leukemia (ALL) undergoing induction therapy.

Objectives
We assessed the risk of BSI according to type of CVC among children with ALL undergoing induction therapy.

Methods
Patients eligible for our analysis were children at one of three pediatric centers in Denmark with newly diagnosed ALL between 2008 and 2014. Patients were followed from initial CVC placement to first BSI, death, or CVC removal, whichever occurred first. The risk of BSI among patients who had a non-tunneled CVC (nt-CVC) placed was compared with the risk among patients who had a tunneled CVC with external lines (TE). We estimated risk differences 28 days from CVC placement using competing risks regression with adjustment for age, sex, neutropenia at CVC insertion, and ALL risk group.

Results
Our study population comprised 136 newly diagnosed pediatric ALL patients. We observed 39 BSIs, of which 65 % were Gram-positive infections and 59 % met the criteria for being CVC-associated. Figure 1 illustrates the cumulative incidence of BSI. The 28-day adjusted risk difference of BSI comparing nt-CVC with TE was −1 % (95 % confidence interval: −18 to 16 %). Subgroup analyses suggested that patients older than 9 years and T-ALL might have lower risk of BSI with TE at diagnosis.

Conclusions
The risk of BSIs during induction therapy is similar between patients who had a nt-CVC or TE at diagnosis, but potential variation by age and ALL type should be explored in future studies.
16-12-P

TREATMENT OUTCOMES AND RISK FACTORS FOR ABANDONMENT PEDIATRICS WITH CANCER

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Introduction
This study was done at the teaching hospital, many implications among others were being considered to hospital when its late others due to poverty.

Objectives
To diagnose all suspected children that were brought to the hospital and find out the main risk factors and outcomes of the treatment and also how effective it was. To make sure that child cancers can also be taken care in the country.

Methods
Using an established database, a retrospective cohort study was conducted of children aged 0–15 years admitted to the pediatric oncology ward between July 2010 and June 2014 with suspected cancer.

Results
Among 162 children treated at the Uganda Teaching Hospital during the study period, and patients dying during treatment or abandoning care. In multivariable analysis, shorter distances from home the hospital was associated with a higher risk of treatment abandonment. Adjusted Odds Ratio (aOR) equaled 0.48; 95% confidence interval (CI) ranged between 0.23 and 0.97. Conversely maternal education less than secondary school was associated with increased risk for abandonment (aOR)=1.65; 95% CI 1.05–2.58.

Conclusions
Despite availability of dedicated pediatric oncology treatment, completion rates are poor in part to the logistical challenges faced by families, Alternative treatment delivery strategies are required to bring effective pediatric oncology care to the patients in need, especially in resource limited areas.

16-13-P

ASSESSMENT OF GRIEF AMONG HEALTH CARE PROVIDERS AT A TERTIARY HOSPITAL IN THE PHILIPPINES AFTER A DEATH OF A PATIENT WITH CHILDHOOD CANCER

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Introduction
Children with cancer are an endearing special group of patients. When a child with cancer dies, an indelible mark is left behind especially among those who took care of them.

Objectives
To evaluate the intensity of grief experienced by the health care providers (HPs) after the death of a pediatric cancer patient.

Methods
A prospective cross-sectional study was done to measure the intensity of grief among HPs using the Texas Revised Inventory of Grief (TRIG).

Results
A total of 105 respondents participated in the study (80% response rate) who took care of them.

Conclusions
Experiencing grief can be a long process to endure; hence emotional and psychological support is important because when grief is ignored or suppressed, it may become a source of stress and even dysfunction.

16-14-P

CHRONIC SORROW IN MOTHERS OF CHILDREN WITH CANCER

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Introduction
Chronic sorrow a progressive, persistent, and endless feeling of grief is seen in parents of children with chronic diseases.

Objectives
This study aimed to investigate chronic sorrow in mothers of children with cancer in selected hospitals of Tehran, Iran. It also sought to clarify the relationships between chronic sorrow and some demographic characteristics.

Methods
In this descriptive, cross-sectional study, 264 mothers attending three pediatric teaching hospitals in Tehran were selected using convenience sampling. The subjects completed a demographic questionnaire and Kendall Chronic Sorrow Questionnaire (Persian version). Data were analyzed with descriptive and inferential (Mann–Whitney and Kruskal-Wallis tests) statistics in SPSS 16.0.

Results
The mean score of Kendall Chronic Sorrow Questionnaire was 67.39±15.81. Chronic sorrow was likely present or present in 97.7% of the mothers (n=252). The mean scores of “Disparity”, “Sadness”, and “Getting along” subscales were 1.29±20.29, 33.38±2.77, and coping 12.75±11.922, respectively. The relationships between most demographic characteristics and scores of Kendall Chronic Sorrow Questionnaire were not significant.

Conclusions
Chronic sorrow is a concept experienced by families of children with cancer. The healthcare provider’s knowledge about this
concept and its components can facilitate the development of better support and treatment programs and lead to improved quality of life of children and their families which is an important part of palliative care in children.

16-15-P

TAking care of children and adolescents with cancer: the burden of informal caregivers

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Introduction

The impact of cancer is stronger when the disease appears in children and adolescents. The caregivers accompany the information of the bad news of the diagnosis, the long hospitalization periods, the aggressive treatment, the rehospitalizations, the interruptions of the activities of daily living; they also face financial problems and give up their job, facts that subject them to a burden.

Objectives

To assess the physical, emotional and social burden of informal caregivers to children and adolescents with cancer during the hospitalization.

Methods

Descriptive study with quantitative data analysis. The participants were informal caregivers of children and adolescents with cancer, hospitalized in a Brazilian hospital. The data were collected during 1 year after the approval of the research ethics committee. The caregivers answered the Burden Interview and a questionnaire with sociodemographic characteristics. In the data analysis, descriptive statistics were used.

Results

The main care providers were the mothers. Care was related to daily life, such as washing and feeding, but also to the hospitalization, such as oral medication administration and observation of signs and symptoms. They were also responsible for psychoemotional and spiritual care. In contact with the suffering and long-term care delivery, the caregivers experienced crisis situations that affected their physical and mental health, although they assumed the care with kindness and satisfaction.

Conclusions

The search for knowledge on the informal caregivers’ burden is needed to identify actions that can reduce the burden deriving from the hospitalization process of children and adolescents with cancer.

16-16-P

NePhrotic syndrome associated with Hodgkin’s lymphoma

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Introduction

The incidence of Nephrotic syndrome (NS) as a paraneoplastic manifestation in patients with Hodgkin’s lymphoma is low. Usually coincides with the initial diagnosis of lymphoma, with varying temporal relationship or associated with relapses. Its presence can complicate diagnosis due to treatment with corticosteroids. The prognosis related to lymphoma and treatment is followed by remission of the NS.

Objectives

To describe the association between Hodgkin’s lymphoma and NS as a paraneoplastic manifestation.

Methods

We present two patients with Hodgkin’s lymphoma whose diagnosis was preceded by NS.

Results

Case 1: A 12-year-old boy presenting generalized edema and massive proteinuria was diagnosed with NS and began treatment with corticosteroids. He had good response but remained mild lower limb edema. Eighteen months later, a cervical lymph node biopsy was done. Nodular sclerosis Hodgkin’s disease was diagnosed. Chemotherapy according to protocol began with good response and remission of limb edema.

Case 2: A 10-year-old boy who complained of generalized edema was diagnosed with NS. He started treatment with corticosteroids with improvement in symptoms. He also presented a laterocervical tumor with no response to antibiotics and antiparasitic treatments. Bone marrow biopsy was performed with negative results for neoplastic infiltration. Three months later he was admitted for malaise, petechiae and palpable spleen. Histopathology neck’s mass biopsy confirmed the diagnosis of Nodular sclerosis Hodgkin’s disease. Specific treatment was indicated, with good tolerance and remission of symptoms.

Conclusions

Paraneoplastic syndromes are a rare presentation of lymphoproliferative diseases. Glomerular dysfunction should be considered in cases of Hodgkin’s lymphoma.

16-17-P


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Introduction

According to ALLIC BFM 2010 Protocol, children with ALL Intermediate Risk (IR) and High Risk (HR) receive a randomization between IB and Augmented IB (AIB). New treatment strategies require us to make a very strict control of adverse events.

Objectives

To describe and compare toxicity associated with chemotherapy for stage IB and AIB.

Methods

Results
Fifty four patients who received the IB branch (SR 6, IR 31, HR 17) and 47 patients who received the AIB branch (IR 36, HR11) were evaluated. No significant differences in age and sex were found. Number of patients requiring hospitalization during this stage, hospitalization for febrile neutropenia (FN) and high risk FN were significantly higher in the AIB group (p<0.05). There were no differences in bacteremia and sepsis between groups. No differences in outpatient infectious intercurrences frequency were found. There was significant difference in the occurrence of catheter-related infection. Regarding haematological toxicity, no differences in patients with hemoglobin less than or equal to 7 g% and patients requiring GRS transfusion between groups were found. We found significant differences in patients requiring platelet transfusion in AIB group.

Conclusions
We found increased risk of hospitalization, high-risk FN and platelet transfusion requirements in patients receiving IBA.

16-18-P
TOTAL PARENTERAL NUTRITION IN CHILDREN WITH CANCER
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Introduction
The incidence of malnutrition in children with cancer varies between 8 % and 60 %, depending on the diagnosis and the extent of the disease as well as the type of antineoplastic therapy. Malnutrition is associated with lower toleration and delay of chemotherapy, more frequent and severe side effects, and compromised immune function.

Objectives
The aim of this study was to show our experience with total parenteral nutrition (TPN) in children with cancer, and point out the importance of nutritional support in pediatric oncology.

Methods
Eleven children who received TPN during the treatment of cancer at the Children’s Hospital Rijeka were included in the study. Indications for starting nutritional support were as follows: body weight below the 10th percentile for age and/or body mass index below the 5th percentile for age at the diagnosis; body weight loss greater than 5 % prior to diagnosis or during the treatment; children who refuse or are unable (mucositis, diarrhea) to take food.

Results
The average length of TPN was 23 days (range 8–59 days). Ten (90 %) children had weight gain (median 9.4 %; range 1–25 %). In 4 (36 %) patients mild hepatotoxicity was observed, which did not require discontinuation of chemotherapy. In two adolescents with concomitant steroid therapy, glucose intolerance and need for insulin therapy was observed. Other side effects did not occur.

Conclusions
Our results confirm that TPN is an effective method of establishing protein-energy balance in pediatric patients with cancer. Weight gain was satisfactory, and complications rare and transitory.

16-19-P
CHARACTERISTICS OF HODGKIN LYMPHOMA IN A DEFINED GROUP OF IRANIAN PEDIATRIC PATIENTS
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Introduction
Hodgkin lymphoma represents approximately one-third of lymphomas in pediatrics.

Objectives
This study was conducted to describe the characteristics of Hodgkin lymphoma in Iranian children.

Methods
In a referral center for pediatric oncology (Mofid Hospital) in Tehran, patient data over a 10-year period were retrieved and recorded accordingly.

Results
Among 82 cases, 73.2 % were male, 26.8 % were female, and 70.7 % were 5–9 years old. About 40 % of patients were in stage III and 42.7 % had systemic signs. Cervical nodes were commonly involved (91.5 %). The most frequent histological subtype was mixedcellularity. The main hematological features were anemia (47.6 %), lymphopenia (20.7 %), and eosinophilia (8.7 %). Survival rate was 72 %, and 8.4 % of patients were deceased. A 3 % recurrence rate was observed in our patients. A significant relationship was found between the stage of disease and systemic signs (P<0.0005, χ2).

Conclusions
Despite diagnosis of Hodgkin lymphoma in many children in Iran being made in higher stages, the mortality rate is relatively low.

16-20-P
EXPLORE FACTORS RELATED TO TRUTH TELLING IN PRIMARY CAREGIVERS OF CHILDREN NEWLY DIAGNOSED WITH CANCER
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Introduction
Over the last 50 years, research studies explore factors related to truth telling in primary caregivers of children newly diagnosed with cancer were very rare. So we couldn’t understand that the current status about what the factors related to truth telling in primary caregivers of children newly diagnosed with cancer.

Objectives
The purpose of this study was to investigate the current status and correlation of truth telling, hope, and care burden during treatment in primary caregivers of newly diagnosed children with cancer.

Methods
A correlational, cross-sectional design was conducted utilizing of purpose sampling and structured questionnaire. Main variables explored in this study were truth telling, hope and care burden. Data were analyzed using SPSS 20 software. Mean, standard deviation, frequency and percentage were performed to describe the sample. Additionally, t-test, ANOVA and Pearson’s correlation were used to explore factors related to truth telling.

Results
A total of 44 primary caregivers with a mean age of 39.0 years from one medical center participated in this study. Twenty seven of them (61.4 %) have told their children about the cancer diagnosis. The caregivers’ hope was significantly correlated with their care burden (r = −.424, p = .004). However, truth telling wasn’t significantly correlated with hope (r = −.156, p = .313); nor care burden (r = .070, p = .653).
Conclusions
Results of this study suggested that the higher the hope score, the lower the care burden. There is no remarkable relationship between truth telling and hope; or care burden.

16-21-P
USE OF OPIOIDS AT THE END OF LIFE AT THE PEDIATRIC ONCOLOGY/HEMATOLOGY DEPARTMENT
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Introduction
Despite current advancements in management of children with various hematological and oncological diseases, approximately 25% of them will ultimately die. In many cases symptoms of suffering often necessitate use of opioids for its alleviation. Despite their widespread use, they frequently delayed and not always efficacious.

Objectives
To evaluate the practice of opioids’ use at the end of life among pediatric cancer and hematology patients (pts).

Methods
Between January 2005 and December 2014 154 pts treated in our department died. Mean age was 11.4 years. Pts suffered from various forms of cancer, thalassemia, Fanconi anemia, SCID and inborn errors of metabolism. 94 pts (61%) received at least one opioid during last period of their life. 35 pts received also midazolam during the same period.

Results
Opioids in use were: i.v. Morphine-64 pts, OxyContin – 19 pts, Oxycodone – 48 pts, i.v. Fentanyl – 5 pts, patch Duragesic – 49 pts, Actiq – 5 pts. Several pts received either tramadol, hydromorphone, targin or I.T. Fentanyl. 17 pts died at home. All pts who received midazolam and also those who received i.v. Fentanyl died in hospital. Among pts who died at home 4 pts received i.v. Morphine alone or with combination with other analgesics. 8 pts received no analgesics at all. Others received oral or/and transcutaneous forms of analgesics.

Conclusions
1. Most pts needed opioids as a part of their palliative treatment. 2. Hospitalization was required for most pts to successfully manage their symptoms. 3. Adequately trained medical personnel working in outpatient setting may potentially lead to increase in number of children who die at home.

16-22-P
USE OF MOBILE TECHNOLOGY TO ENHANCE PEDIATRIC PALLIATIVE CARE AWARENESS IN WESTERN KENYA REGION: THE EMBLEM EXPERIENCE.

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Introduction
Over 12 million Kenyans own cellular phones, popularly referred to as mobile phones. A lot of surveys have been done on the impacts of mobile phone technology in Kenya, M-Pesa, a money transfer platform being the most celebrated invention pioneered in Kenya. The latest additions to the benefits of mobile phones include information about various issues including health, education, entertainment, to mention but a few. This technology has been embraced as a method of texting away ignorance and increasing awareness on pediatric palliative care in Western Kenya Region through Epidemiology of Burkitt Lymphoma in East African Children and Minors (EMBLEM) Study

Objectives
To demonstrate how use of modern technology in a resource limited set up is a powerful tool to disseminate health information
To unearth the underlying dilemma whether there is conspiracy of silence on childhood cancer stigma or whether cases are on the increase

Methods
Selection of text recipients was done using the attendance sheets and the contact lists generated during the outreach activities that were being conducted during sensitization of EMBLEM activities.

Results
One thousand text messages are sent to different recipients every week. About 500 responses received at least 2–4 cases are referred for care every month through the community health workers. Since the introduction of this method of communication, more people are engaging on the platform and still more showing up for diagnosis and treatment.

Conclusions
We cannot treat unless we diagnose, we cannot diagnose unless we spot. Together we can make a difference.

16-23-P
USE OF INDWELLING CENTRAL VENOUS ACCESS DEVICE (CVAD) IN PEDIATRIC ONCOLOGY – THE ZIAUDDIN UNIVERSITY HOSPITAL (EXPERIENCE)

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Introduction
Cellulitis and Phlebitis are common problems encountered in cancer patients receiving chemotherapy through peripherally inserted intravenous catheters.

Objectives
Cellulitis and Phlebitis are common problems encountered in cancer patients receiving chemotherapy through peripherally inserted intravenous catheters. Insertion of peripheral lines in such patients is quite often a painful and time consuming process. It requires multiple attempts that could lead to the risk of introduction of infection while patient is immunocompromised. Use of CVAD is therefore desirable. We have seen a steady increase of CVADs in our oncology service with frequent use of indwelling ports since last year. In this study we will compare use of various devices for venous access in our Paediatric oncology patients.

Methods
This is retrospective study comprising of chart review of all oncology patients admitted on Paediatric wards of the ZUCON from March 2011 until March 2012.

Results
Vast majority of our patients with peripheral lines suffered catheter related infection during preliminary review. Externalized CVAD were difficult to care, can be pulled out or punctured accidentally. Cosmetically, these are undesirable for older female patients. In our experience, we have found that internalized CVAD are less problematic and result in better patient and family satisfaction.

Conclusions
Use of peripheral lines must be gradually phased out of Paediatric oncology practice in Pakistan. Indwelling CVADs have become standard of care internationally and should be considered for patients when resources are available.

16-24-P

IMPACT OF CHEMOTHERAPY CYCLE ON NUTRITIONAL STATUS OF CHILDREN AND ADOLESCENTS IN TERESINA-PI
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Introduction
The normal weight in most patients can be directly associated with the use of adjuvant medications such as corticosteroids and glucocorticoids.

Objectives
The present study aimed to assess the nutritional status of children and adolescents receiving chemotherapy for parameters anthropometric, evaluate gastrointestinal symptoms, adverse effects of treatment, type of cancer most prevalent and most used chemotherapeutics

Methods
Cross-sectional study included 30 pediatric patients aged 2 to 16 years, diagnosed with cancer and undergoing chemotherapy treatments (induction or consolidation phase). The patients were matched by sex and age (years). The P / I, A / I, P / E and IMC / I ratios were determined. Gastrointestinal symptoms and adverse effects were evaluated through subjective questionnaires-records

Results
The anthropometric variables that diagnosed with adequate weight for age. The adolescents were diagnosed with normal weight by and at baseline and after cycle and were with adequate height for age. The most prevalent childhood cancer acute lymphoblastic leukemia were and Acute Leukemia cell type NE. The most commonly used chemotherapeutic agents were cyclophosphamide, methotrexate. The gastrointestinal symptoms and adverse events were in feed appetite, nausea, oral mucositis and difficulty in chewing to about (P<0.001).

Conclusions
Only after the cycle was caquexia prevalence in pediatric cancer patients was elevated, associated with bowel symptoms that often significantly altered food intake, and this, in turn, modified the evolution of the nutritional status of patients.

16-25-P

SUPPORTIVE CARE IN PREVENTING AND MANAGING TUMOR LYSIS SYNDROME IN CHILDREN WITH CANCER
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Introduction
At present there is no published guideline that describes the corresponding nursing interventions for the prevention and management of tumor lysis syndrome.

Objectives
To identify appropriate nursing management procedures for the prevention and treatment of tumor lysis syndrome.

Methods
A systematic approach was used to identify relevant studies. The search strategy included five electronic biomedical and health care databases.

Results
The evaluation of patient risk factors for tumor lysis syndrome and the appropriate medical and nursing assessment have been identified. The treatment algorithm for the prevention of tumor lysis syndrome from both the medical and nursing perspectives have been established.

Conclusions
Oncology nurses can take initiative in coordinating and collaborating with other medical healthcare professionals for the prevention and management of patients with tumor lysis syndrome.

Palliative Care
17-01-O

A DIAGNOSTIC MODEL FOR IMPENDING DEATH IN PATIENTS WITH ADVANCED CANCER
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Introduction
We recently identified several highly specific bedside physical signs associated with impending death within 3 days among patients with advanced cancer.

Objectives
In this prospective study, we developed and assessed a diagnostic model for impending death based on these physical signs.

Methods
We systematically documented 62 physical signs every 12 h from admission to death or discharge in 357 patients with advanced cancer admitted to acute palliative care units (APCUs) at two tertiary care cancer centers. We used recursive partitioning analysis (RPA) to develop a prediction model for impending death in 3 days using admission data. We validated the model with 5 iterations of 10-fold cross-validation, and also applied the model to APCU days 2/3/4/5/6.

Results
Among 322/357 (90 %) patients with complete data for all signs, the 3-day mortality was 24 % on admission. The final model was based on 2 variables (palliative performance scale [PPS] and drooping of nasolabial fold) and had 4 terminal leaves: PPS≤20 % and drooping of nasolabial fold present, PPS≤20 % and drooping of nasolabial fold absent, PPS 30–60 % and PPS ≥70 %, with 3-day mortality of 94, 42, 16 and 3 %, respectively. The diagnostic accuracy was 81 % for the original tree, 80 % for cross-validation, and 79-84 % for subsequent APCU days.

Conclusions
We developed a diagnostic model for impending death within 3 days based on 2 objective bedside physical signs. This model was applicable to both APCU admission and subsequent days. Upon further external validation, this model may help clinicians to formulate the diagnosis of impending death.
**17-02-O**

CHEMICAL COMPATIBILITY/STABILITY OF COMMONLY USED DRUG COMBINATIONS ADMINISTERED BY CONTINUOUS SUBCUTANEOUS INFUSIONS FOR END OF LIFE CARE

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**Introduction**

In the UK, a continuous subcutaneous infusion (CSCI) is the preferred method of drug administration to maintain symptom management at the end of life. In 2007, the National Patient Safety Agency recommended that healthcare staff must have full technical information about the compatibility of commonly used parenteral drug mixtures. In 2008, the Commission on Human Medicine recommended the development of authoritative national advice on mixing of medicines to encompass compatibility and stability data. Presently, there are only two major reference sources relating to CSCIs in palliative care. While these provide useful information about mainly the physical compatibility of drug combinations, chemical incompatibilities cannot be discounted. The outcomes of mixing two or more drugs together in a syringe for symptom management at the end of life are largely unknown.

**Objectives**

The aim of the study was to determine the chemical compatibility/stability of a total of 40 commonly encountered drug combinations.

**Methods**

A CME T34 syringe pump was used to simulate infusion of the syringe preparation over a 24 h period. The combinations were analysed by High Performance Liquid Chromatography-Diode Array Detection (HPLC-DAD).

**Results**

Thirty-six combinations were identified as compatible by HPLC-DAD. These combinations also remained clear and free from visible particulate matter and the pH remained constant over the monitored period. Four combinations will require additional analysis as variances were detected during the testing procedure.

**Conclusions**

This research is the first step towards providing technical information required by healthcare staff for the mixing of injectable medicines in the same syringe.

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**17-03-O**

EXPLORING THE COMPLEXITIES OF CAREGIVER QUALITY OF LIFE: QUALITATIVE RESULTS FROM A TRIAL OF EARLY PALLIATIVE CARE

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**Introduction**

Early palliative care involvement is known to improve patient quality of life (QOL), but little is known about the effects on caregiver QOL.

**Objectives**

To examine whether early palliative care has an impact on caregiver QOL and to further appreciate the complexity of caregiver QOL.

**Methods**

461 patients with advanced cancer were recruited from 24 medical oncology clinics at Princess Margaret Cancer Centre between December 2006 and February 2011 to participate in a cluster-randomised controlled trial of early palliative care versus standard care for 4 months. 182 consenting caregivers completed measures assessing QOL and satisfaction with care. Following RCT completion, 23 caregivers (14 intervention, 9 control) were selectively sampled to participate in semi-structured interviews to further discuss and assess QOL; a grounded theory approach guided our analysis.

**Results**

Qualitative analyses revealed differences between study arms in QOL themes not evident from the quantitative results. In particular, the intervention group was characterized by greater willingness to discuss mortality and advance care planning; more prevalent positive coping strategies including reframing hope; increased access to practical supports at home; and a broader life perspective.

**Conclusions**

Caregiver QOL is a complex construct that appears to change with advancing illness of the patient. Important QOL domains are missing from current caregiver QOL questionnaires, appear to be sensitive to change, and warrant consideration in the construction of specific caregiver QOL measures for the advanced cancer stage.

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**17-04-O**

DIFFERENCES IN ATTITUDES AND BELIEFS TOWARD CANCER TREATMENTS AT THE END-OF-LIFE BETWEEN HEMATOLOGIC AND SOLID TUMOR ONCOLOGY SPECIALISTS

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Introduction
Patients with hematologic malignancies often receive aggressive care at the end-of-life.

Objectives
To better understand the end-of-life decision making process among oncology specialists, we compared the cancer treatment recommendations, and attitudes and beliefs toward palliative care between hematologic and solid tumor specialists.

Methods
We randomly surveyed 120 hematologic and 120 solid tumor oncology specialists at our institution. Respondents completed a survey examining three aspects of end-of-life care: palliative systemic therapy using standardized case vignettes, palliative care proficiency and specialist palliative care referral.

Results
182/240 (76 %) clinicians responded. Compared to solid tumor specialists, hematologic specialists were more likely to favor prescribing systemic therapy with moderate toxicity and no survival benefit for patients with ECOG performance status 4 and an expected survival of 1 month (median preference 4 vs. 1, in which 1 = strongly against treatment and 7 = strongly recommend treatment, P

Conclusions
We found significant differences in attitudes and beliefs toward end-of-life care between hematology and solid tumor specialists, and identified opportunities to standardize end-of-life care.

17-05-O
THE FREQUENCY, CHARACTERISTICS AND OUTCOMES AMONG CANCER PATIENTS WITH DELIRIUM ADMITTED TO AN ACUTE PALLIATIVE CARE UNIT (APCU)

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Introduction
Delirium is a common neuropsychiatric condition seen in patients with severe illness such as advanced cancer.

Objectives
We aimed to determine the frequency, characteristics and outcomes of patients with advanced cancer admitted to an APCU.

Methods
Four hundred forty-six consecutive patients admitted to the APCU from January 2011-December 2011 were reviewed. Demographics, Memorial Delirium Assessment Scale (MDAS), ECOG, Palliative Medicine specialist (PMS) diagnosis of delirium, delirium etiology, subtype, reversibility, late development of delirium, and discharge outcome were collected. Delirium was diagnosed with MDAS score ≥7 or by a PMS using DSM-IV TR Criteria. Descriptive statistics were used.

Results
323/446 (72 %) APCU patients had a diagnosis of delirium; 229/323 (70 %) on admission and 94/323 (30 %) developed delirium after admission to the APCU. Mixed delirium was the most frequent type of delirium 112/323 (45 %), followed by hypoactive 73/323 (30 %) and hyperactive type 61/323 (25 %). The presence of delirium on admission was associated with male gender OR=1.55, 95 % CI: (1.03, 2.35), p=0.0365), and ECOG (1 & 2 vs. 4, OR=0.17, 95 % CI: (0.08, 0.39), p

Conclusions
A little over half of the patients admitted to the APCU had delirium. The predominant type was mixed delirium. Reversibility occurred in almost third of cases.

17-06-O
SLEEP DISTURBANCE CONTRIBUTES TO CRF IN CANCER PATIENTS WITH ACTIVE DISEASE

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Introduction
Sleep disturbance and cancer-related fatigue (CRF) are two of the most frequent side effects experienced by patients with cancer.

Objectives
We performed a retrospective study of CRF patients referred for a sleep consult who subsequently had polysomnography.

Methods
We performed a retrospective study of CRF patients referred for a sleep consult who subsequently had polysomnography. We reviewed their demographic, clinical symptom status and polysomnographic data and correlated the polysomnographic values to symptom scores.

Results
Of the 219 patients identified, 24 % (53) were referred for sleep consultation, 74 % (39) had polysomnography performed. Median age was 58 with 69 % (27) female. Breast cancer was most common cancer diagnosis (41 %, n=16). Median BMI was 32.7, median Epworth Score was 14, median fatigue score (BFI) was 6.5, median sleep disturbance score (BSSD) was 24.4, median pain score (BPI) was 6.0, median anxiety score (BAI) was 11.5. The sleep architecture of the CRF patients deviated from norms with increased proportions of wakefulness, decreased stage N2 sleep and an increased arousal index. Theses polysomnographic changes correlated with current chemotherapy use and evidence of disease. Interestingly, variation from norms in sleep stages did not correlate with Epworth scores or BFI in our sample.

Conclusions
Sleep architecture is fragmented in patients with CRF. Current chemotherapy and presence of disease correlates with these variations in sleep architecture.

17-07-P
PATIENT EVALUATION OF A PHYSICIAN CONVEYING A MORE OPTIMISTIC VERSUS A LESS OPTIMISTIC MESSAGE: A RANDOMIZED CONTROLLED TRIAL

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Introduction
Delirium was diagnosed with MDAS score ≥7 or by a PMS using DSM-IV TR Criteria. Descriptive statistics were used.

Results
323/446 (72 %) APCU patients had a diagnosis of delirium; 229/323 (70 %) on admission and 94/323 (30 %) developed delirium after admission to the APCU. Mixed delirium was the most frequent type of delirium 112/323 (45 %), followed by hypoactive 73/323 (30 %) and hyperactive type 61/323 (25 %). The presence of delirium on admission was associated with male gender OR=1.55, 95 % CI: (1.03, 2.35), p=0.0365), and ECOG (1 & 2 vs. 4, OR=0.17, 95 % CI: (0.08, 0.39), p

Conclusions
A little over half of the patients admitted to the APCU had delirium. The predominant type was mixed delirium. Reversibility occurred in almost third of cases.
Introduction
Information regarding treatment options and prognosis is essential for patient decision making near end of life. However, physicians are frequently reluctant to deliver bad news due to multiple factors, including fear of being perceived as less compassionate.

Objectives
To examine the patient’s perception of physician compassion after being exposed to a more optimistic vs. a less optimistic message.

Methods
One hundred patients were randomized to observe 2 standardized videos, depicting a physician discussing treatment and prognostic information (more optimistic message and less optimistic message) with a patient with advanced cancer. Three sets of surveys were completed including the Physician Compassion Questionnaire (0=best, 50=worst). Actors and patients were blinded to the purpose of the study. Investigators were blinded to the video observed by the patient.

Results
Patients reported significantly better compassion scores after watching the more optimistic video as compared to the less optimistic video [median (Q1-Q3): 15 (5–23) vs. 23 (10–31), p = 0.0002]. Results were equally significant after parallel analysis of first video only and after cross-over analysis. There was also an order effect with compassion scores (p=0.0002) favoring the second video. Univariate analysis showed that degree of trust in the medical profession, ESAS fatigue, ESAS anxiety and ESAS depression had significant association with compassion perception independent of message observed. After applying Bonferroni correction, only degree of trust in the medical profession reached the corrected p value of p=0.0014 (p=0.0002).

Conclusions
A more optimistic message resulted in a physician being perceived as more compassionate by the patient. The physician seen in second order was also perceived to be more compassionate.

17-09-P
INDICATORS OF INTEGRATION OF ONCOLOGY AND PALLIATIVE CARE PROGRAMS: AN INTERNATIONAL DELPHI SURVEY

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Introduction
The ESAS is widely used for symptom assessment in the clinical and research settings.

Objectives
We used the sensitivity-specificity approach to identify the MCID for improvement and deterioration for each of the 10 ESAS symptoms.

Methods
This multicenter, prospective, longitudinal study enrolled patients with advanced cancer. ESAS was measured at first clinic visit and a second visit 3 weeks later. For each symptom, we assessed Patient’s Global Impression (PGI) (“better”, “about the same”, or “worse”) at the second visit as the external criterion, and determined the MCID based on the optimal cutoff in receiver-operating characteristic (ROC) curve. We conducted sensitivity analysis by estimating MCIDs using other approaches.

Results
Among the 796 participants, the median duration between the 2 study visits was 21 days (interquartile range 18–28 days). The area under the ROC curve varied between 0.70 and 0.87, suggesting good responsiveness. For all 10 symptoms, the optimal cutoff was ≥1 point for improvement and≤−1 point for deterioration, with sensitivities of 59–85 % and specificities of 69–85 %. With other approaches, the MCIDs varied between 0.8 and 2.2 for improvement and between −0.8 and −2.3 for deterioration in within-patient analysis, between 1.2 and 1.6 with the ½ standard deviation approach, and between 1.3 and 1.7 with the standard error of measurement approach.

Conclusions
ESAS was responsive to change. The optimal cutoffs were ≥1 point for improvement and≤−1 point for deterioration for all 10 symptoms. Our findings have implications for sample size calculations and response determination.
Introduction
MASCC, ASCO, and ESMO strongly endorse integrating oncology and palliative care; however, a global consensus on what constitutes integration is unavailable.

Objectives
We conducted a Delphi Survey to develop a consensus list of indicators of integration of palliative care and oncology programs for advanced cancer patients in hospitals with ≥100 beds.

Methods
International experts on integration (including MASCC members) rated a list of indicators on integration over 3 rounds under 5 categories: clinical structure, processes, outcomes, education and research. Consensus was defined a priori by an agreement of ≥70%. Major criteria (i.e., most relevant and important indicators) were subsequently identified.

Results
Among 47 experts surveyed, 46 (98 %), 45 (96 %) and 43 (91 %) responded over the 3 rounds. 19 (40 %) were female, 24 (51 %) were from North America and 15 (32 %) were from Europe. 16 (34 %), 7 (15 %) and 25 (53 %) practiced palliative care, oncology and both specialties, respectively. In the first round, panelists reached consensus on 40/52 (77 %) indicators. In the second round, they reached consensus on 43/60 (72 %) indicators, and rated 22 indicators with importance of ≥8/10. In the third round, 13/43 indicators were classified as major (Table). The major indicators were considered to be clearly stated (9.8/10), objective (9.4/10), amendable to accurate coding (9.5/10) and applicable to their own countries (9.4/10).

Conclusions
Our international experts reached broad consensus on a list of indicators of integration, which may be used to identify centers with a high level of integration, facilitate benchmarking, quality improvement and research.

17-10-P
QUALITY OF LIFE AND BREAKTHROUGH PAIN IN CANCER: PATIENT SATISFACTION AND PAIN REDUCTION WITH FENTANYL PECTIN NASAL SPRAY

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Introduction
The efficacy and safety of rapid analgesic fentanyl pectin nasal spray (FPNS) has already been demonstrated for episodes of breakthrough pain in cancer (BTPc).

Objectives
The early satisfaction (first 7±2 days) of BTPc patients treated with FPNS after dose titration has been measured in routine clinical practice, together with their therapeutic management of pain, their quality of life, and physicians’ satisfaction after a four week follow-up period.

Methods
BTPc features and patient characteristics of 66 patients were documented during a Spanish multicentre, open-label, observational study. Quality of life was measured with the BPI and EORTC QLQ-C30 questionnaires and through telephonic queries.

Results
Early satisfaction was felt by almost 90 % of patients, after an average of 2.22 episodes and a time elapsed of 2.93 days per patient. The BPI questionnaire showed a significant improvement in all items measured from inclusion visit to day 28. From EORTC QLQ-C30, the score of the emotional functioning scale significantly increased, whereas items such as pain and insomnia showed a significant diminution. Moreover, the number, intensity and duration of BTPc episodes per day were significantly decreased. Physicians were satisfied with the treatment, either related to the efficacy level (87.8 %), general tolerability (87.8 %) and nasal tolerance (91.8 %).

Conclusions
FPNS provides pain relief, by decreasing the severity of pain, the number, intensity and duration of episodes. Furthermore, it increases BTPc patients’ quality of life by decreasing insomnia and increasing emotional and social skills, resulting in high satisfaction both for patients and physicians. ClinicalTrials.gov identifier: NCT01698645.
17-11-P
QUALITY OF LIFE AND SATISFACTION WITH CARE IN CAREGIVERS OF PATIENTS WITH ADVANCED CANCER: RESULTS FROM A TRIAL OF EARLY PALLIATIVE CARE

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Introduction
Early palliative care has been shown to improve the quality of life (QOL) and satisfaction with care of patients with advanced cancer, but little is known about its effects on family caregivers.

Objectives
To report secondary outcomes of caregiver QOL and satisfaction with care from a trial of early palliative care.

Methods
Four hundred sixty-one patients with advanced cancer were recruited from 24 medical oncology clinics at Princess Margaret Cancer Centre between December 2006 and February 2011 to participate in a cluster-randomized trial of early palliative care versus standard care. Consenting caregivers (N=182) completed validated measures at baseline and monthly for 4 months, assessing QOL (Caregiver QOL-Cancer [CQOLC]) and Medical Outcomes Study Short Form (SF-36v2), and satisfaction with care (FAMCARE). A random effect mixed-model was used to evaluate change of QOL and satisfaction with care over time; all analyses were by intention to treat.

Results
One hundred eighty-two caregivers (94 intervention, 88 control) were enrolled. Over 4-months, there was no significant improvement in QOL scores in intervention group caregivers compared to controls for the CQOLC (p=0.53), SF-36 physical component summary (p=0.27), or SF-36 mental component summary (p=0.58). Satisfaction with care improved significantly in the intervention group compared to controls (p=0.01).

Conclusions
In this study, early palliative care involvement increased caregivers’ satisfaction with care but not their QOL. An intervention tailored specifically for caregivers may be required to have a substantial impact on caregiver QOL.


17-12-P
MODIFIABLE FACTORS ASSOCIATED WITH CAREGIVER BURDEN AMONG FAMILY CAREGIVERS OF TERMINALLY ILL KOREAN CANCER PATIENTS

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Introduction
Higher caregiver burden is associated with poor quality of life among family caregivers. However, in Korea, very few studies have examined factors associated with caregiver burden.

Objectives
The present study investigated factors associated with caregiver burden among family caregivers of terminally ill Korean cancer patients, particularly modifiable factors as a potential target of intervention strategies.

Methods
A cross-sectional study using self-administered questionnaires was performed. Sixty-four family caregivers of terminally ill cancer patients who were admitted to the hospice-palliative care unit of a University Hospital in South Korea were included. To identify caregiver burden, the Caregiver Reaction Assessment scale (CRA) was used in this study. Time spent in providing care per day, number of visits per week from other family members, family functioning, and a positive subscale, self-esteem, of the CRA were deemed as modifiable factors. Other socio-demographic, caregiving characteristics of the subjects were non-modifiable factors.

Results
Longer time spent providing care per day, fewer weekly visits from other family members, poor family functioning, and low self-esteem were considered as modifiable factors associated with caregiver burden. Low monthly income and being the spouse as the family caregiver were non-modifiable factors.

Conclusions
Our study has practical significance in that it identifies modifiable factors that can be used to devise intervention strategies. Developing and applying such intervention strategies for alleviating the factors associated with high caregiver burden could be important for improving the quality of life of both patients and their families.

17-13-P
BARRIERS TO ADVANCE CARE PLANNING IN CANCER, HEART FAILURE AND DEMENTIA PATIENTS: A FOCUS GROUP STUDY ON GENERAL PRACTITIONERS’ VIEWS AND EXPERIENCES

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Introduction
The long-term and often lifelong relationship of general practitioners (GPs) with their patients is considered to make them the ideal initiators of advance care planning (ACP). However, the incidence of ACP discussions is low and ACP seems to occur more often for cancer patients than for those with dementia or heart failure.

Objectives
To identify the barriers, from GPs’ perspective, to initiating ACP and to gain insight into any differences in barriers between the trajectories of patients with cancer, heart failure and dementia.
Methods
Five focus groups were held with GPs in Belgium. The discussions were transcribed verbatim and analyzed using the method of constant comparative analysis.

Results
In cancer patients, a GP’s lack of knowledge about treatment options and the lack of structural collaboration between the GP and specialist were expressed as barriers. Barriers that occurred more often with heart failure and dementia were the lack of GP familiarity with the terminal phase, the lack of key moments to initiate ACP, the patient’s lack of awareness of their diagnosis and prognosis and the fact that patients did not often initiate such discussions themselves. The future lack of decision-making capacity of dementia patients was reported by the GPs as a specific barrier for the initiation of ACP.

Conclusions
Multiple barriers need to be overcome, of which many can be addressed through the development of practical guidelines and educational interventions.

17-14-P

TOPICAL METRONIDAZOLE 0.75 % GEL FOR THE SAFE AND EFFECTIVE DEODORIZATION OF MALODOROUS FUNGATING TUMOURS: A MULTICENTRE, OPEN-LABEL, PHASE III STUDY

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Introduction
Malignant fungating tumours are associated with skin ulcers which are susceptible to microbial colonization. Bacterial infection and proliferation may lead to malodour causing distress to patients. Metronidazole – an effective agent against anaerobic bacteria – may result in deodorization and improvement in patient quality of life (QoL).

Objectives
Investigate the efficacy and safety of topical metronidazole 0.75 % gel for the alleviation of malodour in anaerobically infected fungating neoplastic tumours.

Methods
Multicentre, open-label, non-controlled, phase III study including subjects aged ≥20 years with cutaneous fungating neoplastic tumour with an odour suggesting microbial infection (minimum score of 2 [mildly offensive odour] on a scale from 0 [no odour] to 4 [extremely offensive odour] based on investigator’s assessment). Subjects applied metronidazole 0.75 % gel once or twice daily at investigator’s discretion for 14 days (maximum dosage of 30 g per day). Success rate, defined as an odour score of 0 or 1 at Day 14 was assessed by the investigator. Subject QoL was assessed using a satisfaction questionnaire. Incidence of adverse events (AEs) was also reported.

Results
At total of 21 subjects with a mean age of 64.4 years were enrolled. Success rate of deodorization at Day 14 was 95.2 % (20/21 subjects). QoL assessment showed that 71.4 % of subjects (15/21 subjects) were markedly or moderately improved.

Treatment was well tolerated with only two AEs of skin neoplasm bleeding (one mild and one moderate) considered to be related to the treatment.

Conclusions
Metronidazole 0.75 % gel is an effective and safe treatment for deodorization of malodorous fungating tumours.

17-15-P

LONELINESS OF CANCER PATIENTS AT END OF LIFE

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Introduction
Loneliness is a negative feeling of the majority of cancer patients and brings many negative consequences such as extreme sensitivity, vulnerability, helplessness and death.

Objectives
This research was conducted as a descriptive to determine the loneliness in cancer patients.

Methods
The study sample consisted of 55 patients with palliative care who lied in oncology service between 14 November 2014–14 January 2015 and whose degree of disease was stage-4 or treatment was terminated. Data were collected using a questionnaire and the UCLA Loneliness Scale was used to calculate loneliness score. When data was evaluating, was used percentage distributions and averages and nonparametrik Kruskall Wallis ve Mann Whitney U testi was used to examine the status of affected by the scores of some variables and was used chronbach alpha test to determine the internal consistency of the scale items. For this study chronbach alpha is 0.91.

Results
Loneliness score of the patients in the study is 53.61±9.29. The patients’ demographic variables did not influence average score of loneliness (p>0.05). Loneliness mean scores of living in cities is higher than living in the village (p<0.05), when the emotional state was examined, patients who felt inadequate the emotional support more alone than patients who felt enough (p<0.05). More than half of the patients (n=33) said that they wanted psychological support to express themselves.

Conclusions
Research results show that the oncology patients at end of their life felt high rates of loneliness.

17-16-P

FACTORS ASSOCIATED WITH THE TIMING OF PALLIATIVE CARE REFERRAL FOR OUTPATIENTS WITH ADVANCED CANCER

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Introduction
Traditionally, advanced cancer patients are referred to palliative care (PC) near the end of life, but little is known about factors associated with timing of PC referral.

Objectives
To examine the association of demographic and clinical factors with the timing of PC referral.

Methods
We conducted a retrospective chart review of 347 patients referred to the outpatient palliative care clinic at Princess Margaret Cancer Centre from June to December 2006. Data collected included patient demographic information (e.g., age, sex), disease characteristics (e.g., tumour site, Charlson Comorbidity Index, year since primary cancer diagnosis), specialty of referring oncologist, and reason for PC referral (end-of-life care, pain/symptom management, end-of-life planning, and planning & symptom management). Time to PC referral was categorized into ≥6 months vs. <6 months before death. Data were analyzed using logistic regression.

Results
Median age was 66 years (range: 20–92), and 48 % (168) were female. There was no significant association between timing of PC referral and demographic characteristics. However, earlier PC referral (≥6 months before death) was associated with receiving chemotherapy for advanced cancer before referral (p=0.03), referral by surgical oncology (vs. medical or radiation oncology; p=0.01) and being referred to PC for pain and symptom management (p=0.002).

Conclusions
In this sample, earlier PC referral was related mainly to patients’ clinical circumstances and symptoms, rather than to patient demographics.

17-17-P
SPECIALIST PALLIATIVE CARE TEAMS FACILITATE GOOD END-OF-LIFE CARE IN HOSPITALS: A SERVICE EVALUATION BY THE ASSOCIATION FOR PALLIATIVE MEDICINE OF GREAT BRITAIN AND IRELAND (APM)

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Introduction
The APM undertook a service evaluation of bereaved carers’ satisfaction with the end-of-life care provided by specialist palliative care services (hospital, hospice, community).

Objectives
The main objective of the service evaluation was to generate clinically-relevant data on the provision of end-of-life care by specialist palliative care services.

Methods
Bereaved carers were identified by specialist palliative care services, and sent a copy of the FAMCARE 2 tool 4 to 8 weeks after the patient’s death.

Results
One thousand three hundred forty-nine questionnaires were returned, with 733 relating to deaths in hospice inpatient units, 489 to deaths at home, and 127 to deaths in hospitals. The overall median percentage of “dissatisfied” or “very dissatisfied” responses to the items was 4 % (range 2–5 %). The results for hospital support teams were not dissimilar to the results for home care teams, and, indeed, hospice inpatient units.

17-18-P
IMPACT OF PALLIATIVE CARE IN OVERALL SURVIVAL AMONG METASTATIC BREAST CANCER PATIENTS

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Introduction
World Health Organization proposes that palliative care should be part of the treatment in all patients with end stage cancer. However in developing countries, most physicians use to give care until the end of life, which is suboptimal in many cases.

Objectives
Evaluate the impact of palliative care in overall survival metastatic breast cancer patients also, the savings in patient care when the attention is given by palliative care specialist.

Methods
We conducted a review cohort study, resulting in two groups of patients, group one received palliative care given by special team, group two supportive treatments was given by the oncologist at National Cancer Institute, between 2011 and 2013. General clinical and pathologic characteristics were analyzed. For statistical $\chi^2$ and U-Mann Whitney were used to group comparisons, overall survival was analyzed with Kaplan Meier method and comparison between groups with log-rank.

Results
One hundred patients were analyzed, 40 received attention by palliative care team and 60 received attention by oncologist. Blood work was performed more often when patient was attended by the oncologist (CBC, LFT $p=0.000$), as well as imaging procedures ($p=0.000$). The median survival in the group receiving palliative care was 14 months versus 10 months in the group without palliative care ($p=0.030$, 95 % CI 8.96–13.034). The cox regression confirms that the palliative care intervention is a favorable prognostic factor ($p=0.035$, 95 % CI 0.390–0.971).

Conclusions
This study confirms the benefit of the early introduction of palliative care team in the breast cancer patients improves the overall survival.

17-19-P
THE OUTCOMES FOR ADVANCED CANCER PATIENTS WITH OR WITHOUT ADVANCE DIRECTIVE (AD)

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Introduction
AD is a new concept to Asian cultures. There are concerns that AD may have negative effects on patients’ psychology or survival.

Objectives
To demonstrate the feedback of patients and their families after AD engagement and compare the survival rates of engaged and non-engaged groups.
Methods
Prospective cohort study with locally designed questionnaires.
Adult patients with advanced malignancy referred to a palliative care centre from 24 April 2009 to 30 July 2009. Survival data were updated on 24 April 2013. Locally designed questionnaires were given to patients who engaged an AD, and their families after the patient had passed away.

Results
There were 191 eligible patients, of which 120 (63 %) signed an AD, and 71 (37 %) did not. Most of the engaged patients (82.5 %) did not ‘feel bad’ during the discussion. They felt they were respected (95.8 %), could express their own thoughts (95 %), had lower anxiety levels (87.5 %), had a better understanding of their disease status (95 %) and could express their wishes to health care professionals (95 %) and their families (93.3 %). It helped them to plan their last wishes in advance (93.3 %). Most of the families could understand the patient’s wishes for the treatment direction (75.8 %). They agreed that the patient was respected (75.8 %) and their wishes were being honoured in their end of life period (75.8 %). The overall survival rate of the two groups was similar.

Conclusions
For patients engaged in AD, most of their feedback was positive. There is no evidence to suggest that AD engagement may jeopardize patients’ survival.

17-20-P
PALLIATIVE QUAD SHOT RADIOTHERAPY IN PREVIOUSLY UNTREATED ADVANCED HEAD AND NECK CANCER
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Introduction
Very advanced head and neck cancer unsuitable for curative treatment is a common presentation in South Asia. Little research effort has been directed towards optimizing palliative treatment regimens for such patients.

Objectives
We report our experience on short cyclical hypofractionated palliative radiotherapy regimen (QUAD SHOT) in previously untreated advanced head and neck cancer.

Methods
We analyzed 73 patients with advanced biopsy proven head and neck cancer treated with palliative QUAD SHOT radiotherapy. The regimen consisted of 14Gy in four fractions, given BID at least 6 h apart, for 2 consecutive days covering the primary site and neck. This regimen was repeated at 4 weekly intervals for a further two courses in patients with symptomatic improvement or tumor regression. Total dose to spinal cord was limited to 28 Gy in 8 fractions. Median age was 53 years. Site distribution; oral cavity 62 %, hypopharynx 20 %, paranasal sinuses 10 %, nasopharynx 6 % and others 2 % respectively. AJCC stage; stage III 26 % and stage IV 74 % of the patients. Number of radiotherapy cycles; one in 34 %, two in 42 % and all three courses in 24 % of the patients. Median follow up duration was 5 months.

Results
Symptomatic improvement was seen in 72 % of the patients. Response following treatment was; complete response 4 %, partial response 8 %, stable disease 63 % and progressive disease in 25 % of the patients. Mean time to disease progression was 4.1 months. No grade III or IV acute radiation treatment toxicity was seen.

Conclusions
The QUAD SHOT radiotherapy regimen provides good palliation and is well tolerated.

17-21-P
CANCER PATIENT PREFERENCES FOR SYMPTOM ASSESSMENT SCALES
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Introduction
Systematic cancer symptom assessment is essential. Assessment instruments detect more symptoms than clinical evaluation. Assessment burden and low completion rates complicate scale selection for polysymptomatic patients.

Objectives
1. Determine patient preferences for symptom assessment scales:
   a. Categorical rating scale (CRS)
   b. Numerical rating scale (NRS)
   c. Visual analogue scale (VAS)
2. Assess clinical utility.

Methods
Inpatient hospice cancer admissions were recruited. A prospective survey evaluated patients’ preferences when describing the commonest cancer symptoms. Loss of appetite, pain, and tiredness were each measured by CRS, NRS, and VAS presented in random order. Participants’ preference was recorded for each symptom. Observers assessed clinical utility.

Results
One hundred consecutive participants were recruited. Median age was 71 years (range 38–93). Median Eastern Cooperative Oncology Group (ECOG) score was 2 (range 0–4). CRS was preferred for loss of appetite (48 %) and tiredness (40 %). NRS was preferred for pain (44 %). NRS had the greatest clinical utility. Preference for CRS and NRS over VAS reached clinical and statistical significance on all symptoms.

Conclusions
1. Most participants had a specific scale preference and there was high intrapatient consistency across the three symptoms.
2. CRS was the preferred scale overall; NRS for pain but CRS for tiredness and loss of appetite.
3. NRS was preferred by observers for all symptoms.
4. VAS was consistently least preferred by both patients and observers.
5. VAS should not be used in hospice clinical care or research.

17-22-P
STRENGTHENED RELATIONSHIPS: EXPLORING THE EFFECTS OF AN EARLY PALLIATIVE CARE INTERVENTION ON PATIENT-CAREGIVER DYADS
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Introduction
Early palliative care (EPC) has been shown to improve patient quality of life and satisfaction with care, while caregivers report improved
satisfaction with care. The potential impact on patient-caregiver dyads has not been extensively explored.

**Objectives**

To explore the impact of an EPC intervention on patient-caregiver dyads, in terms of their relationships, communication about the end-of-life, and preparation for the future.

**Methods**

Patients and family caregivers were recruited as part of a cluster-randomised controlled trial of an early palliative care intervention from 24 medical oncology clinics at the Princess Margaret Cancer Centre, Toronto, Canada, from December 2006-February 2011. Both groups completed quantitative measures monthly for 4 months, and were invited to participate in one-on-one qualitative interviews at study-end. Qualitative analyses were conducted using a grounded theory approach.

**Results**

Thirteen patient-caregiver dyads completed interviews (26 participants: 10 intervention, 16 control). Intervention pairs showed remarkable congruence in the content of their interviews, and in particular were more likely to report positive changes in shared priorities and strengthened relationships. They also described improved communication about the future, characterized by dual awareness, or an ability to balance hope with realism. Control group pairs were more likely to report divergent priorities and were more avoidant of end-of-life discussions.

**Conclusions**

EPC for patients with advanced cancer and their caregivers may help to strengthen relationships through a discussion of priorities, improved communication, and preparation for the future. Larger studies are needed to confirm these findings.

### 17-24-P

**PARENTERAL HYDRATION: REVIEW OF PREVALENCE AND RATIONALE IN HOSPICE INPATIENTS**

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**Introduction**

Decreased oral intake of fluids in the last days to weeks of life is common due to anorexia, nausea, dysphagia and/or delirium. Parenteral hydration (PH) may be administered to reduce the risk of dehydration or to manage symptoms. There are no established standards for hydration at the end of life. Individual circumstances should be assessed.

**Objectives**

1. Evaluate the prevalence of PH in hospice inpatients
2. Assess documentation of PH rationales and route of administration
3. Determine outcome after 48 h

**Methods**

A retrospective medical record review of 102 consecutive deaths was conducted at a palliative medicine unit. A data recording form captured hydration episodes. Descriptive statistics were generated by Microsoft Excel.

**Results**

31/102 (30 %) received PH during admission. In 19/31 (61 %), PH was administered intravenously. 7/12 (58 %) on subcutaneous fluids received one litre of fluid over 12 h; a rate that is higher than recommended by clinical guidelines. 58 hydration episodes were recorded. Of 58 episodes, 51 (88 %) had a start rationale, 36 (62 %) had a stop rationale and 41 (71 %) had an outcome recorded. 24/41 (55 %) outcomes reported an overall improvement post hydration. Physician documentation of start rationales was superior whereas nurses recorded stop rationales and patient outcomes more frequently.

**Conclusions**

1. Parenteral hydration is frequently prescribed, with intravenous most common
2. Over half reported clinical benefit within 48 h
3. Start rationales were most likely to be recorded
4. Opioid toxicity was the commonest indication
5. Future studies should prospectively evaluate the effect of hydration on symptoms and quality of life
17-25-P

THE ACCURACY OF PHYSICIANS’ CLINICAL PREDICTIONS OF SURVIVAL IN ADVANCED CANCER PATIENTS


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Introduction
Accurate prognosis are needed for advanced cancer patients.

Objectives
To evaluate the accuracy of physicians’ clinical predictions of survival (CPS) and to assess the relationship between CPS and actual survival (AS) in advanced cancer patients in palliative care units, hospital palliative care teams and home palliative care services, as well as those receiving chemotherapy.

Methods
This was a multicenter prospective cohort study conducted in 58 palliative care service centers in Japan. The palliative care physician evaluated patients on the first day of admission, and followed up all patients to their death or six months after their enrollment. We evaluated the accuracy of CPS and assessed the relationship between CPS and AS in the four groups.

Results
We obtained a total of 2036 patients: 470, 764, 404 and 398 in hospital palliative care teams, palliative care units, home palliative care services and chemotherapy, respectively. The proportion of accurate CPS (0.67 to 1.33 times AS) was 35% (95% CI, 33–37%) in the total sample, and ranged from 32 to 39 % in each setting. While the proportion of patients living longer than CPS (pessimistic CPS) was 20% (95% CI, 18–22%) in the total sample, ranging from 15 to 23 % in each setting, the proportion of patients living shorter than CPS (optimistic CPS) was 45 % (95% CI, 43–47%) in the total sample, ranging from 43 to 49 % in each setting.

Conclusions
Physicians tend to overestimate when predicting survival in all palliative care patients, including those receiving chemotherapy.

17-26-P

SCREENING CANCER CAREGIVERS: A SYSTEMATIC REVIEW OF CANCER CAREGIVER INSTRUMENTS

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Introduction
Caregivers of cancer patients face intense demands throughout the disease—survivorship and bereavement. Caregiver distress is not monitored regularly in the clinic setting resulting in a need to address the availability and clinical effectiveness of cancer caregiver distress tools.

Objectives
This review aimed to determine the availability of cancer caregiver instruments, the variation of instruments between different domains of distress and between adult and pediatric cancer patient population.

Methods
A literature search was conducted using MEDLINE and other databases from 1937 to 2013. Original articles of the instruments were extracted separately if not included in the original literature search. The instruments were divided into different areas of caregiver distress and into adult vs. pediatric populations. Psychometric data were also evaluated.

Results
5,541 articles were reviewed and 135 articles (2.4%) were accepted based on the inclusion criteria. 59 instruments were identified: burden (n=26; 44%); satisfaction with healthcare delivery (n=5;5.6%); needs (n=26; 44%); quality of life (n=9; 15.3%); and other issues (n=5; 8.6%). The median number of items was 29 (4–125). 20/59 instruments (33.9%) had ≤20 items. 13/59 instruments (22%) had ≤20 items and psychologically sound with 12/13 (92.3%) as self-report questionnaires. There were 44 instruments (74.6%) that measured caregiver distress for adult cancer patients and 15 tools (25.4%) for caregivers of pediatric patients.

Conclusions
There are a significant number of cancer caregiver instruments that are self-reported, concise and psychometrically sound that make them attractive for further research in their clinical use, outcomes and effectiveness.

17-27-P

TIMING OF REFERRAL TO PALLIATIVE CARE SERVICES AND ITS PREDICTOR FACTORS FOR ADVANCED CANCER PATIENTS IN MAINLAND CHINA.

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Introduction
Early palliative care integration is advised for treatment of advanced cancer patients now. Whether patients in China suffering from advanced cancer were referred to palliative care services in a timely manner remains unclear.

Objectives
We sought to investigate the timing of palliative care referral of Chinese cancer patients and its predicating factors, evaluate the potential barriers within Chinese culture for early palliative care integration.

Methods
A total of 759 patients referred to the Palliative Care Unit (PCU) from January 2007 to December 2013 were included. The survival since initiation of palliative care services was calculated as the time of admission to the PCU to death (POS). The POS was determined by the Kaplan-Meier method. Multivariate analysis using the Cox proportional hazard model and a forward regression procedure was conducted to define independent prognostic factors.

Results
Among 759 patients for analysis, the mean age was 62.89 (range 61.95–63.82) years old. Lung (17.9 %) cancer was the most common diagnose. The median POS was 21 days (95% CI: 19.79–22.21). The multivariate analysis showed that whether or not the patient was indigenous (p=0.002) and younger than 65 (p=0.031) were independent factors for POS. Other characteristics such gender and primary cancer type had no relationship with the POS.

Conclusions
The findings revealed that Chinese cancer patients were referred relatively late to palliative care service in their disease course. To overcome the barriers of early integration of palliative care in a patient’s treatment plan accurate information about palliative care must be provided for both oncologists and patients via systematic educational programs.

17-28-P
EVALUATING THE FREQUENCY OF MEDICATION ADJUSTMENTS TO CONTINUOUS SUBCUTANEOUS INFUSIONS IN PALLIATIVE CARE: IS THERE EVIDENCE TO SUPPORT 48-HOURLY INFUSIONS?
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Introduction
End-of-life care is a key care domain for district nurses, with continuous subcutaneous infusions (CSCIs) forming an integral part of palliative care practice. A 40 % reduction in the numbers of district nurses over the past decade has seen workplace pressures increase. Current practice dictates that syringe driver infusion time is limited to a maximum of 24 h. The findings of this study could provide data to support stability studies for increasing infusion times to 48 h where possible, which could be translated into practice and reduce the burden on district nursing workloads.

Objectives
To evaluate the frequency at which medication changes were made to drugs administered by CSCI.

Methods
Patients prescribed CSCIs were identified over a 3 month timescale, and their prescription charts reviewed daily for a period of up to 72 h to identify medication changes. Patients who passed away or were discharged before 48 h of data could be collected were excluded from the study.

Results
Data were collected for 53 patients. The study found that 72 % (n=38) of medication changes were made after 48 h. Reasons for changes were identified as addition, removal or change of a drug, dose changes and death or discharge of patient after 48 h.

Conclusions
A change in practice to 48 hourly CSCIs where possible may alleviate some of the increasing pressures on district nurses and help to ensure future demands for the delivery of care are met. The results provide evidence to support the initiation of 48 h chemical compatibility and microbiological stability studies.

17-29-P
GENETIC VARIATIONS AND COGNITIVE DYSFUNCTION IN OPIOID TREATED PATIENTS WITH CANCER
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Introduction
The effects of single nucleotide polymorphisms (SNPs) in the cognitive function of opioid treated patients with cancer is unknown.

Objectives
This study aimed to identify associations between SNPs of candidate genes, high opioid dose and cognitive dysfunction.

Methods
Cross-sectional multicenter study (European Pharmacogenetic Opioid Study, 2005–2008); 1586 patients; 86 SNPs in 43 genes. Inclusion criteria: cancer, age ≥18 y, regular opioid treatment for ≥3 days, and available genetic data. Cognitive function was assessed by Mini Mental State Examination (MMSE). Analyses: 1) SNPs were rejected if evidence of violation of Hardy–Weinberg equilibrium (P<0.0005), or minor allele frequency <5 %; 2) patients were randomly divided into development sample (2/3 for initial SNP screening) and the validation sample (1/3 for confirmatory test); 3) false discovery rate of 10 % for determining associations. (Benjamini–Hochberg method). Kruskal–Wallis and Mann–Whitney test were performed.

Results
Significant associations (P<0.05) between MMSE scores and SNPs in the genes HTR3E, TACR1, and IL6 were observed in the development sample, but the replication in the validation sample did not confirm it. Associations between MMSE scores among patients receiving ≥400 mg morphine equivalent dose/day (n=377) and SNPs in TNFRSF1B, TLR5, HTR2A, and ADR2A were also observed in the development sample, but could not be confirmed in the validation sample. After correction for multiple testing, no SNPs were significant in the development sample. Dominant and recessive models also did not confirm significant associations.
Conclusions
The findings did not support influence of those SNPs analysed to explain cognitive dysfunction in this sample of patients.

17-30-P
PSYCHOMETRIC PROPERTIES OF “SPIRITUAL NEEDS QUESTIONNAIRE” IN IRANIAN PATIENTS WITH CANCER

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Introduction
Diagnosis of cancer can cause huge spiritual crisis in a person and affect different aspects of his life. At this time, patients have various needs especially spiritual needs. Given lack of a valid and reliable tool for measuring spiritual needs of patients with cancer in Iran, there is a perceived need for validating a tool in Iranian patients’ community.

Objectives
Present study aimed to translate and evaluate psychometric properties of Persian version of “Spiritual Needs Questionnaire” in Iranian patients with cancer.

Methods
In this methodological study, participants were 400 patients with cancer hospitalized in cancer institute, Imam Khomeini hospital complex, affiliated to Tehran University of Medical Sciences in Tehran (capital of Iran). This hospital is a referral center for patients with cancer all around the country. The scale was translated to Persian and back translated to English and revised according to comments of the scale designer (Professor Bussing). Then, content and face questionnaire were measured. Data were analyzed using SPSS version 18 and LISREL 8.5.

Results
Based on exploratory factor analysis, three factors revealed which were measured. Data were analyzed using SPSS version 18 and LISREL 8.5.

Conclusions
The Persian version of modified “Spiritual Needs Questionnaire” has good psychometric properties. It can be used to assess spiritual needs in Iranian patients with cancer.

17-31-P
PROGNOSIS, TREATMENT BENEFIT, AND GOALS OF CARE: WHAT DO ONCOLOGISTS DISCUSS WITH PATIENTS WHO HAVE TERMINAL CANCER?

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Introduction
Despite being a marker of quality care, documentation of advance directives among patients with terminal cancer is poor.

Objectives
The documentation of prognosis, treatment benefit, and goals of care (GOC) discussions in patients with advanced cancer in an ambulatory comprehensive cancer center is described.

Methods
Patients who initiated palliative chemotherapy for metastatic lung or pancreas cancers during 2010–2013 at the Cancer Center of South-eastern Ontario were identified from electronic pharmacy records. Patients treated with first-line palliative chemotherapy with at least 4 clinic visits with medical oncology (MO) were eligible. MO and Palliative Care (PC) clinical notes were reviewed for documentation of discussions regarding prognosis, treatment benefit, estimates of survival, and GOC. Differences between groups were tested using the chi square test.

Results
Two hundred twenty-two patients were included: 80% (177/222) lung cancer and 20% (45/222) pancreas cancer. MO documented discussions of prognosis in 64% (142/222), treatment intent in 82% (182/222), and GOC in 4% (9/222) of patients. Survival estimate was documented in 36% (79/222). There was substantial variation in frequency of discussing prognosis (33–90%, p<0.001), treatment intent (55–100%, p<0.001) and GOC (0–17%, p=0.034). Only 41% (93/222) of patients saw PC; referral rates by MO were variable (27–58%, p=0.020). Among patients seen by PC, GOC documentation was observed in 32% (29/93) with substantial PC provider variation observed (0–57%, p=0.015).

Conclusions
In this patient cohort with life expectancy of one year or less, MO documentation of prognosis, treatment benefit, and GOC was poor. Initiatives to improve documentation and referral to PC are needed.
palliative care ward at their institution. Concerning patient-related aspects, we noted significant differences in needs(a), satisfaction(b), and expectations(c) for spiritual and end-of-life care(p<0.001; a>c>b), as well as for symptom control, psychological care for patients and their families, and better communication(p<0.001; a>c>b). Concerning physician-related aspects, higher expectations than satisfaction with time of treatment, psychological burden, knowledge of care, length of stay, and palliative ward availability were discovered.

Conclusions
We suggest that PCTs are needed to assure that quality patient-centered care is offered to terminal cancer patients by palliative physicians.

17-33-P

RELATED FACTORS IN PRACTICE OF ADVANCE CARE PLANNING IN CERTIFIED NURSES OF PALLIATIVE CARE IN JAPAN.

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Introduction
Advance care planning (ACP) is a process that includes discussions and communication in patients, their family and medical professionals based on patients’ preferences and values. It makes possible to improve QOL in patients with terminal illness. Oncology nurses play an important role in ACP.

Objectives
The aim of this study is to clarify the factors associated with nursing practice of ACP to cancer patients in Japan.

Methods
A nationwide study for palliative care certified nurses in Japan were performed with a cross-sectional descriptive research design. After study participants answered the questionnaire which contained ACP practice scale, educational and occupational background, and demographic information, they mailed it to the researcher. ACP practice scale contained 36 items on a 4-point Likert scale is constructed 6 subscales; Preparation for the ACP, Treatment of decision support, including life-prolonging, ACP performance at the time of decision-making capacity prolonging, ACP promting participation of agency decision-makers. To investigate factors associated with ACP practice, a multiple regression analysis were performed.

Results
Three hundred thirty one (26.5%) nurses with a mean age of 43.2±6.7 years completed the questionnaire. The results of multiple regression analysis showed that years since qualifying certified nurse, attending a course of ACP, recognition of the importance of ACP, and setting of palliative care unit were significantly related to subscales of ACP practice.

Conclusions
This study suggested that palliative care certified nurses should be trained in order to obtain knowledge and acquire advanced skills for completing of ACP.

17-34-P

HYPERCALCEMIA IN CANCER: ASSOCIATION WITH THE TYPE OF CANCER AND MORTALITY IN THE STATE OF QATAR

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Introduction
Hypercalcemia is an electrolyte disorder found in cancer patients which complicates the disease and can hasten death. The incidence of hypercalcemia is related to malignancy type.

Objectives
The aim of this study is to explore the distribution of hypercalcemia amongst different cancer types and to record its effects on mortality.

Methods
Medical records for all cancer patients admitted or seen at the National Centre for Cancer Care and Research (NCCCR) Qatar between 2008 and 2012 were retrospectively reviewed and analyzed for demographics and clinicopathological reports. A model was built through multivariate analyses to investigate the role of hypercalcemia in mortality.

Results
A total of 2048 patients were included in this study. The overall incidence of hypercalcemia was 19%. Chi-square identified that multiple myeloma (49.1%), renal cell carcinoma (35.3%), cervical (25.8%) and lung (25.4%) cancers had the highest frequency of hypercalcemia in our population. Binary logistic regression highlighted that cancer patients with moderate-severe hypercalcemia (3.1>mmol/L) were 2.82 times more likely to die compared to patients with normal-mild hypercalcemia (<3.1 mmol/L). The prevalence of hypercalcemia based on patients’ geographic origin was the investigated. It was found that people from the Arabian Peninsula, greater Middle East and sub Saharan Africa were more likely to be hypercalcemic than people from other areas.

Conclusions
Hypercalcemia is higher among Multiple Myeloma, Renal cell carcinoma and lung cancer patients. There is a correlation between the occurrence of hypercalcemia and death as well as a correlation with ethnic origin of patients.

17-35-P

DOES AN AROMATHERAPY MASSAGE REDUCE SYMPTOMS FOR CANCER PATIENTS?

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Introduction
Aromatherapy massage is commonly used for symptom relief in patients with cancer in palliative care units. However, it is not clear evidence of symptom relief.

Objectives
The purpose of this paper is to provide an updated review of evidence for symptom relief for cancer patients in aromatherapy massage.

Methods
Literature databases with Pubmed was searched from their inception to 2000 until June 2014. The key words were aromatherapy, massage and cancer.

Results
In the review, 23 papers were considered. There were 4 systematic review, 11 randomized controlled trials (RCT), 2 non RCT and 6 objective research. Participants were adult cancer patients, terminal cancer patients. The most consistently found effect of aromatherapy massage was on anxiety. Other symptom relief was pain, depression, and fatigue. The main essential oils in intervention were lavender, chamomelum, and blend. However, effect of the aromatherapy massage was short period and lack of rigorous research evidence methods.
Conclusions
The current evidence shows that aromatherapy massage might reduce several symptoms for patients with cancer. Further well-designed large trial with longer follow-up period are needed in this research.

17-36-P
SYMPTOM DISTRESS AND ASSOCIATED FACTORS AMONG FILIPINO WOMEN UNDERGOING CHEMOTHERAPY

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Introduction
Diagnosis of breast cancer is distressing and this can be aggravated by the symptoms related to disease and treatment.

Objectives
Study aims to (1) determine the most distressing symptoms prior to & during chemotherapy (2) describe the perceived indicators of symptom distress before & during chemotherapy; (3) determine association between age, number of chemotherapy cycles, type of chemotherapeutic drug & symptom distress severity during chemo.

Methods
The study is a longitudinal, descriptive-correlational research. 135 respondents were selected using purposive-criterion sampling. Modified Memorial Symptom Assessment Scale (MSAS) was used to measure symptom distress.

Results
The table shows the 5 Most Distressing Symptoms Prior to and During Chemotherapy

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Prior to Chemotherapy</th>
<th>% w/Distress</th>
<th>Symptoms During Chemo</th>
<th>Frequency (n=135)</th>
<th>% w/ Distress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lump</td>
<td>120</td>
<td>74.04</td>
<td>Vomiting</td>
<td>83</td>
<td>38.55</td>
</tr>
<tr>
<td>Breast Pain</td>
<td>93</td>
<td>100</td>
<td>Anorexia</td>
<td>75</td>
<td>30.67</td>
</tr>
<tr>
<td>Fatigue</td>
<td>15</td>
<td>86.66</td>
<td>Weakness</td>
<td>51</td>
<td>29.41</td>
</tr>
<tr>
<td>Pain, various body parts</td>
<td>13</td>
<td>61.53</td>
<td>Sensitive</td>
<td>23</td>
<td>56.52</td>
</tr>
<tr>
<td>Discharge</td>
<td>12</td>
<td>91.66</td>
<td>GI Pain</td>
<td>22</td>
<td>36.36</td>
</tr>
</tbody>
</table>

Indicators of symptom distress prior to chemotherapy are: fear over possible cause of symptom, further physical discomforts & anxiety over possible effect to family. Indicators of symptom distress during chemotherapy were: fear, negative self-perception & onset of physical limitations. Mood alteration had association between age and symptom distress severity (r2 = .211, p = .015). Symptom distress severity & number of chemotherapeutic cycles were associated for nausea (z = -.213, p = .032) and pain, various body parts (z = -.2763, p = .006). Bowel changes had association between symptom distress severity & type of drugs (x2 = 10.800, df = 4, p = .029).

Conclusions
Symptom distress among women with breast cancer must be assessed before & during treatment for adequate management for better patient outcomes.

17-37-P
LIVING WITH LOSS AND CHANGE - THE FORGOTTEN STORY OF THE ROMANTIC PARTNERS OF PEOPLE WITH ADVANCED CANCER

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Introduction
There is a paucity of research on the impact of advanced cancer on the sexuality of patients. There is less evidence regarding effect on the sexuality of the intimate partners of individuals with advanced malignancy.

Objectives
To assess the impact of having an intimate loved one with advanced cancer on the sexuality of their romantic partners and the coping skills used.

Methods
An interview based qualitative study of adults was carried out throughout a specialist palliative care service in 2006 to 2007. Interviews were recorded and transcribed. Recruitment was closed when data saturation was reached. Consent was given by participants for the use of written and aural extracts from the interviews.

Results
Ten partners were included in the study. Participants were stratified by gender and the ages ranged from 51 to 79 years. Partners prioritized their ill loved ones’ health needs over their own. Dramatic lifestyle changes were described secondary to their loved ones’ advanced malignancies. While some partners described pre-existing sexual dysfunction and altered intima- ncy within their relationships, others described communication, emotional and physical intimacy changes after the development of their loved ones’ malignancy. These changes included enhanced closeness. Furthermore partners were anticipating their loved ones’ future death and life alone.

Conclusions
Having a loved one with advanced cancer impacted on the sexuality of partners to varying degrees. Changed sexuality and altered relationships may be an under-acknowledged loss or an unexpected improvement for partners.

17-38-P
AN EMPIRICAL APPRAISAL OF THE ‘EARLY PALLIATIVE CARE NEEDS’ MODEL: A CROSS-SECTIONAL SURVEY STUDY IN CANCER PATIENTS


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Introduction
In the contemporary model of palliative care, palliative care is ideally initiated early, from diagnosis onwards, and increases gradually, possibly in combination with curative or life-prolonging treatments. However, an empirical evaluation of this theoretical ‘early palliative care needs model’ is still lacking.

Objectives
Objectives. To investigate the quality of life, care provision and unmet care needs at three phases in the cancer trajectory: the curative phase, life prolonging phase and most advanced phase (no more treatments or prognosis less than 6 months).
Methods
We collected self-reported data from 620 patients diagnosed with cancer who had a consultation in the University Hospital of Ghent, Belgium. They filled in the European Organisations for Research and Treatment of Cancer Quality of Life Questionnaire-Core 30 (EORTC QLQ-C30). Clinical data about the patient were collected by the treating oncologist. We also used European reference values to compare the mean scores between a norm group and the three phase groups.

Results
Results. From the phase at which patients received life-prolonging treatments they expressed an apparent deteriorated quality of life and high symptom burden and unmet care needs. Also patients who were receiving treatments with a curative intent, thus from diagnosis onwards, expressed care needs, mainly psychosocial.

Conclusions
Conclusions. Our results seem to correspond to the ‘early palliative care needs model’. Health care policies should develop or adapt health structures in which an integrated palliative care approach from diagnosis onwards into oncology is possible.

17-39-P
TELEPHONIC COMMUNICATION IN PALLIATIVE CARE FOR BETTER MANAGEMENT OF TERMINAL CANCER PATIENTS IN RURAL WEST BENGAL – AN NGO BASED APPROACH.
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Introduction
Due to financial incapability and absence of manpower poor families often fail to carry their advanced cancer patients to the nodal centres. This pilot study will explore whether communication by mobile phone can lessen this burden.

Objectives
To identify and try to solve to the extent possible the main difficulties in giving palliative care to the terminal cancer patients of the area.

Methods
Initially a plan was generated regarding management of an advanced cancer patient in a nodal centre at District Head Quarter. Subsequently every 2 week a trained social worker attached to nodal centre will follow up and give necessary advice and emotional support to the patients and their families through their registered mobile phone number. Patient’s family were also encouraged to communicate with the team by phone in case of fresh complain and urgency in between.

Results
Since initiation in January 2013, 193 cancer patients were contacted by mobile phone every 2 weeks to enquire about their difficulties. In 76 % of the situation trained social workers could give necessary advice by phone regarding management of their physical symptoms. Moreover patient’s family were really overwhelmed by the emotional support offered by the team over phone. Only 24 % of cancer patients has to attend the nodal centre for expert advice from Palliative Care specialists.

Conclusions
This novel approach helped
• In providing regular physical and emotional support to the patients and their families.
• In significantly reducing the financial and manpower problems of carrying patients to the nodal units.
• In improve the quality of life of patients by continuous guidance.

17-40-P
IMPACT OF OUTPATIENT PALLIATIVE CARE (PC) ON SYMPTOM BURDEN IN PATIENTS WITH ADVANCED CANCER AT A TERTIARY CANCER CENTER IN JORDAN
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Introduction
Outpatient palliative care clinics are essential for early symptom management in patients with advanced cancer. Few outpatient programs are available in the Middle East.

Objectives
Examine the symptom changes among cancer patients seen at a palliative care clinic in Jordan

Methods
In this prospective study, patients with advanced cancer who had an outpatient palliative care consultation were enrolled. The Edmonton Symptom Assessment System (ESAS), Karnofsky Performance Scale (KPS) and Memorial Delirium Assessment Scale (MDAS) were collected at consultation and follow up visit 14–34 days later. We compared symptom changes using paired t-test.

Results
Among the 182 enrolled patients, the average age was 53 years, 47 % were female, and 95 % had stage IV cancer. The median duration between the two clinic visits was 21 days (interquartile range). ESAS pain (5.9 vs. 5.1, P=0.004) and sleep (4.6 vs. 4.1, P=0.007) improved significantly over time. The remaining ESAS symptoms decreased in intensity, albeit not statistically significant. Among patients who presented with moderate to severe symptom intensity, pain (7 vs. 6, P<0.0001), fatigue (7 vs. 6, P=0.003), nausea (7 vs. 4, P<0.001), depression (7 vs. 5, P=0.008), anxiety (7 vs. 5, P<0.0001), appetite (7 vs. 6, P=0.0007), well-being (7 vs. 6, P<0.0001), dyspnea (6 vs. 5, P=0.0006) and sleep (6 vs. 5, P<0.0001) all improved significantly.

Conclusions
Our outpatient palliative care consultation was associated with improvement in ESAS, particularly for patients who presented with moderate to severe symptoms. Further studies are needed to examine predictors of symptom response, particularly in the Middle Eastern culture.

17-41-P
MEDICAL EXPENDITURE IN TERMINALLY-ILL LUNG CANCER PATIENTS BETWEEN INDEPENDENT HOSPICE CARE UNIT AND GENERAL WARD
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Introduction
We published a article which hospice ward type in palliative settings may contribute to reduce medical costs as well as more favorable total care for terminally-ill patients with cancer (Am J Hosp Palliat Care, 2013). We established the independent hospice care unit consisting of 24 special beds.

Objectives
We compare the medical expenditures of terminally-ill lung cancer patients between hospice care unit and general wards in VHS medical center.

Methods
We enrolled terminally-ill lung cancer patients who permitted DNR in VHS Medical Center. Medical expenditures in terms of
antibiotics, analgesics, nutrition, transfusion, laboratory and total medical cost between hospice care unit and general wards in these patients.

Results
A total of 194 patients were enrolled and allocated into hospice care unit (n=130) and general ward (n=64) for hospice care. Daily average costs of antibiotics, nutrition, transfusion, laboratory and medical care are statistically significant factors between hospice care unit and general ward. There is no significant difference in only aspect of analgesic usage.

Conclusions
We may reduce the hospice care medical expenditure in independent hospice care unit than general ward for the management of terminally-ill lung cancer patients in VHS Medical Center.

17-42-P

FIRST REPORTED CASE SERIES OF A CONTINUOUS SUBCUTANEOUS INFUSION OF LIDOCAINE FOR INTRACTABLE PRURITUS IN CUTANEOUS T-CELL LYMPHOMA

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Introduction
Pruritus is a common symptom in Cutaneous T cell lymphoma (CTCL), increasing in prevalence as the disease progresses. Symptomatic management includes strict skin care and use of oral anti-neurothetics. Despite these measures, intractable pruritus can occur especially in the terminal phase. The use of a continuous subcutaneous infusion (CSCI) of lidocaine for pruritus in this situation is not well described.

Objectives
To assess the control of intractable pruritus in CTCL with the use of CSCI lidocaine

Methods
A retrospective audit of medical records was undertaken of all CTCL in-patients who were prescribed CSCI lidocaine at Peter MacCallum Cancer Centre between 2000 and 2005. Demographics, cardiac, hepatic, renal and neurological status were recorded alongside the dose and duration of lidocaine. Pruritus severity was noted daily and categorised as: 1) complete response (CR) if patient reports no existing itch, 2) partial response (PR) where itch exists but tolerable (sleep and mood intact), 3) no-response (NR) if problematic itch remains (poor sleep, low mood, distressed).

Results
Seven patients (four male) with a mean age of 57 years were identified. CSCI lidocaine was commenced at 0.1–0.4 mg/kg/h and up-titrated to a maximum of 1 mg/kg/h for a mean duration of 47 days. Across all seven patients, CR was achieved for an average of 28 % of the CSCI time, PR for 50 % and NR for 22 %. Adverse reactions were noted in two patients but did not lead to CSCI cessation.

Conclusions
CSCI lidocaine could be considered for the symptomatic management of intractable pruritus in CTCL when standard therapies fail.

17-43-P

PALLIATION OF DYSPHAGIA FOR ADVANCED OR RECURRENT ESOPHAGEAL CARCINOMA PATIENTS BY CT- IMAGE BASED HDR BRACHYTHERAPY: AN INDIAN EXPERIENCE.

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Introduction
Durable palliation of dysphagia and improvement of QOL in advanced esophageal carcinoma is a challenge. Currently available methods yield dismal outcome. Brachytherapy is being considered to be a useful option for quick restoration of swallowing in several reports.

Objectives
To evaluate improvement of dysphagia, treatment complication and overall survival, following CT-based HDR brachytherapy in advanced or recurrent esophageal cancer. Study endpoints are dysphagia score, dysphagia free survival, overall survival and radiation toxicity.

Methods
Between December 2011 and September 2013, 91 patients with advanced or recurrent squamous cell carcinoma of esophagus, not amenable to curative treatment, were salvaged by HDR brachytherapy alone with individualized CT based planning. The group comprised of 58 previously untreated patients and 33 having recurrence after concomitant chemoradiotherapy. Previously untreated patients received 24 Gy in 3 fractions. Recurrent patients (33/91) were re-irradiated by 16 Gy/2 fractions/ 2 weeks. Individualized CT-based planning was done for each insertion. All patients were followed until death. Pre and post treatment swallowing status were scored by the PASS scoring system.

Results
Overall improvement of dysphagia was recorded in 44/58 (84.5 %) previously untreated and in 22/33 (66.6 %) previously irradiated patients. Duration of dysphagia-free-survival and overall survival was a median 7.5 months and 8.2 months in recurrent patients. Among previously untreated patients the corresponding figure was 8.5 months and 10 months respectively. Swallowing improvement persisted for 85 % of survival period. Radiation stricture was found in 2/58 untreated and 6/33 recurrent patients.

Conclusions
HDR brachytherapy is a safe, effective and least-expensive treatment to achieve durable palliation in advanced esophageal carcinoma.

17-44-P

DISENFRANCHISED GRIEF- DOES IT OCCUR AMONG BEREAVED FAMILIES OF CANCER PATIENTS?

C. Koshy1
Disenfranchised grief does occur in bereaved families of cancer patients, and could be the tip of an iceberg. Disenfranchised grief is defined as ‘grief that a person experiences when they incur a loss that is not or cannot be openly acknowledged publicly mourned or supported’.

**Methods**

Telephone calls were made to 50 consecutive bereaved families. Telephone numbers of patients registered at our clinic are taken down by our social worker and she makes phone calls on a regular basis. The following questions were asked: 1) Was their any neglect, distancing, straining of relationship with family or neighborhood during the period of illness and following death? 2) Was physical, emotional and financial help forthcoming as expected? 3) Did frequency of visits come down following diagnosis? 4) Was it overheard that the cancer could be contagious? 5) Did the family feel ostracized?

**Results**

Fifty families were interviewed. Eight families said ‘YES’ to all the questions. 1) Twenty patients had oral cancers, 2) Ten had lung cancers and the rest in other sites one patient had a colostomy, and another had a vesicovaginal fistula and eight of head and neck cancers had fungating wounds with maggots.

**Conclusions**

1) Disenfranchised Grief does occur in bereaved families of cancer patients, and could be the tip of an iceberg.
2) This is a ‘look out study’ for the existence of disenfranchised grief.
3) Fear of contagion is a major reason.
4) Education and Counselling is necessary.

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**RELIGIOUS NEEDS OF IRANIAN PATIENTS WITH CANCER: A QUALITATIVE STUDY**

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**Introduction**

Religious faith plays an important role in coping of patients with cancer. Regarding increasing number of patients with cancer in Iran and the religious background of Iranian patients especially cancer patients, health care providers especially nurses are supposed to assess the religious needs of these patients.

**Objectives**

The aim of this study was to explore the religious needs of Iranian patients with cancer.

**Methods**

This study was a qualitative content analysis. Participants were 18 patients with cancer referred to cancer institute as the major referral center for cancer affiliated to Tehran Medical Sciences University. The patients were selected using purposeful sampling. Data gathered via semi-structured open-ended interviews until saturating data. The analysis was performed using conventional content analysis to extracting codes and themes.

**Results**

From 611 initial codes, three themes (with two sub-themes for each theme) were extracted including: religious beliefs (beliefs and resort), communion with God (closing to God and trust in God) and religious rituals (prayer / worship and perform religious rites).

**Conclusions**

Religious beliefs are an important factor which can affect all aspects of cancer patients’ quality of life. This study showed that Iranian patients with cancer have a strong religious belief which can help them to cope with their illness, follow their care planed and maintain their hope. The nurse managers are supposed to consider the findings of the research to plan a holistic approach for patients with cancer with emphasizing on their religious needs.

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**CHEMOTHERAPY IN PALLIATIVE INTENTION FOR PATIENTS WITH REDUCED PERFORMANCE STATUS IN SPECIALIZED ONCOLOGICAL PALLIATIVE CARE. (PHOENIX)**

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**Introduction**

Chemotherapy in palliative intention (CPI) in advanced incurable cancer patients with low performance status (PS) may be aggressive end-of-life care; but could be beneficial with concurrent palliative care.

**Objectives**

To analyse current practice, outcomes of CPI in patients with reduced PS.

**Methods**

Retrospective chart review over 30 months of inpatient tertiary palliative care unit (647 patients, length of stay 11.7 days [mean] / 47 % death at unit). Fifty-nine patients continued prior chemotherapy (CONT), in 36 pts a new CPI was initiated; breast 4/7, lung 6/7, prostate 2/4, stomach 2/4, pancreas 9/0, urogenital 4/3, other 32/11. Key interventions palliative cancer care (K1-PCC) and elements of decision process were defined.

**Results**

Twenty-one patients CONT (36 %) and five patients CPI (14 %) died, PS at discharge was 3.6/3.0. Time from admission to CPI was 13 days (mean, median 11 [0–45]), PS improved (~1) in 18, was stable in 12 and deteriorated in six patients, five died [time from CPI to death 16.4 days. Of 15 discharged patients with PS3 at admission 1 died <14 days 1<1 month, of three patients with PS4 survival was seven, 53 and 102 days. The K1-PCC illness/prognosis understanding was delivered in 33 patients, spiritual needs in 33 patients, end-of-life preparation in 25 patients, palliative support after discharge in 34 patients and explicit goals of CPI in 29 patients. Primary dose reduction in five patients, no non-hematological toxicity G2-4 occurred.

**Conclusions**

CPI can be offered in sick, low PS patients with adequate K1-PCCs. Definition of patient characteristics suitable for CPI is required.
INTEGRATION OF PALLIATIVE CARE SERVICES WITH ONCOLOGY PRACTICE. WHATS IN A NAME?

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Introduction
We previously found the name “palliative” to be a barrier to early referral and changed our service name from palliative (PC) to “supportive care” (SC) in fiscal year (FY) 2008. Immediately after (FY 2009) we observed increased and earlier referrals in the inpatient and outpatient settings, respectively.

Objectives
Study was conducted to determine if above findings remained stable over time.

Methods
We reviewed billing data for all PC/SC encounters for 2007–2014, and information pertinent to timing of outpatient-referrals: survival from consultation and time to consultation from advanced-cancer (aCa-PC/SC) and hospital-registration (HR-PC/SC). Kaplan Meir/Cox-regression models were used.

Results
Figure demonstrates annual growth in PC/SC patient activity. Median ratio of number of inpatient-consultations to hospital-beds increased in 2014 (7.1) from 2007 (3.9 p<0.001). Median survival of outpatient-referrals increased in 2013 as compared to 2007 and 2009 (p<0.001, Table). The proportion of non-aCa outpatient-referrals increased from 12 % (2007) to 19 % (2009) and 21 % (2013, p<0.001). Median aCa-PC/SC (months) decreased in 2013 (5.5) compared to 2007 (7.9; p<0.001) and unchanged from 2009 (4.7; p=0.5). Median HR-PC/SC (months) decreased in 2013 (6.7) compared to 2007 (14.8; p<0.001) and 2009 (9.4; p<0.042).

Conclusions
Following service name change to SC, we observed consistent annual increase in new referrals as well as earlier access for outpatient-referrals.

The outpatient center facilitates earlier access and should be established in more centers.

<table>
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<th>HR (95 % CI)</th>
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<td>718</td>
<td>5.1</td>
<td>1.26 (1.13–1.40)</td>
</tr>
<tr>
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<td>6.0</td>
<td>1.17 (1.05–1.31)</td>
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<td>865</td>
<td>5.8</td>
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<td>1.06 (0.96–1.17)</td>
</tr>
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<td>2012</td>
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<td>7.6</td>
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FAMILY CAREGIVERS AS CARE COORDINATORS FOR CANCER PATIENTS DYING IN THE HOME: A QUALITATIVE STUDY

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Introduction
Family caregivers of patients with advanced cancer may assume complicated care responsibilities, including coordinating the equipment, personnel, and administration of a home death.

Objectives
The objective of this study was to explore the multiple roles and responsibilities taken on by caregivers to coordinate homecare for dying cancer patients, and the barriers and facilitators they encountered.

Methods
Caregivers of patients who completed a randomized controlled trial of early palliative care versus standard oncology care in Toronto, Canada were recruited 6 months to 5 years after the patient’s death. Participants were asked to explore the tasks of managing homecare in semi-structured interviews conducted April 2012–October 2014. Data analysis was guided by grounded theory.

Results
Sixty caregivers (30 intervention, 30 control; 43 females, 17 males; mean age 60) were interviewed, including spouses (32), adult children (19), siblings (4), and other family (5). Caregivers encountered multiple practical concerns in their coordination roles. Themes corresponded to roles across the phases of dying: (1) Structuring the home as a place for dying, (2) Negotiating relationships with healthcare providers, (3) Ensuring supports for active dying, and (4) Managing bureaucratic challenges after death. Although thematic analysis revealed few differences between intervention and control groups, caregivers of patients who received specialized palliative homecare reported more support. Caregivers endured tensions between the emotional experience of dying and the bureaucratic responsibilities of death.

Conclusions
Caregivers assume challenging administrative and organizational duties while enduring emotional distress, and thus may require additional emotional and practical supports from the formal healthcare system.

INITIATION TO PALLIATIVE CARE IN A COUNTRY WITH LIMITED RESOURCES: LEBANON’S FIRST EXPERIENCE.

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Introduction
Palliative care (PC) has been an integral part of cancer care for decades. With provision of ample satisfaction and optimised communication, PC has proven to be most valuable in improving terminally ill patients’ quality of life. Unfortunately, cultural differences in middle eastern countries, where PC is perceived as a life terminating intervention, have hindered the introduction of such services until recently.

Objectives
Explore the impact of PC in terms of patients admissions and follow up, one year after its introduction to our institute.

Methods
The records of all patients transferred to PC in 2014 were retrospectively reviewed and relevant information was analysed.

Results
In total, 73 patients were transferred to PC services in 2014, 46.5 % were women and 53.5 % were men, patients were diagnosed with a variety of malignancies and only 4 % were still receiving palliative chemotherapy. 69 % of referrals survived less than 1 month and 87 % were followed for a period of less than 3 months. Overall, only 20 % of patients were transferred to their homes whereas the remaining patients were permanently hospitalised until they were deceased. Finally, 46 % of patients with early referrals, who were transferred for home care, survived for a period of more than 3 months.

Conclusions
Despite the limited number of patients transferred to PC in 2014, our evaluation shows that proper implementation of western models of PC services in Lebanon is bound to benefit patients, physicians and hospitals. PC practitioners are still struggling with managing transfers to non-acute settings, late referrals to PC and time constraints.

17-50-P
FAMILY CAREGIVERS’ EXPERIENCES AND EXPECTATIONS OF BEREAVEMENT FOLLOW-UP: A QUALITATIVE STUDY
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Introduction
Clinician follow-up practices with family caregivers after the death of patients from advanced cancer are variable and may have an impact on coping and grief.

Objectives
To gain insight into the type of bereavement follow-up that may be helpful, we examined bereaved caregivers’ experiences and perceptions of receiving contact from health care providers (HCP) after death and its effect on coping.

Methods
The bereaved family caregivers of patients with advanced cancer who had completed a trial of early palliative care were recruited 6 months to 5 years following the patient’s death. Bereaved caregivers completed interviews from April 2012–Oct 2014; they were asked to describe the contact they received from HCP after the patient’s death. A grounded theory approach was used for analysis.

Results
Of 49 caregivers, 23 received some form of contact. Contact from HCP was appreciated and provided closure, but did not tend to affect coping. Caregivers who received contact felt it reflected personalized care, and perceived it as continuous with previously built provider-patient relationships. Of those who did not receive contact, some did not feel a personal need or expectation for it, or felt that HCP roles did not include bereavement support. However, many stated contact in the form of a note or call would have been helpful to provide acknowledgement and closure.

Conclusions
Bereavement contact is well-received by caregivers, provides closure and reflects personalized care. Such contact should be offered as part of routine supportive care for caregivers of patients with advanced cancer.

17-51-P
STATISTICAL MODELLING OF PALLIATIVE ONCOTHERAPY LOAD IN WESTERN NEPAL
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Introduction
An increase in cancer incidence in developing countries is expected in future and the number of cancer patients requiring palliative treatment will also rise in Nepal.

Objectives
The objective of this study was to estimate the numbers, and trends of cancer patients receiving palliative treatment in Pokhara, Nepal.

Methods
This retrospective study analysed the records from the Radiotherapy Department at Manipal Teaching Hospital, Pokhara, Nepal between September 2000 and December 2008.
Results
Of 1001 cancer cases, 363 patients received radiotherapy with palliative intent for their treatment during the study period. 37% of all the palliative intent cancer cases were of lung among them, 63.6% received radiotherapy with palliative intent. Excluding the constant term from the equation, the Logarithmic model was the best fitted, with $R^2=0.727$, $p=0.002$ for the forecasting of cancer patients receiving palliative treatment. Using this model, the number of cancer cases receiving palliative radiotherapy at the hospital in the year 2015 was estimated to be 68.

Conclusions
The data analysed in the present study indicates an increasing future trend of patients requiring palliative therapy at the centre. Therefore, in the future, there could be a discrepancy between the requirement and capacity of care to these patients. Government and healthcare agencies of Nepal must ready themselves to promote better strategies for adequate provision to the cancer patients receiving palliative treatment in the coming years.

17-52-P
INTEGRATION OF THERAPY IN PEDIATRIC PALLIATIVE CARE CENTER FOR MANAGEMENT OF PSYCHOLOGY PAIN RWANDA POST GENOCIDE
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Introduction
In 1994 Rwanda a small country located in central Africa called “Great Lakes Region” have been a place where one the worst massive killing of people happened during the 20th century. The genocide against Tutsi ethnic kills 1 million persons in 100 days. A huge number of people lost families, relatives and put the country in the darkest hours. A psychological traumatism affected all layers of society especially among children to whom families are affected. As Rwanda culture is based on stoic philosophy, man or women are not allowed to express emotions or feelings when someone dies, tears are sign of weakness and grief, a powerless spirit; children are taught to ignore their feelings and emotions.

Objectives
To identify the impact of new therapy among Pediatric Palliative Care patients psychologically affected by the Genocide using Rwanda culture approach

Methods
At Kibagabaga Hospital, the public hospital for Gasabo District that includes 60% of the population of Kigali, we initiated a training of 20 health providers in Psychological approach for Children

Results
By introducing psychological therapy among children with Cancer using Rwandan culture model of dialogue helped a huge number of children and adolescent to cope with their stories or families’ stories. Anecdotal data indicates a high level of satisfaction by family members and children to whom the therapy provided and a reduced tendency of children from loneliness.

Conclusions
The model of therapy helped children to describe their pain and guide the health providers to create an appropriate management of psychological pain.

17-53-P
SYMPTOM ASSESSMENT IN ADVANCED CANCER
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Introduction
Advanced cancer patients are polysymptomatic with a median of 11 symptoms. Symptom burden is an important predictor of quality of life. To effectively evaluate and control symptoms, a comprehensive systematic assessment is required at initial consultation and periodically thereafter.

Objectives
1. Review the assessment and documentation of 12 common cancer symptoms.
2. Compare an admission template with non-template documentation.

Methods
A retrospective medical record review was conducted at a palliative medicine inpatient unit. Consecutive in-patient cancer deaths over a 4 month period were evaluated. The comprehensiveness of medical and nursing admission documentation of the 12 study symptoms was examined. Descriptive statistics were generated by Microsoft Excel.

Results
Of 102 medical records reviewed, 93 had cancer. Forty-seven percent of admissions were template based and 53% non-template. The most commonly recorded symptoms were: pain [91%]; fatigue [81%]; constipation [77%]; dyspnoea [73%]; nausea/vomiting [69%]. The least commonly recorded were neuropyschological (insomnia [45%]; depression [31%]; anxiety [24%]) and nutritional symptoms (mouth problems [42%]; weight loss [12%]; early satiety [3%]). The mean number of recorded symptoms in the systematic template was 7.5 versus 5 in non-template. In template-based admissions, presence or absence of symptoms was documented, whereas non-template only recorded presence.

Conclusions
1. Systematic admission templates provided a more comprehensive assessment and documentation of symptoms
2. Neuropsychological and nutritional symptoms were under-evaluated
3. Selective symptom assessment biases symptom profiles
4. Further research should evaluate the utility of routine template-based assessments

17-54-P
NARRATIVE ETHICS IN THE FIELD OF ONCOLOGY
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Introduction
The field of narrative ethics has emerged from a confluence of humanities, contemporary narratology, literature and social sciences. Few have been written on an oncology and end-of-life decisions setting.
17-55-P

BARRIERS TO ACCESS TO PALLIATIVE CARE IN PRIVATE TERTIARY HOSPITALS IN THE PHILIPPINES

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Introduction
Early referral allows palliative care teams to provide early assessment and relief of physical and psychosocial distress and discuss advanced care planning. Most patients are referred to palliative care services in the last days of life.

Objectives
The aims of the current study were to examine the frequency and reason for referral to palliative care in the course of the patient’s disease and treatment, and to identify factors that were associated with timely versus late referral.

Methods
A self-administered questionnaire among physicians attending to cancer patients inquired as to the frequency of and reason for palliative care referral.

Results
The major reason for lack of access to palliative care is paucity of physician referrals due to lack of clear understanding of how palliative care can be helpful and how it can be explained to the patient. Many believe that palliative care cannot be offered at the same time as cancer-directed therapy. Many believe that it is their job to provide the psychological support to help patients cope and to manage their symptoms. Among the reasons for the lack of or lateness of referrals include difficulty in making accurate prognoses, and physician’s reluctance to discuss the prognosis and advanced directives with the patient and family. Attending physicians believe that referral to palliative care entails additional expenses adding to the financial burden of the patient and families.

Conclusions
Recognizing the barriers to referral to palliative care can bring about changes in education and health care practices to achieve goals of providing early palliative care.

17-56-P

CONSUMPTION OUTCOMES IN A DISADVANTAGED PALLIATIVE CARE POPULATION: DESCRIPTIONS OF CAPACITY AND NEED.

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Introduction
Illness and caregiving demands at the end of life place significant strain on financial resources and it is understood that lower socioeconomic groups are particularly vulnerable to financial costs due to the limits of their financial resources to accommodate increased spending and income loss. The impact of financial burden at the end of life in known to impact adversely on wellbeing, treatment choices, setting of care preferences and the future financial wellbeing of the bereaved. Financial outcomes captured through the measurement of consumption can provide a more accurate representation of financial wellbeing.

Objectives
To describe the consumption outcomes of a socio-economically disadvantaged palliative care population.

Methods
As part of a larger study to understand the needs and capacities of a disadvantaged palliative care community within a broader social determinants and social capital investigation, data was captured from patients and/or carers (n=16) for socio-demographic data on income and semi structured interview responses utilising a Consumption Survey. The 21 item Consumption survey reported spending on personal, household and medical items.

Results
Low consumption of goods and services, within a context of low income and wealth, was described by participants. In particular the outcomes of this investigation outlined the capacity or limits of health and social care funding arrangements, to support daily living and healthcare spending for patients at the end of life and their caregivers.

Conclusions
Disadvantaged palliative care populations describe financial needs and capacities which can inform a range of health and social care providers at community and government levels.

17-57-P

CHALLENGES OF PROVIDING PALLIATIVE CARE IN CRITICAL CARE SETTINGS

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Introduction
Changing demographics and medical advances have led to increased demand for beds in Intensive care units (ICU). UK end of life care strategy recommends delivery of high quality service in all locations including acute hospitals.

Objectives
To retrospectively review all referrals over a six-year period from general and specialist ICU to hospital palliative care teams (HPCT) of a large teaching hospital in UK. The objectives were to assess reasons for referral, outcome and challenges encountered.
Methods
Information was extracted from Infopax, an electronic patient database that captures details of referral, diagnosis, patient assessment and HPCT interventions.

Results
One hundred forty-four patients (77 male, 68 female) median age 59.3 (range 22-94) from critical care facilities were referred to HPCT over 6 year period. Ninety had a diagnosis of malignancy. The reasons for referral included symptom control, support with withdrawal of therapy and management of terminal care including support to carer. 96/144 patients died. Forty-nine died in ICU. The HPCT was able to facilitate and achieve preferred place of death outside acute hospital for 23 patients. The biggest challenge was communication as combination of critical illness and invasive interventions often diminished the capacity of patients to make decisions. Discontinuity of care and accepting the shift in goals from intensive treatment to palliative care was emotionally difficult for staff and family.

Conclusions
Despite the challenges, it is possible and appropriate to give compassionate palliative care to dying patients in critical care setting through good interdisciplinary team working and communication adopting a proactive approach.

17-58-P
ACHIEVING EXCELLENCE IN PROVIDING PALLIATIVE CARE: PERSPECTIVES OF HEALTH CARE PROFESSIONALS

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Introduction
Caring for individuals at the end of life in a hospital environment is a challenging proposition. Understanding the challenges to providing quality end of life care is an important first step in order to develop appropriate approaches to support staff members and facilitate their capacity remaining “caring”.

Objectives
This work was undertaken to increase our understanding about the challenges health professionals experience in caring for patients at end of life and how staff members could be supported in providing care to patients and families.

Methods
In-depth interviews were used with cancer nurses (n=30) to explore the challenges talking about death and dying with patients and families. Surveys were used with nurses (n=27) and radiation therapists (n=30) to measure quality of work life. Inter-professional focus groups were used to explore what it means “to care” (5 groups held)) and what “support strategies for staff” ought to look like (6 groups held).

Results
Staff members confirmed that interactions concerning death and dying are challenging. Lack of preparation (knowledge and skill in palliative care) and lack of support from managers and colleagues are significant barriers. Key strategies staff members thought would be helpful included: 1) ensuring all team members were communicating and following the same plan of care, 2) providing skill-based education on palliative care, and 3) facilitating “debriefing” opportunities(either one-on-one or in a group).

Conclusions
For staff to be able to continue caring for patient at the end of life, they need to be adequately prepared and supported appropriately.

17-59-P
DETERMINATION OF HOME CARE DIFFICULTIES AND QUALITY OF LIFE OF CAREGIVERS OF PALLIATIVE CARE PATIENTS

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Introduction
Palliative care services is not common in cancer patients and their caregivers.

Objectives
Objectives of this study was to determine home care difficulties and quality of life of caregivers of palliative care patients.

Methods
The sample of research was consisted of caregivers of cancer patients (n=60) who are in the terminal stage of palliative care-medical oncology service at 18 years of age and older. Patient and Caregiver Information Form and The Caregiver Quality of Life Index were used for data collecting.

Results
Caregivers of cancer patients consisted of 50 % of women, 61.7 % of housewives. It is turned out that 96.7 % of the caregivers can not benefit and reach from the care home, and 43 % of them don’t get information about home care. It has been determined that 80 % of patients has pain, 75 % of patients has nausea/vomiting. The caregivers had difficulties in pain management (80 %), nausea / vomiting management (70 %), discharge management (56.7 %) and management of mobilization (35 %), 50 % of patients has constipation problems. The patients of 26.7 % while bathing, 23.3 % of the patients while dressing and toilet needs as fully dependent. The score of total quality of life was found 49.7, overall quality of life is detected to be generally lower.

Conclusions
Caregivers have difficulties about family relationships, managing the patient’s symptoms due to caregivers of cancer patients does not have sufficient information about home care. Nurses should be sensitive and support the needs of caregivers, and help to make the necessary adjustments for cancer patients at home, and to meet the requirements of patients and caregivers.

17-60-P
COPING BEHAVIORS OF MOTHERS OF CHILDREN WITH CANCER

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Introduction
The challenges experienced by mothers of children who have cancer are multiple and ongoing. The aim of this study was to determine the coping behaviors of mothers of children with cancer.

Objectives
It was a descriptive cross-sectional study. The sample was recruited by convenience sampling and included 156 mothers of children with cancer. They were asked to complete the Coping Health Inventory for Parents (CHIP) to evaluate their total mean and the mean of three subscales. Data was analyzed by t-test and ANNOVA using SPSS-PC (v.15).
Methods
The sample’s mean for the total scale was 70.66 (SD=24.79, Range=9–135), for the family integration subscale 29.18 (SD=11.08, Range=6–57), for the support, esteem and stability subscale 29.12 (SD=9.7, Range =7–24) and for the medical communication subscale 12.71 (SD=5, Range =2–24). There were no significant relationships between the mothers’ demographics and child disease-related variables and the total mean and three subscales’ means of the questionnaire.

Results
In comparison with other related studies, the sample obtained lower scores in the “maintaining family integration, cooperation and optimistic definition of the situation” and “maintaining social support, self esteem and psychological stability” and were unsuccessful in these coping behaviors. The findings of this study may provide a framework for the development of guidelines for clinical nursing interventions.

Conclusions
Knowledge and awareness of the coping behaviors of mothers of children with cancer may assist nurses to provide the needed social support for them.

17-61-P
DEXAMETHASONE DOCUMENTATION, A RETROSPECTIVE REVIEW: THE GOOD THE BAD AND THE UGLY.
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Introduction
Corticosteroids are widely used in the palliative care patient population in the management of a variety of problems; in our service dexamethasone is almost exclusively used. While short term use of corticosteroids is generally well tolerated, protracted use is associated with significant adverse effects. It is important that corticosteroid use is adequately documented so that inappropriately lengthy treatment is avoided and that patients at risk of serious adverse effects are identifiable and monitored.

Objectives
To assess the adequacy of documentation of dexamethasone use at initial contact with the service and during subsequent care.

Methods
Retrospective chart review. The following indicators were considered important and electronic records were searched for evidence that they had been documented:

- Indication for use
- Duration of use
- Review of therapeutic goal
- Adverse effects

Results
In the 131 charts reviewed 51 patients (39 %) were identified as having received dexamethasone at some time during the course of their illness. Information about indication for use, duration of use and review of dosage was scant in patients taking dexamethasone on initial contact (30/51). Improvement in documentation occurred following admission to the palliative care service especially in regard to identifying duration and review of treatment.

Conclusions
Documentation needs to be improved to assist monitoring these potent medications. To facilitate this, a patient held “Steroid Treatment Card” has been developed and will undergo evaluation. NSW Health does not have such a card; we envisage wider usage beyond palliative care.
17-62-P

PALLIATIVE CARE: SAFETY ISSUES IN A HOME SETTING

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Introduction
Palliative clients in a home setting may be living at risk due to cognitive or physical declines incurred by their disease processes, environmental hazards in the home, or caregiving issues. While safety concerns in hospitals have been well documented, knowledge about safety issues in the home setting is limited.

Objectives
This study was conducted to understand how palliative, community-based healthcare personnel define and manage safety issues for end-of-life clients in the home.

Methods
A qualitative, focused ethnography method that was approved by the research ethics board of the principal author’s institution was used to investigate the research question: “What are the homecare safety issues for urban adult clients at the end of life?” Key informant interviews and focus groups were conducted with in-home palliative, healthcare personnel to understand the various aspects of risk in the home setting. Data sources included interview transcripts and field notes that were analyzed within and between groups using a constant comparison approach.

Results
Participants noted that the client’s wishes often dictate the safety issues that are present in the home environment. These safety issues may be exacerbated if the client or family caregivers’ perception of the client’s capabilities does not accurately reflect the client’s actual physical or cognitive status.

Conclusions
Accurate and timely communication among all caregivers throughout the client’s disease trajectory – particularly during care level transitions – and flexibility to tailor care and support to the client’s specific needs is required to ameliorate safety issues for palliative clients in the home setting.

17-64-P

OUTCOME OF ORAL METHOTREXATE IN RECURRENT OR PERSISTENT HEAD AND NECK CANCER

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Introduction
Recurrent or progressive head and neck cancers is considered to have poor prognosis. Although various chemotherapeutic agents have been tried in palliative setting, but there is a lack of definitive standard protocol.

Objectives
To evaluate response and toxicity of oral Methotrexate (MTX) in recurrent or persistent head and neck cancer.

Methods
Between 2005 and 2011, 94 patients received palliative oral MTX either due to recurrent or persistent disease. Median age: 51 years; 68 % males and 32 % females. Site distribution: oral cavity 62 %, nasopharynx 20 %, hypopharynx 7 %, paranasal sinuses 6 %, larynx 2 %, Oropharynx 1 % and others 2 %. 49 % of the patients had loco-regional recurrence, 15 % had distant metastasis while 36 % had persistent disease. All the patients received oral MTX 10 mg once a day, 4 days a week alongwith folinic acid 15 mg per oral every 6 hourly on day 5 only. Response assessment was done on two monthly basis. Response, toxicity, mean response time and mean time to progression were determined.

Results
Response to methotrexate; complete response 3 %, partial response 4 %, stable disease 11 % and progressive disease in 82 % of the patients. Toxicity; neutropenia grade III/IV in 2 %, mucositis grade III/IV in 7 % of the patients respectively. Treatment was stopped in 13 % of the patients due to poor compliance. Mean response time was 4 months (range 1 to 20) and mean time to progression was 5 months (range 1 to 23).

Conclusions
Palliative oral Methotrexate is a simple and cost-effective regimen to be used on outpatient basis and merits further evaluation in large scale clinical trials.
17-65-P

BIOCHEMICAL PROGRESSION RATE WITH DIET HYLSTILBESTEROL IN HORMONE REFRACTORY PROSTATE CANCER PATIENTS

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Introduction
Diethylstilbestrol administration was a classic form of androgen deprivation therapy. Despite its comparable efficacy to orchietomy in advanced prostate cancer, its use was declined due to thromboembolic side effects and the emergence of novel therapeutic agents.

Objectives
We report our experience with DES in patients failing androgen suppression either with single or combined androgen blockage.

Methods
Sixty-seven patients with a median age of 69 years (range 48–89) with advanced or metastatic prostate cancer were treated with DES between 2009 and 2012 after failing androgen suppression, either with LHRH analogues, anti-androgens or combined androgen blockage. Seventy-seven percent patients had metastatic and 23 % patients had locally advanced disease. Median number of previous hormonal maneuvers used was 2 (range 1–6) and median time since initial hormonal treatment was 7 months (range 1–66). Median pre-DES PSA was 90 ng/ml (range 4.9–4451). DES at a dose of 2.5 mg PO plus low dose aspirin 75 mg PO was given. Patients with thromboembolic or ischemic history were not offered DES.

Results
Median treatment duration was 4.5 months. 54 % of patients responded to DES and among responders, 60 % of patients had PSA response of more than 50 % compared to baseline. Median time to biochemical progression was 4 months (range 1–47). Complications; deep vein thrombosis in 3 %, myocardial infarction in 3 % and gynecomastia in 5 % of patients.

Conclusions
DES can give useful palliative responses for modest duration after failure of standard hormonal therapy. Cardiovascular complications still persist, requiring the development of safe and effective antithrombotic therapy.

17-66-P

OUTCOME OF INTRAVENOUS METHOTREXATE IN RECURRENT OR PERSISTENT SQUAMOUS CELL CARCINOMA OF HEAD AND NECK

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Introduction
Recurrence or progressive disease in head and neck cancers is considered to have poor prognosis. Although various chemotherapeutic agents have been tried in palliative settings but there is a lack of definitive standard protocol.

Objectives
The aim of this retrospective study is to evaluate the outcome of methotrexate in recurrent or persistent squamous cell carcinoma of head and neck in our institution.

Methods
Between January 2006 to December 2009, 103 patients with recurrent or persistent head and neck cancers were identified from Head and Neck Database at Shaukat Khanum Memorial Cancer Hospital and Research Center. All the patients had good performance status (ECOG 0 – 1) prior to the start of palliative chemotherapy. All the patients received intravenous methotrexate 40 mg/m² weekly. Response, toxicity and mean time to progression were determined.

Results
Response to methotrexate; complete response (CR) in 10 (10 %), partial response (PR) in 11 (11 %), stable disease (SD) in 60 (60 %) and progressive disease (PD) in 19 (19 %) of patients respectively. Chemotherapy related toxicity were; grade 4 febrile neutropenia in 6 (5 %), grade 4 mucositis in 6 (5 %), deranged liver functions in 17 (16 %) patients. Mean time to progression was 7.5 months (range: 1–39 months).

Conclusions
The disease control in our study is comparable in the already published literature. Although various drug regimens have been employed in the past very little has been gained in slowing the progression of the disease.

17-67-P

SYRINGE PUMPS FOR SYMPTOM CONTROL: A PROSPECTIVE OBSERVATIONAL STUDY

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Introduction
The McKinley T34 Syringe Pump (SP) is a portable, battery-operated infusion pump that delivers medications parenterally. No prospective, systematic studies of SP use exist.

Objectives
1. Establish incidence
2. Examine indications
3. Assess adverse events
   – Device
   – Infusion line/cannula
   – Drugs
4. Investigate efficacy
5. Evaluate patient convenience

Methods
A prospective anonymous observational survey. Protocol and data recording form developed. Ethical waiver of consent granted. Study population...
=40 consecutive cases started on a SP over 5 weeks in a 36 bed specialist palliative medicine unit. Each followed for 3 days. Day 1=SP connection. Data analysis: Microsoft Excel.

**Results**


<table>
<thead>
<tr>
<th>Table 1: Indications</th>
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<tbody>
<tr>
<td>Start</td>
</tr>
<tr>
<td>Dying</td>
</tr>
<tr>
<td>Pain Control</td>
</tr>
<tr>
<td>Dysphagia</td>
</tr>
<tr>
<td>Nausea</td>
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<tr>
<td>Tablet Burden</td>
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<tr>
<td>Delirium</td>
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<tr>
<td>Vomiting</td>
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Adverse Events:
- Day 2=3/36: SP dislodged X 2; infusion line X 1.
- Day 3=3/30: skin site reaction, infusion line kink and mobility.

Convenience (Nurse): Day 3, 1/30 report (10 deceased) that SP bothered patient. Event not described.

Convenience (Patient): Day 3, one report from 23/40 (10 deceased; 7 unable to respond); “I don’t like it”.

**Conclusions**

1. Commonly used (8 new per week)
2. Usual indication: “dying”
3. Adverse events uncommon
4. Very effective
5. Convenient for patients

**17-69-P**

**Efficacy of Saam Acupuncture Treatment on Improvement of Immune Cell Numbers in Cancer Patients**

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**Introduction**
To collect preliminary data on the effects of Saam acupuncture with regard to the immunity in cancer patients.

**Objectives**
To collect preliminary data on the effects of Saam acupuncture with regard to the immunity in cancer patients.

**Methods**
We assessed the effect of Korean Saam acupuncture on the immune system in cancer patients by measuring particular blood cell subsets, including CD3+, CD4+, CD8+, CD19+, and CD56+ cells.
Results
There was a statistically significant increase in the number of CD3+ (P=0.023) and CD8+ cells (P<0.001) and T-cell subsets

Conclusions
Acupuncture may improve the immune system by increasing the counts of a few immune cells and relieve fatigue in cancer patients by decreasing FSS scores.

17-70-P

HOW TO AVOID HAEMATOLOGICAL AND BIOCHEMICAL IMBALANCES IN PATIENTS WITH BREAST CANCER STAGE IV OF THE CANCER OR CHEMOTHERAPY

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Introduction
BP-C1 is a new anticancer drug is currently being tested in patients with metastatic breast cancer (MBC). BP-C1 controls tumor growth, improves quality of life with few mild side-effects.

Objectives
To describe the effects of BP-C1 on haematological and biochemical parameters MBC patients.

Methods
Laboratory results from 47 MBC patients in two controlled clinical trials with IM injections of BP-C1 were studied. 1) an open non-randomized, Phase I dose response multicenter study with stratified with Response-Surface-Pathway (RSP) design and 2) a randomized double-blinded and placebo controlled multicenter study with stratified with stratified semi-cross-over design.

Results
Haemoglobin and haematocrit increased (p≤0.01) during BP-C1 treatment. The most pronounced increase was in anaemic patients (p≤0.01). White blood cell count and neutrophils increased significantly (p<0.01) in the total material. Eosinophils (p=0.05) and monocytes (p<0.01) increased significantly in patients with the lowest baseline levels. Additionally, low levels of thrombocytes significantly increased. No changes in liver parameters, amylase, glucose or albumin were detected except for albumin in the subgroup with low baseline, where levels increased significantly (p=0.04). An increase in K⁺, Ca²⁺ and PO₄³⁻ was most pronounced in patients with low baseline levels (p≤0.02). A similar pattern was detected for Mg²⁺, PT, KFNT and CRP (p≤0.05) in the groups with the lowest values.

Conclusions
BP-C1 did not induce anaemia, neutropenia, thrombocytopenia, hepatic insufficiency or electrolyte imbalances. BP-C1 normalized such abnormalities.

17-71-P

PALLIATIVE TREATMENT OF ADVANCED GASTRIC CANCER - SURGICAL ADVANCES INCLUDING MULTIMODAL THERAPY

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Introduction
Palliative surgery has increasingly become important not only for complications such as bleeding or tumor stenosis but also for better tumor prognosis.

Objectives
To study early postoperative and mid-term oncosurgical outcome.

Methods
In 2002, 1,031 patients (80 surgical departments) underwent only surgical intervention whereas from 2007 to 2009, 2,805 patients (141 departments) were documented including multimodal therapy. There were no significant differences in the distribution of tumor-sites, stages and no reduction of advanced tumor-stages comparing these time periods.

Five hundred twenty-one patients (18 %) underwent neoadjuvant therapy from 2007 to 2009, 401 subjects (13.9 %) out of patients with curative intention versus 120 individuals (4.1 %) out of patients with palliative treatment. 32.5 % (n=223) of patients were treated with chemotherapy (neoadjuvant setting and/or postoperatively with palliative intention).

Results
There was a decrease of palliation rate from almost 40 % in 2002 to 24.5 % with an increase in 4-years-survival from 40.0 to 48.5 %.

From 2007 to 2009 (2002 not described here), median survival after non-resecting interventions and no subsequent chemotherapy was 1 month, but with chemotherapy 7 months (p<0.001). Median survival after non-resecting interventions and no subsequent chemotherapy was 1 month, but with chemotherapy 7 months (p<0.001). Median survival after non-resecting interventions and no subsequent chemotherapy was 1 month, but with chemotherapy 7 months (p<0.001).

Conclusions
Palliative tumor resection should become part of the multimodal therapy in advanced gastric cancer since patients benefit from chemotherapy after former resection more than with no resection of the primary Tumor.

17-72-P

RESIDENT'S DOCTORS' VIEW OF THE FUTURE OF SUPPORTIVE CARE IN CANCER

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Introduction
The incidence of cancer has dramatically increased in the last decade and the effectiveness of cancer treatment has improved tremendously. This means that more and more people are living longer with cancer thus exposing them to more need for supportive care.
Objectives
To assess residents’ doctors’ view of how supportive care will be utilized during the time after their qualifying as internists.
To assess resident doctors’ opinions of the importance of supportive care in future during their practice as independent internists.

Methods
Questionnaires assessing 3 aspects of care viz; components of supportive care, importance of supportive care, applicability of supportive care, were sent to internal medicine resident doctors in 2nd, 3rd and 4th year. These were geared towards the time when they will have completed their internal medicine training.

Results
There was general agreement (100%) that the need, scope and length of supportive care will increase with time.
It was highly agreed (90%) that the application of supportive care in cancer will ease and be more accommodated in cancer centres than it is today.

Conclusions
Importance and scope of supportive care in cancer services will increase in future with the young qualifying doctors becoming more accommodating to the essential role played by these services.
Current physicians engaged in supportive care in cancer need to put more effort in imparting knowledge and skills to upcoming doctors both in quality of service and research/academic aspects.

17-73-P
THE NEED FOR CREATING AWARENESS ON PALLIATIVE CARE AMONG RELIGIOUS LEADERS AND SCHOLARS IN NIGERIA

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Introduction
The positive relationship between spirituality, religion and better health has been well documented; this implies that religious leaders and scholars play a vital role in the spiritual care of palliative patients. In Nigeria, religious leaders are scarcely seen in palliative hospices and day cares to attend to the spiritual needs of palliative patients. However, the level of awareness on palliative care among Nigerian religious leaders and scholars is yet to be ascertained.

Objectives
This study is conducted to assess the attitude and level of knowledge of Nigerian religious leaders and scholars on palliative care.

Methods
A cross-sectional study was done among religious leaders and scholars in Ibadan, Oyo state. Five hundred questionnaires were administered, 311 were returned filled, nine were discarded because they were not properly filled, so we worked on 302 respondents. Data collected was entered into SPSS version 16 software for analysis.

Results
The mean age of the 302 respondents was 28.99 years, 94.0% are male, 68.5% are single, 68.2% are seminarians. Only 31.8% have heard of palliative care before; 12.6% know a palliative hospice in Nigeria; 44.7% know that religious leaders are members of the team that gives palliative care, 68.5% are willing to visit palliative hospice for spiritual care of palliative patients, if invited for such.

Conclusions
The level of awareness on palliative care among Nigerian religious leaders and scholars is low. In conclusion, this study reveals that there is a need to educate Nigerian religious leaders and scholars on palliative care.

17-74-P
TO DIE AT HOME OR TO END LIFE IN AN INSTITUTION

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Introduction
In the Western world, 60–80% of all deaths occur in an institution. In Norway, education programs, ambulatory multidisciplinary teams, and standards for palliative care are well established. However, only 14% of Norwegians die at home.

Objectives
To determine the main causes for the low proportion of deaths at home in Norway.

Methods
A Retrospective cohort study conducted in six Norwegian municipalities. The study employed a mixed methods approach, including national statistics and semi-structured interviews with key staff individuals (Spring 2012). We conducted a secondary data analysis.

Results
We included 41 individuals that received palliative care. Nearly half lived alone (N=18, 44%), and most had cancer (N=37, 90%). Twenty-one (51%) died at home, 9 (22%) died in an acute care hospital, 8 (20%) were referred to a nursing home and 3 (9%) died in a Hospice.

Conclusions
The rate of deaths at home may be increased by an acceptance of death and confidence that home is a good, safe place to die. This study showed how challenging it was for the family and health personnel to be a fellow Pellegrino in the last steps of life. However, when physical distress is under control, and when a dying patient and his significant other genuinely wish for death at home, greater holistic well-being may be achieved at home than in the hospital.

17-75-P
METRONOMIC ORAL PALLIATIVE COMBINATION CHEMOTHERAPY WITH METHOTREXATE/CAPCITABINE AND CYCLOPHOSPHAMIDE IN PATIENTS WITH CHEMO-REFRACTORY METASTATIC TRIPLE NEGATIVE BREAST CANCER: A SINGLE CENTRE EXPERIENCE FROM INDIA

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Introduction
Triple negative breast cancer (TNBC) constitute 22–25% of all breast cancer and have short progression free survival (PFS) and overall survival (OS), is major concern in our country.

Objectives
The purpose of this study was to evaluate the efficacy and safety of an oral combination of metronomic cyclophosphamide (CTX) plus capcitabine and methotrexate (MTX) plus CTX for women with anthracycline, taxane, and platinum pretreated metastatic TNBC.
Methods
This analysis (73 patients, June 2007–April 2013) were carried out with the aim to determine efficacy in terms of overall response rate (ORR), control of tumor-related symptoms, outcome, and toxicity in 2 regimen. 37 patients received oral capcitabine 500 mg twice in a day, oral CTX at 50 mg/day and 36 patients received oral MTX 2.5 mg twice in a day (day 1&4) week, CTX at 50 mg/day, until disease progression.

Results
The median follow-up was 14 months. ORR was 40 % and stable disease was achieved in 15 %, resulting in a 55 % clinical benefit response rate in both the groups. Symptoms controlled was achieved in 58 % of cases. Median PFS and OS were 6 and 9 months respectively. Toxicity was very mild and easily manageable. Grade 3 adverse events comprised leukopenia (10 %), neutropenia (10 %) and transaminitis (12 %) in both group.

Conclusions
The oral combination of palliative metronomic CTX/MTX plus capcitabine is an effective, convenient and well-tolerated regimen for pretreated TNMBC. MTX-CTX is significantly cost effective and considered as treatment option for refractory TNMBC in limited recourec country.

17-76-P
THE PERSPECTIVE OF NON-ONCOLOGIST PHYSICIANS ON METASTATIC CANCER PATIENTS AND PALLIATIVE CARE (ALONE STUDY): PALLIATIVE CARE WORKING COMMITTEE OF THE TURKISH ONCOLOGY GROUP
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Introduction
Cancer is asignificant problem with an increasing incidence worldwide.

Objectives
It was to determine the perspective of non-oncologist physicians regarding their attitudes and beliefs associated with palliative care for metastatic cancer patients.

Methods
The first part of the questionnaire involved demographic properties, the second part inquired as to the perspectives of participants regarding metastatic disease, and the third part was used to determine beliefs and attitudes about palliative care (n=1,734)

Results
A total of 71 % of participants identified metastatic patients as being terminal-stage, 62 % were unaware of palliative care techniques, 64 % did not know about common supportive care options, 59 % were against hospice, and 63 % had no opinion on resuscitation.

Conclusions
These data suggest that non-oncologist physicians would benefit from additional graduate and postgraduate courses on these topics.
Objectives
This study was conducted among Nigerian religious leaders and scholars to explore their opinion on the commonest causes of cancer, since many cancer patients do seek them for healing.

Methods
A cross-sectional study was done among religious leaders and scholars in-Ibadan, Oyo state. Consented participants were asked to tick the five commonest causes of cancer (out of ten listed causes) in the questionnaires administered to them. Three hundred two respondents were used in the study. Data collected was entered into SPSS version 16 software for analysis.

Results
The mean age of the 302 respondents was 28.99 years, 94.0 % were male, 68.5 % were single, 68.2 % were seminarians. The causes of cancer, arranged in the order of decreasing frequency of choice, as indicated among the respondents are as follows: toxic drugs (178), genetic factors (162), radiation exposure (157), poison (128), poverty (105), evil spirit (85), sin (79), generational curses (66), witchcraft (58), wealth (57), and lastly God (17).

Conclusions
The results show that many of the respondents’ opinion favor biological and physicochemical factors as the commonest cause of cancer, although some are of the opinion that cancer can also be caused by socioeconomic factors and supernatural forces.

17-79-P
BLURRING THE BOUNDARIES BETWEEN CARING AND CURING: CONTRIBUTIONS OF THE ADVANCED NURSE PRACTITIONER IN A SPECIALIST, MULTI-PROFESSIONAL PALLIATIVE CARE CONTEXT

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Introduction
New models of health care and service delivery are emerging alongside expanded levels of autonomy, skills and decision making for nurses and midwives. This has resulted in some confusion in the health service community internationally about the professional role and scope of the Advanced Nurse Practitioners (ANPs).

Objectives
The purpose of this study was to evaluate the introduction of the ANP in a specialist, multi-professional palliative care context. The objective is to explore the core domains and competencies of the ANP role in a multi-professional palliative care context.

Methods
A qualitative evaluation study (n=21) was conducted. Three phases of data collection were conducted over ten months. Twenty-one participants took part from a specialist palliative care unit in one health board in a United Kingdom region spanning Advanced Nurse Practitioners (n=2) and multi-professional staff (n=14) and patients/carers (n=5). Data collection methods included individual and focus group interviews with key stakeholders and observation of the ANPs at work and their reflexive diaries.

Results
The findings of this evaluation demonstrate that if the ANP role can flourish it has the potential to shape ‘new identities’, re-construct the boundaries of nursing roles and emphasise the relationship based elements of excellent nursing work.

Conclusions
The ANP has the potential to enhance specialist palliative care service delivery through fluid role boundaries. The context in which ANP roles are developed is important as acceptance of the role is linked to the co-construction of a different nursing identity. Our findings support the need to define, defend and name the work of advanced nursing roles.

17-80-P
EXPLORING THE ROLE OF PRACTICAL NURSING WISDOM IN THE CARE OF PATIENTS WITH URINARY PROBLEMS AT THE END OF LIFE: A QUALITATIVE INTERVIEW STUDY

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Introduction
There is little evidence to indicate how nurses should manage urinary problems at the end of life.

Objectives
A qualitative study was conducted to examine how nurses understand urinary problems at the end of life, and identify the evidence upon which they base their practice. The aim was to decide if future research or interventions (such as formulation of best practice guidelines) could improve continence care at the end of life.

Methods
This was an applied qualitative study using semi-structured interviews, augmented by vignettes. Twelve participants who worked in two hospital wards and a hospice were interviewed about management of patients with urinary problems approaching the end of life. Transcribed interviews were organised using the qualitative analysis software QSR NVivo 10. Constant comparison was used to analyse the transcripts.

Results
The patient and their family were a key concern of all interviewees. When providing continence care, participants focused on processes including: giving care, making decisions, managing uncertainty and assimilating knowledge. These processes were mediated by ‘phronesis’ or practical wisdom.

Conclusions
These findings indicate that a generalised set of guidelines on managing urinary problems at the end of life would not be useful to nurses in palliative care. Participants approached each patient as an individual and used phronesis to develop and execute care plans. Various sources of evidence, from research to experiential knowledge, are utilised when choosing appropriate toileting strategies for patients at the end of life. The best way to ‘package’ or implement such evidence is not yet known.

17-81-P
A STUDY OF EMOTIONAL STATUS OF CANCER PATIENTS AT END OF LIFE

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Introduction
Patients at end of life not only feel very different feeling but also feel uncertainty about the future. In palliative care, provide the physical, emotional and social needs of patients for good death is essential.

Objectives
This study performed to examine emotional status of cancer patients at end of life.

Methods
This study performed in the Okmeydanı Education and Research Hospital in Istanbul. The sample of study is 32 patients who lying in the palliative care unit, treatment terminated and agreed to interview. Data were collected with “Depth interview” method by using “patients identifier form” and “semi-structured interview form”.

Results
Patients stated that they feel physical symptoms such as “Malaise, inability to stand up, weakness, pain and suffering” and they have different emotional symptoms such as “sense of healing, why am I?, future concerns, fear of being alone at night, can’t find anyone to share the his pain, blame himself what happened, ashamed to look in the mirror, not prepared to death, fear of being alone when death comes”. Patients expressed that they feel bad about family members seeing him in this status. Patients expressed that they want to something for emotional care the medical staff such as “not being glum, being good-humored” and they want to psychological support therapy to share the pain.

Conclusions
Research results show that cancer patients at the end of life not only feel physical symptoms but also feel negative emotions such as loneliness, bargaining, can’t see more close friends and it was determined that their psychological support requirements.

17-82-P

SYMPTOMATIC LOCALLY ADVANCED CASTRATION RESISTANT PROSTATE CANCER UNDETECTABLE AFTER SHORT COURSE RADIOTHERAPY: A CASE REPORT.

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Introduction
Prostate cancer is a slow growing tumor, and high radiation doses, ≥76 Gy, are recommended to eradicate it.

Objectives
We present a case of castration resistant locally advanced prostate cancer, with very short PSA doubling time, treated with palliative radiotherapy (RT) and disease free 15 months after.

Methods
In June 2013 a 69 years old patient affected by obstructive urinary symptoms from a Gleason Score 4+4=8 prostate cancer with initial PSA 24 ng/ml, and a great pelvic mass, about 250 cc (Figure 1), at diagnosis, was referred to our department. The patient had undergone to hormonal therapy with Leuprolelina and Bicalutamide from July 2012 with a PSA nadir of 0.08 ng/ml in October and a subsequent fast increase up to 33.32 ng/ml with testosterone <50 ng/dL.


A palliative short course RT on PET positive disease, 30Gy, 3Gy/fraction, 5 fractions/week, was performed in July 2013.

Results
PSA became undetectable (<0.03 ng/ml) until the last control in October 2014. Obstructive urinary symptoms was improved and rectal digital examination showed a soft prostate.

Conclusions
Castration resistant prostate cancer with a short doubling time PSA could be different by the initial slow growing tumor and lower radiation doses asked. An uncontrolled PSA after pelvic RT could be due to the frequent distant metastases. In our case a relatively low dose RT with palliative intent was enough to eradicate a great mass.

17-83-P

THE STRUCTURES AND FUNCTIONS OF SOCIAL SUPPORT EXPERIENCE BY PALLIATIVE REHABILITATION PATIENTS: AN EXPLORATORY STUDY

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Introduction
Post treatment patients with advanced cancer deal with on-going morbidity and the late-effects of disease and treatment. Chronic stress has been proven to worsen this. Social support may buffer the effects of chronic stress, thereby improving morbidity and adherence to medical treatments.

Objectives
The main objective of this study is to examine the perceived social support for patients with advanced cancer who underwent a Palliative Rehabilitation Program (PRP). More specifically, to gain an understanding of the types and sources of social support that patients found most salient and helpful during the program.
Methods
Ten patients with advanced cancer who have completed the 8-week PRP at the Élisabeth Bruyère will be recruited. Participants will be contacted by phone for a 30 min semi-structured interview. Transcribed interviews will be analyzed using a thematic content analysis to detect recurring themes.

Results
We expect some of the main sources of support to be drawn from a) team members b) other patients attending the program c) spouse, family and close friends and d) spiritual beliefs. We also expect that the extent and quality of support may be influenced by gender, age, marital status and size of social networks. Updated results will be presented.

Conclusions
By understanding the types and sources of social support that patients have received during the program, we may be able to offer recommendations to other professionals within palliative care and rehabilitation, as well as inform other programs for patients with advanced cancer.

17-84-P
SPINAL CORD COMPRESSION IN A PATIENT WITH MALIGNANT SPINDLE CELL CARCINOMA—A CASE REPORT AND REVIEW OF THE LITERATURE
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Introduction
Spindle cell carcinoma is a rare and highly malignant variant of squamous cell carcinoma. Spindle cell tumors, including carcinomas may lead to spinal cord compression (SCC). Without treatment to prevent progression of SCC, neurological damage may result.

Objectives
The purpose of this case report is to describe an instance of a patient with malignant spindle cell carcinoma presenting with SCC and review the literature of spindle cell tumors resulting in SCC.

Methods
A literature search was conducted in PubMed, OVID, MEDLINE, and Web of Science to identify studies discussing spindle cell tumors and SCC. Patient characteristics, symptoms, and outcome information were extracted.

Results
A 59-year-old female presented with a pathological fracture of the right femur after a fall on her right hip. Pathology was consistent with malignant spindle cell neoplasm. A CT scan of the chest revealed lytic metastases. The patient had a burst fracture of the T11 and T12 vertebrae with retroprolapse and impingement of the spinal cord, and compression of the superior T11 endplate. Pathology of the T12 tumor concluded malignant spindle cell carcinoma. Fourteen cases of spindle cell tumors causing SCC were identified in the literature; however, no cases of spindle cell carcinoma resulting in SCC have yet been reported.

Conclusions
Spindle cell tumors and in particular, spindle cell carcinomas, resulting in SCC are very rare and represent a niche patient group. Commonalities between cases reported and the case presented here may indicate trends for SCC caused by spindle cell tumors.

17-85-P
ADVANCES OF PALLIATIVE CANCER TREATMENTS IN THE LAST 8 YEARS: A SELECTED LITERATURE REVIEW
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Introduction
Palliative care is a comprehensive method of care management intended for patients with non-curable cancers. It aims to manage physical symptoms while also taking into account a patient’s psychological, social, and emotional quality of life (QOL).

Objectives
We aimed to review recent advances in palliative care of cancer patients within the last 8 years, specifically advances in prolonging overall survival. Progression free survival, symptom palliation, and QOL were also studied as important secondary outcomes.

Methods
We identified phase 3 randomized controlled trials attempting to improve overall survival, which were published in The Lancet, Lancet Oncology, Journal of Clinical Oncology, and The New England Journal of Medicine from January 1, 2006 to June 31, 2014. We also included studies identifying advances in progression free survival and QOL.

Results
Twenty-one studies met the inclusion criteria. These studies evaluated advances in treatments regarding colorectal, prostate, breast, gastric and gastro-oesophageal, head and neck, hepatocellular, and lung cancer, as well as glioblastoma. The efficacy of novel combination therapies, new single-agent therapies, as well as examining the sequencing and use of intermittent therapy were primarily noted. Fifteen of these studies showed an improvement in at least one of the aforementioned criteria, while there were no significant improvements in any criterion in six studies.

Conclusions
Healthcare professionals are encouraged to incorporate palliative care advances in their own practice and research, as well as to continually update their knowledge and understanding of these new therapies.

17-86-P
ONCOLOGIC EMERGENCIES AND ONCOLOGY NURSE’S ROLE
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Introduction
Assessing and intervening oncologic emergencies suitably are very important to prevent undesirable situations. Oncology nurses have a key role during cancer care process.

Objectives
The aim of this study was to examine the publications regarding oncologic emergencies and the role of oncology nurses.

Methods
Literature review included publications in Ovid, EbscoHost and Pubmed databases between 1994 and 2014. “Oncologic emergencies, cancer emergencies oncology nurse, nursing” key words were used for searching.
**17-87-P**

**HIPEC: PALLIATIVE INDICATIONS**

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**Introduction**

Peritoneal Carcinomatosis (PC), a common manifestation of digestive and gynaecological malignancies alike, has long been regarded as an incurable component of intra-abdominal malignancy, only open to systemic palliative treatment options. A new treatment modality, combining Cytoreductive Surgery (CRS) and Hyperthermic Intra-peritoneal Peroperative Chemotherapy (HIPEC) has demonstrated improved survival for selected patients. Despite these encouraging clinical results, the majority of patients will still decease from their malignancy.

**Objectives**

The combined treatment modality of CRS and HIPEC is a palliative procedure with curative intent. This review analyses whether surgical palliation is equal or superior to medical palliation.

**Methods**

A literature search was conducted using the PubMed database of the U.S. National Library of Medicine and Medline using the following keywords: peritoneal surface malignancy, PC, CRS, HIPEC, palliative care, curative treatment, learning curve, signet ring cell histology, malignant ascites and combinations of these key words.

**Results**

Clinical results show that long-term survival in selected patients is a realistic goal when R2 resections are avoided. Furthermore, quality of life after CRS and HIPEC is improved when compared to systemic chemotherapy. Several large retrospective and prospective clinical trials seek to identify negative prognostic factors such as signet ring histology of appendiceal and colorectal carcinomas, high Peritoneal Cancer Index (PCI) associated with poor outcome.

**Conclusions**

Surgical palliation by CRS and HIPEC is a viable treatment option equal or superior to medical palliation in patients with PC; acknowledging that one has to keep down morbidity and mortality by properly identifying the red flags preoperatively.

**17-88-P**

**INTEGRATING PALLIATIVE CARE IN CANCER MANAGEMENT: AN OVERVIEW OF THE KENYA SITUATION**

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**Introduction**

Over 80% of cancer patients in Kenya present late, when very little can be achieved with therapeutic intervention. Accessing cancer screening and treatment is one of the major hurdles cancer patients face. For most, palliative care (PC) seems to be the only option left to support them and their families.

**Objectives**

PC in Kenya has previously been provide by a few existing hospices, thus making it very limited to many who need it. Kenya Hospices and Palliative Care Association (KEHPCA) is working to change this so that patients can easily access PC services closer to their homes.

**Methods**

This has been through extensive advocacy and training programs. KEHP CA is working closely with the Ministry of Health to integrate PC as an essential service in government hospitals by setting up PC care units in over 40 high volume government hospitals across the country and training over 500 multi-disciplinary health care workers.

**Results**

Palliative Care Services have been integrated in the public health care system. PC is now included in the: National Guidelines for Cancer Management 2013; Kenya National Patients’ Rights Charter and the National Cancer Control Strategy. Over 4000 patients have received care.

**Conclusions**

Palliative Care is an essential component of cancer care and should be include at all levels of care.

**17-89-P**

**SANN-JOONG-KUEY-JIAN-TANG INHIBIT THE PROLIFERATION OF HUMAN GLIOMA DBTRG CELLS THROUGH DECREASING THE ACTIVITY OF THE PI3K/AKT/MTOR PATHWAY**

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**Introduction**

Glioma is the most common primary brain tumor among adults in the worldwide. Temozolomide (TMZ) is widely used to treat glioma, but the prognosis of glioma is still poor due to drug resistance.

**Objectives**

SANN-JOONG-KUEY-JIAN-TANG (SJKJT), a traditional Chinese medicine prescription, has been used to treat patient with solid cancer, which can inhibit many human cancer cell lines (such as breast cancer MDA-MB-231, Hepatic cellular cancer (Hep-G2), pancreatic cancer (BxPC3 cells) and colon cancer (colo 205 cells)) through different molecular mechanisms. But the efficacy and molecular mechanisms of SJKJT in human Glioma in not clear.

**Methods**

In the present study, the glioma DBTRG cells were treated with SJKJT in vitro. The cytotoxicity of SJKJT in glioma DBTRG cells were evaluated by MTT assay. The effects of SJKJT on the protein expressions of...
VEGF, IGFR, PI3K, AKT, mTOR and β-actin in the DBTRG cells were examined by western blot analysis.

**Results**

It was observed that SJKJT can induce the proliferation inhibition with time and dose dependent. As a potential mechanism, it was noted that SJKJT treatment significantly inhibited the activity of the PI3K/AKT/mTOR pathway and Ras/Merk/Erk pathway, which played a protective role against the cytoxicity. In addition, it was demonstrated that SJKJT treatment significantly inhibited the protein expressions of the VEGF and IGFR.

**Conclusions**

These results suggest that SJKJT could inhibit DBTRG cells through inhibiting the PI3K/AKT/mTOR pathway. As hyperactivation of the PI3K/AKT/mTOR pathway is frequently observed in gliomas, the use of traditional Chinese medicine prescription SJKJT may become a feasible therapy option.

**17-90-P**

**SANN-JOONG-KUEY-JIAN -TANG CAN INHIBIT HUMAN GlioBlastoma DBTRG CELLS BY INCREASING THE PROTEIN EXPRESSIONS OF FAS, TNF-α, CASPASE-3 AND BAX BUT DECREASING BCL-2**

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**Introduction**

Glioblastoma is a highly malignant brain tumor and poor response to current chemotherapeutic medicine (such as Temozolomide). Glioblastoma remains a challenging disease and there is a need to identify new treatments.

**Objectives**

Sann-Joong-Kuey-Jian-Tang (SJKJT), a traditional Chinese medicine prescription, exhibits cytotoxic activity in many types of human cancer cells. SJKJT has been prescribed as complementary medicine for patients with solid tumors in Taiwan. However, the anticancer effects of SJKJT on human brain tumor have not yet been elucidated. The present study focused on the anticancer effects and molecular mechanisms of action of SJKJT in human Glioblastoma, using DBTRG cells.

**Methods**

In the present study, we evaluated the cytotoxic effects of SJKJT on DBTRG cells by MTT assay. The protein expression levels of Fas, TNF-α, caspase-8, caspase-3, Bax and Bcl-2 family in the DBTRG cells were measured by western blot analysis.

**Results**

The results revealed that SJKJT inhibit the proliferation of DBTRG cells in a time- and dose-dependent manner. The protein expression levels of Fas, TNF-α, caspase-8, caspase-3 and Bax increased in the DBTRG cells treated with SJKJT; however, the level of Bcl-2 decreased.

**Conclusions**

These results suggest that SJKJT could inhibit DBTRG cells through both extrinsic and intrinsic pathway. The use of traditional Chinese medicine prescription SJKJT may become a feasible therapy option. Further studies are warranted to fully elucidate its mechanisms of action.

**17-92-P**

**LISTENING TO THE EXPERIENCE OF MEETING WITH CANCER AND DEATH IN LIFE - A TOOL IN ONCOLOGICAL TREATMENT**

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**Introduction**

One’s own body conception when affected by an illness modifies the subjectivity, causing psychic malfunctions, that not only brings suffering but impairs the oncological treatment. A resource to facing problems is listening to what the patient says, since the body and the psychic dimensions are made possible by their relation to what is said.

**Objectives**

Listen to the spoken expressions of the patients in order to help them going through the illness experience and imminent death, as a living desiring subject not just as an object of multiple interventions.

**Methods**

Patients (n=50) were heard during their routine attendance at the clinics of the Brazilian National Cancer Institute. What was listened by the professionals was taken note of for further discussion by the research team in view of the psychoanalytical theory of unconscious desire and drives. Then the discussed and organized material was used a tool to guide further consultations.
Results
According to Evaluation Non-structured Interviews, both patients and professionals reported important effects in the way patients are leaving through the experience, and this concerns not only the cooperation with the treatment, but the subjective involvement with one’s own suffering. Another important observed point concerns the implications brought to the professionals own subjectivity.

Conclusions
Listening to the patient was considered an important tool that implies the desire and drives of the patient, therefore his subjectivity. This tool can be regarded as a crucial means to giving patients the proper conditions to working through the suffering brought by illness and its consequences.

17-93-P

HYPMAGNESAEAMIA AND PAIN IN RECURRENT CANCER: LEARNING FROM THE PATIENT AND THE INTERNET

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Introduction
In cancer, hypomagnesaemia may be related to gastrointestinal and renal malignancies. There is increasing evidence regarding the role of magnesium in the management of peri-operative pain, but little is known about the possible relationship between magnesium and cancer pain.

Objectives
The case of a 39 year old woman with recurrence of rectal carcinoma and complex pain and hypomagnesaemia-related paresthesia secondary to a high output ileostomy is discussed. The patient noted having subjective analgesic benefit from magnesium sulphate infusions and had also found supporting information on the internet. The patient was also on oral pregabalin, transdermal fentanyl patch and short-acting oral oxycodeone.

Methods
A retrospective chart review was undertaken, examining the patient’s acute hospital admissions from September 2013 to May 2014. Serum magnesium levels prior to and following magnesium sulphate infusions were compared with concomitant analgesic medication changes and requirements. Unfortunately pain scores were not routinely done.

Results
Serum magnesium levels below 0.3 mmol/L required an increase and/or the addition of another analgesic agent, as well as considerably more breakthrough analgesic doses than when serum magnesium levels were ≥0.6 mmol/L. Magnesium sulphate infusions were needed to correct hypomagnesaemia to within normal limits. The patient reported a subjective improvement in pain post infusions.

Conclusions
The prevalence of hypomagnesaemia in patients with malignancy merits further investigation. Additional research is necessary to assess the possible role of magnesium in the management of cancer pain with the aim of optimising pain control and quality of life.

17-94-P

POST RADIATION REMINERALIZATION FOR HIGH RISK IMPENDING FRACURES

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Introduction
Bone metastases emerge when cancer from a primary site spreads to the bone. Bone metastases can cause skeletal related events, including bone pain, pathological fractures, and spinal cord compression. Radiotherapy is used in different doses for pain relief and to promote remineralization of osteolytic bone.

Objectives
This report addresses the case of a patient with bone metastases causing both lytic and sclerotic changes in the bone. It exemplifies the effectiveness of remineralization through multiple fraction radiotherapy for the prevention of pathological fractures.

Methods
A 70-year old female with stage IV bone metastatic breast cancer presented to the Rapid Response Radiotherapy Clinic at Sunnybrook Health Sciences Centre for palliative radiotherapy in October 2013.

Results
Imaging of the patient revealed multiple lytic and sclerotic lesions in the lumbar spine, high risk of fracture in the right hip, lytic lesions in the femoral shaft, ilium and ischia bilaterally, and mixed lytic and sclerotic lesions in the right femoral neck and subtrochanteric femur. Proper treatment choice for pain management throughout was a single fraction of 8 Gy. While the treatment choice to promote remineralization in impending high risk fractures from bone metastases was 30 Gy in 10 fractions. Radiotherapy treatment was given to multiple areas of metastases in November 2013. Follow up imaging in June 2014 of the left femur and pelvis showed mixed bone replacement and characteristics of therapeutic response.

Conclusions
This case illustrates the benefits of treating patients using multiple fraction radiotherapy, when presenting with impending pathological fractures.

17-95-P

IS INTEGRATION OF PALLIATIVE CARE INTO ONCOLOGY SERVICES OF ANY BENEFIT TO THE PATIENTS?

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Introduction
Integration is about the organization of various tasks [care] which need to be performed in order to provide a population with good quality health services.

Objectives
To find out from nurses working in palliative care units and oncology clinics the challenges and benefit.

Methods
Thirty nurses attended 1 day oncology symposium, 18 working in oncology clinics 12 in palliative care units. All agreed Oncology is a specialized key field for nurses in cancer care as well as palliative care.

Results
Training of oncology and palliative care nurses is vital in order to improve the quality of life for our patients. Palliative care is an essential component of quality oncology care. There is a need for
higher Education in oncology nursing training in Kenya for a quality of care and job satisfaction. Challenges in integration services and training issues in cancer, the training of nurses at the bedside is not sufficiently adequate as a necessary tool in fight against cancer. Shortage of nurses in referral hospitals and other health institutions noted. Most training is inadequate and does not include cancer care. Integration provides quality care to patients in managing their symptoms, while allow oncologists to spend time to evaluate new patients.

Conclusions
PCU—oncology integration benefits patients by improving quality of life, symptoms, mood, and caregiver burden. Improving PC oncology education in nursing school as well as in continuing medical education is crucial to overcome the knowledge barrier among providers. There is need to determine at what stage should palliative care be involved in oncology care.

Psychooncology
18-01-O
CANCER CAREGIVER QUALITY OF LIFE: NEED FOR TARGETED INTERVENTION

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Introduction
Caregiving can negatively impact well-being (WB). Cancer caregivers face unique challenges given the intense nature of cancer and treatment, which increases their risk for burden, poor quality of life (QOL), and burnout. Studies to reduce caregiver burden demonstrate QOL improvement and distress reduction in the short term. However, few studies exist to address long term impact.

Objectives
We assessed caregiver QOL response after a QOL intervention for patients with advanced cancer undergoing radiation therapy.

Methods
Our IRB-approved study randomized patient-caregiver dyads to either usual care or an intervention composed of six 90-min sessions of structured multidisciplinary QOL components delivered over 4 weeks, with phone follow up for 20 weeks. Sessions included physical therapy, coping and communication strategies, mental health education, spirituality and social needs. Caregiver QOL (Caregiver QOL Index - Cancer Scale [CQOLC], Linear Analogue Self-Assessment [LASA]) and mood (Profile of Mood States - Brief [POMS-B]) were measured at baseline and 4, 27, and 52 weeks. Comparisons of the two caregiver group utilized Wilcoxon tests.

Results
Of 131 caregivers (65 intervention, 66 usual care, 116 completed the study). Caregivers post-intervention had improved scores on LASA Spiritual WB; POMS-B total score, Vigor/Activity, and Fatigue/Inertia; and CQOLC Adaptation. Long term, caregivers retained improvement in POMS-B Fatigue/Inertia, and gained improvements in CQOLC Disruptiveness and Financial Concerns.

Conclusions
Caregivers who received the intervention had higher QOL ratings for specific QOL domains but not for overall QOL. Although a comprehensive intervention was helpful, more specific, targeted interventions tailored for individual needs are recommended.

18-02-O
EXPECTATION EFFECTS IN ENDOCRINE TREATMENT OF BREAST CANCER: A TWO-YEAR PROSPECTIVE CLINICAL COHORT STUDY

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Introduction
Adverse side effects from endocrine therapy result in decreased QOL and non-adherence in over 50 % of breast cancer patients.

Objectives
To determine the role of patient expectations as potentially modifiable factor of side effects and adherence to endocrine therapy.

Methods
This prospective clinical cohort study was conducted in primary care patients with hormone-receptor-positive breast cancer. Primary outcome was side effects at 24-months follow-up. Structured patient-based assessments of side effects, side effect expectations, QOL (EORTC), and adherence were conducted during the first week post-surgery, after 3-months, and 24-months of endocrine treatment. Hierarchical models were used to test effect of expectations on long-term clinical outcome.

Results
Of 111 enrolled patients, at 3-months and 24-months, 107 and 88 patients, respectively, were assessed. After two years of endocrine treatment, patients reported high rates of side effects including symptoms not directly attributable to the medication (arthralgia: 71.3 %, weight gain: 53.4 %, hot flashes: 46.5 %, bloating: 36.8 %, breathing problems: 28.1 %, dizziness: 25.6 %). Pre-treatment expectations significantly predicted long-term side effects and QOL controlling for relevant medical and psychological variables. Relative risk of side effects after two years was higher in patients with high negative expectations at baseline than in patients with low negative expectations (RR = 1.833, 95 % CI = 1.032–3.256). Moreover, baseline expectations were associated with adherence at 24-months (\( r = -.25, p = .006 \)).

Conclusions
Expectations are a genuine factor of clinical outcome from endocrine treatment for breast cancer. Optimizing individual expectations might be a promising strategy to improve side effect burden, quality of life and adherence during longer-term drug intake.

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18-03-O
ESTROGEN RECEPTOR ALPHA (ESRI) GENETIC POLYMORPHISMS AND THE RISK OF CHEMOTHERAPY-ASSOCIATED COGNITIVE IMPAIRMENT IN EARLY-STAGE BREAST CANCER (ESBC) PATIENTS

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Figure: 18-03-O
Introduction
The ESR1 single-nucleotide polymorphisms (SNPs) namely, PvuII (rs2234693, −397 T>C) and XbaI (rs9340799, −351A>G) have been reported to increase the risk of Alzheimer’s disease. However, there is a lack of studies investigating the associations between ESR1 genetic variants and chemotherapy-associated cognitive impairment in ESBC patients.

Objectives
To elucidate the associations between the ESR1 polymorphisms (PvuII and XbaI) and chemotherapy-associated cognitive impairment.

Methods
This was a case–control genetic association study conducted between 2011 and 2014. Patients’ self-perceived cognitive function was assessed longitudinally over three time points, using the validated FACT-Cog (ver. 3) to examine six cognitive domains: concentration, functional interference, memory, mental acuity, multitasking ability and verbal fluency. Genotyping was performed using Sanger sequencing. Logistic regression was used to evaluate the associations between the SNPs and cognition, adjusting for ethnicity and clinically important covariates.

Results
A total of 145 chemotherapy receiving ESBC patients (mean age: 50.8±8.8 years; 82.1 % Chinese) were recruited. The genotype distributions for the PvuII (T/T: 0.31; T/C: 0.56; CC: 0.13) and XbaI (A/A: 0.57; AG: 0.37; G/G: 0.06) SNPs were in Hardy-Weinberg equilibrium (p>0.05). Carriers of the PvuII T/C genotype was associated with higher odds to develop mental acuity loss (OR=3.31, 95 % CI: 1.12–9.79, p=0.031) post-chemotherapy. Associations were not observed between the XbaI SNP and cognitive impairment.

Conclusions
This is the first study to provide evidence that carriers of the ESR1 PvuII T/C genotype are associated with increased susceptibility to chemotherapy-associated cognitive impairment in patients with ESBC. Further validation studies are required to confirm the findings.

18-05-O
THE CONTRIBUTION OF INFORMAL CAREGIVERS IN CANCER CARE, AND PATIENT FACTORS ASSOCIATED WITH CAREGIVER OUTCOMES

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Introduction
Informal caregivers of people with advanced cancer take on an extensive role in meeting the needs of the patient, however they experience significant psychological distress and unmet needs in their role.

Objectives
The aims of this study were to describe the tasks and time commitment of informal caregivers, and to examine how patient factors are associated with caregiver outcomes.

Methods
A cross sectional survey, where caregivers and advanced cancer patients both completed questionnaires independently. Caregiver measures assessed psychological functioning, self-efficacy, care tasks, burden and...
quality of life; patient questionnaires assessed psychological functioning, quality of life and symptoms.

**Results**
Seventy caregiver and patient dyads were recruited. Patients had a diagnosis of lung ($n=36$; 51 %) or gastrointestinal cancer ($n=34$; 49 %), a mean age of 63 (range 40–85) and 52 % were male. Caregivers had a mean age of 56 (range 25–78); 60 % were female. Fifty dyads (71 %) were spouses or partners of the patient. Caregivers were heavily invested in care provision. Carers provided a mean of 7.85 h each day, and 52 (74 %) reported they provide care 7 days a week. Caregivers had higher distress than patients ($p=0.001$). Caregiver and patient distress were related ($r=0.41; p<0.01$). Associations between patient symptoms and caregiver burden, distress, quality of life and self-efficacy were not significant. The association between time spent providing care and caregiver distress was also not significant.

**Conclusions**
This study demonstrates the extensive role of care provision. Interestingly, caregivers of more symptomatic patients did not have poorer functioning. Implications for clinical practice and research will be discussed.

**18-06-P**

**EFFECT OF COMMUNICATION SKILLS TRAINING PROGRAM FOR ONCOLOGISTS BASED ON PATIENT PREFERENCES FOR COMMUNICATION WHEN RECEIVING BAD NEWS: A RANDOMIZED CONTROLLED TRIAL.**

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**Introduction**
Communication between patients and physicians has been viewed as a core clinical skill.

**Objectives**
The aim of this study was to identify the effects of a communication skills training (CST) program for oncologists, developed based on patient preferences regarding oncologists’ communication.

**Methods**
Thirty oncologists were randomly assigned to either an intervention group (IG; 2-day CST workshop) or control group (CG). Participants were assessed on their communication performance during simulated consultation and their confidence in communicating with patients at baseline and follow-up. A total of 1,192 patients (response rate, 84.6 %) who had consultations with the participating oncologists at baseline and/or follow-up were assessed regarding their distress using the Hospital Anxiety and Depression Scale, satisfaction with the consultation, and trust in their oncologist after the consultation.

**Results**
At the follow-up survey, the performance scores of the IG had improved significantly, in terms of their emotional support ($P=.011$) and ability to deliver information ($P=.001$), compared with those of the CG. Oncologists in the IG were rated higher at follow-up than those in the CG in terms of their confidence in themselves ($P=.001$). Patients who met with oncologists after they had undergone the CST were significantly less depressed than those who met with oncologists in the CG ($P=.027$).

**Conclusions**
A CST program based on patient preferences is effective for both oncologists and patients with cancer. Oncologists should consider CST as an approach to enhancing their communication skills.

**18-07-P**

**PUBLIC EDUCATIONAL CAMPAIGN NEEDED TO CLEAR MISCONCEPTION ABOUT CARDIOPULMONARY RESUSCITATION IN TERMINALLY ILL CANCER PATIENTS.**

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**Introduction**
Cardiopulmonary resuscitation (CPR) is life-saving in acutely ill medical patients but CPR is often futile in dying cancer patients. Unfortunately, many cancer patients and their family perceive CPR as a basic, vital medical intervention and withholding CPR is tantamount to expediting death.

**Objectives**
We explored the extent of public misconception about CPR by a questionnaire survey.

**Methods**
Females: 71 %. Age: 15 % were <20 year-old; 60 % were 21 to 60 year-old; remainder >61-year-old. Three subjects who hadn’t heard about CPR did not complete the survey; 5 subjects refused to participate. Seventy-seven subjects completed the survey.

**Results**
Fifty percent of subjects believed that CPR has at least 30 % chance of successfully resuscitating a hypothetical 60-year-old patient with widespread cancer, who is in hospice and has exhausted all chemotherapy options. Worryingly, 38 % also believed CPR has at least 30 % chance of successfully resuscitating a hypothetical 80-year-old with severe pneumonia who has collapsed in nursing home. By contrast, 92 % believed in successful resuscitation of a 25-year-old tennis or football player who has collapsed suddenly and who had been previously fit and healthy.

**Conclusions**
There is a significant public misconception of CPR as a highly successful therapy in dying cancer patients. Hence discussions about ‘do-not-resuscitate (DNR) orders’ causes significant distress to patients. Clearing the misconception when someone is on the death bed is certainly not ideal. A public health campaign is urgently needed to proactively educate the public about the futility of CPR in terminally ill cancer patients.

**18-08-P**

**FACTORS AFFECTING COMMUNICATION PATTERNS BETWEEN ONCOLOGY STAFF AND FAMILY MEMBERS OF DECEASED PATIENTS: A CROSS-SECTIONAL STUDY**

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**Introduction**
Perceptions surrounding the role of the oncology staff in supporting families of deceased patients have evolved with the transition to an interdisciplinary cancer-care approach.

**Objectives**
The goal of this study was to investigate the interactions between oncology professionals and bereaved families.
Methods
In cross-sectional study, all staff members at a comprehensive cancer center were given a questionnaire including 39 statements relating to communications with bereaved families. Responses were measured using a Likert scale.

Results
Of the 155 staff members, 107 filled questionnaires (alpha=0.821). Respondents included 35 % physicians, 46 % nurses, 7% social workers, 4% psychologists. Eighty-five percent were Jewish, and 60 % had ≥10 years of oncology experience. Seventy-three thought it was important to contact bereaved families, that such interactions provided closure to the staff (79 %), and that it was professionally appropriate (84 %). Forty-one percent indicated that they contact >50 % of the families of their deceased patients. Contacting bereaved families was considered to be within the responsibility of the physicians (90 %), nurses (84 %), or social workers (89 %). The main barriers for contacting bereaved families were emotional overload (68 %) and lack of time (63 %); 60 % indicated a need for additional tools to aid them in bereavement follow up. In a multivariate analysis, profession (physician vs. nurse), primary workplace (outpatient vs. other settings) were significant variables with respect to the importance of contacting bereaved families and with actually contacting them. Age or gender was mostly nonsignificant.

Conclusions
Perspectives regarding bereavement actions differ significantly across medical professions, work settings. Additional guidance/education regarding bereavement actions is warranted.

18-09-P
BREAST CANCER AND CONTRALATERAL BREAST RISK MANAGEMENT IN WOMEN WITH HEREDITARY RISK: DECISION-MAKING AND DECISIONAL DISTRESS

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Introduction
Women with hereditary risk and newly diagnosed with breast cancer (BC) are faced with complex decisions about the management of their BC as well as risk reduction (RR) for their contralateral breast.

Objectives
We prospectively examined women’s decision-making choices as well as their subsequent satisfaction, difficulty with decision-making and decisional distress.

Methods
Questionnaires (Stage of Decision-Making, Decisional Conflict, Decision Difficulty, Body Image Scale, Sexual Function Relationship Function) were complete prior to and after their initial breast consultation and by mail 6 and 12 months later. Descriptive data and linear models were used for data analysis.

Results
Of the 60 women, few came to their consultation having decided upon BC surgical management and contralateral RR management (15 and 13 % respectively). Consultation with the healthcare team was helpful in reducing the difficulty with decision-making (pre-consultation 70 % were experiencing difficulty with their surgical decision, 83 % with their RR decision; post-consultation difficulty was reduced to 19 and 36 % respectively). Women <50 were most vulnerable to decisional distress and were more likely to elect mastectomy for the index cancer along with contralateral prophylactic mastectomy (CPM) (p=0.002 and 0.001 respectively). The vast majority of women were satisfied with their BC (98 %) and RR (95 %) choices despite adverse effects on sexual function and to a lesser extent body image.

Conclusions
Young women are more likely to experience decisional distress and elect mastectomy and CPM. Most women are satisfied with their decisions despite adverse effects on sexual function and body image.

18-10-P
THE ASSOCIATION BETWEEN USE OF SLEEP MEDICATION AND POLYSOMNOGRAPHY (PSG) MEASURED SLEEP IN WOMEN WITH ADVANCED BREAST CANCER (ABC)

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Introduction
Sleep disruption is extremely common in cancer patients and survivors, and medication for sleep disruption management is prevalent. Sleep medications (SM+) are known to affect sleep architecture, creating an alteration in sleep physiology. Their effect in patients with cancer is however unknown.

Objectives
To examine the effect of sleep medication on sleep architecture among women with ABC.

Methods
103 patients with ABC (Mean age=58, SD=8) underwent laboratory and home PSG assessments.

Results
Forty-one (39 %) of participants reported currently taking sleep medication (50 % benzodiazepines/hypnotics, 31 % non-prescription sleep aids, 17 % other prescription medications, 2 % antidepressants) for an average duration of 29 months. PSG revealed no significant effects of SM+ use on sleep macrostructure or sleep %. Nonetheless, patients on SM+ experienced fewer respiratory arousals in NREM sleep and during total sleep compared to SM-, and had a lower apnea hypopnea index during NREM sleep and total sleep (all p-values<.05). Moreover, longer duration of SM+ use was associated with a significant increase in total sleep time, as well as with significant changes in sleep architecture: macrostructure and sleep % (all p-values<.05).

Conclusions
These preliminary data suggest that sleep medication use affects sleep architecture in ABC patients and additional changes in sleep architecture might occur with longer use of those medications. More research is needed to understand the conditions under which medication induced sleep has similar restorative properties as physiologic sleep in patients with cancer.

18-11-P
NEGATIVE SELF-PERCEPTION IN A DIVERSE RACIAL-ETHNIC SAMPLE OF PATIENTS WITH HEAD AND NECK SQUAMOUS CELLS CARCINOMAS: ROLES OF PSYCHOSOCIAL CORRELATES

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Introduction
Patients with head and neck squamous cell carcinomas (HNC) generally experience psychological distress related to their disease and its treatments. HNC-related psychological distress and socio-demographic factors can impact patients’ psychosocial functioning and quality of life. Strategies to identify and mitigate the negative impacts of psychological and socio-demographic correlates of HNC are needed.

Objectives
To characterize negative self-perception in HNC patients.

Methods
We examined data from a sample of 150 English-fluent HNC patients between 20 and 88 years old that completed questionnaires that assessed their socio-demographics information, psychological states (Hospital Anxiety and Depression Scale, HADS) and self-perception (Measure of Body Apperception, MBA). A standard multiple regression analysis was completed, using scores on the HADS subscales, age, sex, race, education, income, and employment status, to predict self-perception based on aggregated scores on the MBA.

Results
Our analysis revealed a significant model ($R^2=0.264$, $F=6.311$, $p<0.001$). Education (Standardized Coefficient Beta (SCB)=−0.20, $t=−2.39$, $p=0.02$), race (SCB=0.156, $t=2.084$, $p=0.04$) and anxiety (SCB=0.199, $t=2.078$, $p=0.04$) were statistically significant predictors of negative self-perception. Age, sex, employment status, income and depression did not make a statistically significant contribution to the prediction of self-perception (all $p_s>.05$).

Conclusions
Negative self-perception is influenced by race, education, and anxiety. Information about psychological states and socio-demographics need to be systematically integrated in the development and implementation of interventions to improve psychosocial functioning and quality of life for HNC patients.

18-12-P

AUTOCENIC TRAINING FOR POSTOPERATIVE ANXIETY AND PAIN IN BREAST CANCER PATIENTS

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Introduction
Women diagnosed with breast cancer often have high anxiety levels, which may increase postoperative pain. Autogenic training (AT) is a psychotherapeutic relaxation technique aimed at reducing physical and mental tension.

Objectives
The aim of this study was to evaluate the effect of AT on anxiety and pain for breast cancer patients immediately after surgery.

Methods
Sixty breast cancer patients scheduled for surgery were randomly assigned to either an AT ($n=30$) or control (usual care) group ($n=30$).

Patients in the AT group received a compact disc with a 20-min AT session and were instructed to conduct AT three times daily for 3 days following surgery. Outcome measures were Spielberger’s State-Trait Anxiety Inventory, the Pain Visual Analogue Scale (PVAS), and the amount of analgesics used.

Results
No significant differences were found between the two groups associated with age, duration of operation, trait anxiety score, cancer stage, and surgical procedure. Following ANOVA, the group (control or AT)×time (pre- or posttest) interaction effect was statistically significant for state anxiety levels on all days ($p=.001–.005$). The interaction effect was not statistically significant for PVAS scores on all days ($p=.25–.72$).

No statistically significant difference ($p=.20–.83$) was observed between the two groups in the average amount of postoperative analgesic required.

Conclusions
These findings suggest that AT may reduce postoperative anxiety, and the breast surgery patients can choose AT from various relaxation procedures.

18-13-P

DEPRESSIVE SYMPTOMATOLOGY AND PHYSICAL ACTIVITY OF METROPOLITAN AND REGIONAL CANCER SURVIVORS IN AUSTRALIA

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Introduction
Rural and regional areas often lack psychological services compared to urban centers. Exercise can be considered an alternative psychosocial intervention for depression that has been proven efficacious and easy to deliver regardless of location.

Objectives
The aims of this cross-sectional study were to compare incidence of depression, physical activity levels, and perceived benefits and barriers to exercise in cancer survivors living in metropolitan and regional Australia.

Methods
Demographics, physical activity, and depressive status were obtained via questionnaires distributed to 490 survivors. Two open-ended questions required participants to list anticipated benefits of, or barriers to, commencing an exercise program. Locality was classified using the Australian Bureau of Statistics, Remoteness Structure. Results were compared between metropolitan and regional cancer survivors.

Results
Analysis of data from 366 participants revealed that depressive status was not related to location. Similarly, no difference were found for physical activity engagement between metropolitan ($n=236$) and regional ($n=130$) survivors; only 40 % were sufficiently active, according to American College of Sports Medicine.
guidelines. No differences existed for barriers to exercise or benefits from exercise other than increased strength, range of motion and improved balance expected by metropolitan residents (p=.04).

Conclusions
Many cancer survivors are familiar with health benefits of exercise, yet remain insufficiently active. Regional cancer survivors appear to overlook benefits obtained from resistance training; however, this suggests that depressed regional cancer survivors who lack access to psychological services could be prescribed unsupervised aerobic exercise as a first line treatment before seeking elevated levels of assistance, if required.

18-14-P
MONITORING AND PREDICTING EMOTIONAL DISTRESS IN CANCER PATIENTS UNDER ACTIVE TREATMENT RECEIVING SUPPORTIVE CARE: CORRELATION WITH UNMET NEEDS SCORES, SOCIO-DEMOGRAPHIC AND CLINICAL VARIABLES

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Introduction
In oncology, emotional symptoms receive little attention compared to physical symptoms.

Objectives
To evaluate the influence of socio-demographic and clinical factors on the prevalence of unmet needs and emotional distress, identifying correlations between anxiety, depression and needs.

Methods
Consented cancer patients (n=258) under active treatment in a Support Care in Cancer outpatient clinic were asked to complete the Need Assessment Questionnaire (NEQ) and the Edmonton Symptom Assessment System (ESAS). Unmet needs were evaluated across five domains (informational, care, relational, psycho-emotional and material). Self-reported anxiety and depression measures were derived from the ESAS. Data were analysed by descriptive statistics using non-parametric tests for comparisons. Correlations were assessed by Spearman’s rank correlation test and a multiple regression model was implemented to predict emotional distress.

Results
Needs for more information on future conditions (42 %), better services from the hospital (43 %), consulting a psychologist (32 %) and speaking with individuals in the same condition (31 %) were frequently reported. Females scored significantly higher for anxiety (p<.001) and for depression (p=.008) compared to males. Unmet needs reported by cancer patients correlated with both anxiety (r=0.283, p<.001) and depression (r=0.284, p<.001). By multiple regression analysis for anxiety (p<.0005, R2 adjusted=.19), gender (p<.001) and needs (p<.001) significantly added to prediction. In the case of depression (p<.0005, R2 adjusted=.102), gender (p=.017), needs (p=.017) and referral to a psychologist (p=.015) significantly added to the prediction.

Conclusions
Screening for unmet needs including socio-demographic and clinical factors, allows early identification of cancer patients with emotional distress.

18-15-P
PATIENTS LEVELS OF DISTRESS, QUALITY OF LIFE AND UNMET NEEDS AS THEY PROGRESS FROM DIAGNOSIS TO 6 MONTHS POST TREATMENT FOR HIGH GRADE GLIOMA

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Introduction
Little is known about changes in patients’ distress, quality of life (QoL) and unmet supportive care needs (SCN) during treatment for High Grade Glioma (HGG).

Objectives
We aimed to understand these constructs over 6 months of treatment, explore predictors of distress and QOL and prioritise supportive care needs.
Methods
Patients with HGG planned for chemo-radiotherapy (CRT) were recruited. Assessments (during CRT, 3 and 6 months later): Distress Thermometer, Functional Assessment of Cancer Therapy – General, Functional Assessment of Cancer Therapy – Brain, Supportive Care Needs Scale (SCNS), Brain Tumor Specific SCNS Scale. Descriptive statistics, correlation coefficients, t-tests and logistic regression analyses were performed.

Results
Participation reduced over time (Baseline n=116; 3 months n=91; 6 months n=65). The proportion of patients with moderate/high distress was high at baseline (43 %); however, this reduced at 3 m (26 %) and then increased at 6 m (38 %). Patients had lower physical, functional and emotional QoL than the general population. Distress and physical wellbeing significantly dropped from baseline to 3 m. For those who stayed to 6 m, brain cancer specific wellbeing significantly dropped from 3 to 6 m. Men’s QoL decreased to 3 m and then stabilised and women’s QoL increased or was stable to 3 m and then decreased. Younger patients had better QoL and lower distress. The highest SCN related to concerns about loved ones, reducing abilities and uncertainty about the future.

Conclusions
Vulnerabilities for increased distress and SCN, and deteriorating QoL over time include older age, gender and education. These groups may be targeted for additional screening for supportive care needs and psychological support.

18-16-P

ADJUSTMENT AND BENEFITS OF PLAY THERAPY AMONG YOUNG CHILDREN WITH CANCER

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Introduction
Studies on adjustment and psychological intervention on young children with cancer are limited.

Objectives
1. Compare psychological health and play behaviors of children with Acute Lymphoblastic Leukemia (ALL) with healthy children.
2. Explore therapeutic benefit of play therapy on children with ALL.

Methods
Sample comprised of a clinic group (hospitalized children with ALL, mothers, and nurses) and normal group (school-going healthy children and mothers). There were 20 children per group, ranging in age from four through 8 years. Adjustment was indexed on two variables, namely adaptation to illness and psychological health, assessed on participants’ reports. Play behaviors during individual non-directive play therapy sessions were assessed on the Children’s Play Therapy Instrument.

Results
Clinic children demonstrated greater behavioral and emotional difficulties. Comparison of play behaviors revealed that clinic children displayed less spontaneous initiation and active participation, and more parallel play. Affect transition was abrupt, with more negative emotions. Role representation was comparable across groups. Construction, problem-solving, and traumatic play; concomitant with play themes of bodily damage, destruction, and reconstruction were noted only in clinic children’s play. Their defenses were less adaptive and more rigid. Adjustment improved post-intervention, reflected in better adaptation to illness, decrease in difficulties, increase in positive affect and pro-social behaviors. Additionally, psychological health and play behaviors were comparable to pre-intervention findings of healthy children, suggesting a trend towards normalization.

Conclusions
Psychological impact of cancer on young children is predominantly in behavioral and emotional domains. Play therapy is effective in facilitating adjustment and normalization.

18-17-P

CANCER DISCLOSURE: ROMANIAN ONCOLOGISTS’ AND PATIENTS’ ASSESSMENT DO PATIENTS KNOW WHEN THEIR DOCTORS DON’T?

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Introduction
Disclosure of diagnostic information to cancer patients in Romania is a specific form of distress since in 2007 almost every fifth hospitalized cancer patient was not informed about his/her cancer diagnosis. To our knowledge, no empirical research exists addressing the question of cancer diagnosis disclosure from both the Romanian oncologists’ and patients' assessment.

Objectives
In this study, we focus on the Romanian oncologists’ and patients’ assessment regarding cancer disclosure to investigate the association between oncologists’ and patients’ information about it in a nationally representative sample of cancer patients.

Methods
This study has a non-probabilistic transversal comparative repeated cross-sectional design, sampling following the proportional quota method. Research was conducted in the four major oncological institutes in Romania (Bucharest, Cluj, Iasi, and Oradea). In 2014 a mixed and various sample of 800 cancer patients was studied.

Results
Oncologists reported that 8 % (n=64) of hospitalized oncological patients were not informed about their cancer diagnosis; patients reported 8.3 % (n=65). Although assessments of cancer diagnosis non-disclosure are alike, 46.8 % (n=374) of cancer patients who were informed about their cancer diagnosis held incomplete information about their disease. Assessments were significantly more unlike about cancer diagnosis non-disclosure (26.6 %) than about cancer diagnosis disclosure (93.3 %), X2(1, N=785)=30.66, p=.000, v=.0013.

Conclusions
Results about cancer diagnosis non-disclosure evidence that patients’ and expert doctors’ assessments do differ. Patient-driven information has to be used during cancer disclosure in Romania to foster doctor-patient rapport. Study was supported by CNCS – UEFISCDI grant PN-II-RUTE-2012-3-0011.

18-18-P

BURN OUT SYNDROME AMONG GREEK HEALTHCARE PROFESSIONALS IN AN ONCOLOGY UNIT

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Introduction
The impact of the current economic crises on the public health care system in Greece and consequently on the oncology area is overwhelming. Lack of supplies in addition to staff shortages threatens the quality of care for patients with cancer and leads to increased risk of burnout among oncology-focused specialties.

Objectives
To evaluate the prevalence of burnout among cancer care workers in an oncology clinic of the Sotiria General Hospital in Athens and to investigate the factors associated with the syndrome.

Methods
Almost all the employees (n=92, RR=99 %) (50 doctors, 31 nurses and 11 participants of other specialties) answered voluntarily the MBI (Maslach Burnout Inventory) and a demographic questionnaire.

Results
Although 60 % of the healthcare providers reported high levels of Personal Accomplishment (≥42), results indicated that 50.6 % of the participants reported burnout based on high levels of Emotional Exhaustion (≥31) and Depersonalization (≥11).

Older (P=0.038), married (P=0.020) and non-shift workers (P=0.036) had higher scores at Personal Accomplishment. Interestingly, workers earning a salary greater than 1000 € had high scores in Depersonalization (P=0.046). Half of the participants thought that their monthly income is low (54.7 %).

Conclusions
Half of the workers in this oncology unit experienced burnout while they considered themselves to be underpaid. On the other hand, the better paid workers and the most experienced reported high scores in Depersonalization. This is probably a kind of self – defense. Further research is required in this area.

18-19-P
ASSOCIATIONS BETWEEN DEPRESSION AND CANCER SURVIVORSHIP ISSUES
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Introduction
Surviving after a cancer diagnosis or surviving with a cancer is a very challenging for many patients. It is important to know what kinds of issues they are worrying about and what may be associated with their mental health.

Objectives
To examine the prevalence of cancer survivorship issues and the associations between these issues and their mental health.

Methods
A multicenter cross-sectional questionnaire survey was conducted. Eight designated cancer hospitals in Kyoto region recruited patients with cancer at each outpatient clinic. A questionnaire contained patient’s demographic information and a list of cancer survivorship issues created originally based on a previous nationwide government survey and depression scale (PHQ-9). Two groups of patients were compared (with and without depression) using both univariate and multiple logistic analyses to examine the factors potentially associated with depression.

Results
A total of 205 patients were analyzed with 16 % of patients reporting depression. Patients with depression were significantly more concerned about more issues than patients without depression (5.3 vs 1.9 p<0.001). After performing multiple logistic analyses, factors significantly associated with depression were identified; ‘have been embarrassed by unexpected early discharge’ (odds ratio [OR]: 26.6; 95 % confidential interval [CI]: 2.2–315.9), ‘feel stressed to deal with keeping friendships’ (OR: 16.4; 95 %CI: 1.5–186.0), ‘feel like that my life plan was completely turned over by the disease’ (OR: 7.2; 95 %CI: 2.3–22.1) and living alone (OR: 4.0; 95 %CI: 1.4–11.2).

Conclusions
The results of our study provide useful information for professionals to understand cancer survivorship issues and patients’ mental health.

18-20-P
PSYCHOLOGICAL IMPACT OF CANCER DIAGNOSIS IN OLDER VERSUS YOUNGER PATIENTS
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Introduction
Literature on psychooncology in the elderly supports the perception that screening for psychosocial distress and depression is of extreme importance in this population. However, the majority of studies focus on the impact of cancer on survival and few analyze the early effect of cancer diagnosis in older patients.

Objectives
The aim of this research is to characterize and compare younger versus older cancer patients for emotional distress and vulnerability, facing diagnosis and treatment, in a day care oncology department.

Methods
Patients were assessed after admission, before chemotherapy, in a first episode or cancer relapse. After their informed consent, participants completed a questionnaire including socio-demographic information and medical data, the Distress Thermometer (Roth et al., 1998), the Stress Vulnerability Questionnaire (V. Serra, 2000) and the Brief Symptom Inventory – BSI (Derogatis, 1993).

Results
Sample included 235 subjects, ages ranging from 22 to 88 years, 57 % females. Breast (29 %), Digestive (27 %), Hematologic (19 %) and Lung (14 %), were the most common cancers. Comparing younger (≤65, N=93) and older patients (>65, N=142), Distress and Global Symptoms Index (BSI), were higher in older patients, although differences were not significant. Stress Vulnerability Total Score and factors such as “Inhibition and functional dependence”, “Dramatization of existence” and “Subjugation” were all higher, with statistical significance, in older patients, as well as somatization, phobic anxiety and paranoid ideation.

Conclusions
Despite younger age is considered a distress risk factor, older patients may present several biological and psychosocial vulnerabilities that impair their ability to confront the disease, which deserves further investigation.
18-21-P

A SUPPORTIVE PROGRAM FOR FEMALE CANCER PATIENTS: “SALUTE ALLO SPECCIO”

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Introduction
“Salute allo Specchio” is a psychological supportive program for female cancer patients. Its aim is to improve patients’ well being through the realization of group sessions during which a team of fashion and aesthetic consultants illustrates strategies to manage the effects of the disease and its treatments.

Objectives
Psychological variables such as body image and self esteem were considered. Variables’ levels were assessed before the beginning of the program (t0), at the conclusion of the project (t1) and after three months (t3), in order to evaluate how they vary during time.

Methods
Up to now, 39 patients took part to the project. The following questionnaires were administrated: B.I.S. (Body Image Scale) and R.S.E. (Rosenberg Self-Esteem Scale).

Results
A significant improvement (p=0.008) in body image perception was found between t0 and t1. Such differences maintained their significance even after 3 months from the conclusion of the project (t3), reflecting the non-transience of the observed effects. Self-esteem significantly increased between t0 and t1 (p=0.001). BIS mean scores were also influenced by the presence of metastasis (p=0.007). Moreover, the presence of recurrence significantly affected BIS (p=0.037) and RSE (p=0.005) mean scores.

Conclusions
The present study seems to confirm that taking part to “Salute allo Specchio” leads to a stable improvement in variables considered. It also suggests the importance of introducing support interventions beside conventional medical therapies, in order to promote a better adaptation to the disease.

18-22-P

SUPPORTING CANCER PATIENTS: A SHARED CARE IN AN INTERDISCIPLINARY CONTEXT

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Introduction
This study explores the context of collaboration in the provision of psychosocial care.

Objectives
A first aim is to examine when cancer patients experience good psychosocial care. The second aim is to identify circumstances in collaboration which contribute good patient-perceived psychosocial care.

Methods
A qualitative approach based on the principles of the grounded theory was used. Semi-structured interviews were conducted with 28 cancer patients from four hospitals, 27 hospital workers and six primary health caregivers whose patients had been hospitalized in one of these four hospitals.

Results
Psychosocial care is often requested but also refused by cancer patients. Based on this ambiguity, a distinction can be made between psychosocial support and psychosocial help. Psychosocial support aims to reduce the chaos in patients’ life caused by cancer. Psychosocial support feels safe for patients because it is not directly focused on problems. Psychosocial help is the formal care in response to psychosocial deficiencies. Many patients are reluctant to use help, but their barriers can be reduced by turning psychosocial needs into normality.

Conclusions
Interdisciplinary collaboration offers opportunities to bring the needed care into reach of the patient. A good collaboration in psychosocial care is achieved when complementarities are recognized by all the members of the team. This enlarges the scope of psychosocial care to fit the patients’ needs appropriate.

18-23-P

ATTITUDES TOWARDS COLORECTAL CANCER PROMOTIONAL MATERIALS AMONG CHINESE ELDERS: A QUALITATIVE STUDY

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Introduction
Colorectal cancer (CRC) promotion may not be easy in particular for elders because reading the CRC prevention information may evoke embarrassment, fear and anxiety towards the screening procedure and cancer diagnosis. Most of these materials were prepared in technical medical terms that elders with a lower health literacy level may find it difficult to understand, and as a result, the messages presented may not be well received.

Objectives
To explore attitudes towards the content of the three existing CRC promotional information among Hong Kong Chinese elders

Methods
A convenience sample of 45 community dwelling Chinese adults aged 60 or above and cognitively intact was randomly assigned to read one of the three promotional materials. Four open ended questions were asked after the experiment.

Results
Almost all the participants with lower educational level expressed some extent of fear and anxiety after the experiment, and most reported they did not understand the content while a few reported a belief of cancer fatalism. Participants with higher educational level tended to focus on the lifestyle risk factors that lead to CRC only. Most of the 45 participants suggested information regarding the CRC screening procedure and sharing of consequence of having CRC could be further provided.

Conclusions
The results suggested that the existing promotional materials might not be useful in promoting CRC screening. Education seemed to have a differential impact on the reaction to the CRC promotional materials. The information shed lights on development of CRC screening promotion for Chinese elders.
18-24-P

SEXUAL SATISFACTION, ANXIETY, DEPRESSION AND QUALITY OF LIFE AMONG TURKISH COLORECTAL CANCER PATIENTS [IZMIR ONCOLOGY GROUP (IZOG) STUDY]

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Introduction
The majority of colorectal cancer patients will still remain alive after 5 years and the importance of quality of life (QoL) has become prominent due to the increasing number of surviving patients.

Objectives
We investigated the QoL, anxiety, depression and sexual dysfunction levels and the impacts of depression and anxiety on the sexual dysfunction and QoL among Turkish colorectal cancer patients.

Methods
Sociodemographic features, Hospital Anxiety and Depression Scale (HADS), EORTC-QoL-C30 and Golombok-Rust Inventory of Sexual Satisfaction (GRISS) questionnaires were analyzed in 105 patients with colorectal cancer.

Results
Male patients had higher EORTC-QoL-C30 function scales and global QoL scores than female patients. GRISS scores of female patients were higher than that of male patients. EORTC-QoL-C30 function scales and global QoL scores of the patients with high depression scores were lower, conversely symptom scale scores of the patients with high depression scores were higher than that of the patients with low depression scores. Patients with low anxiety scores had higher EORTC-QoL-C30 function scales and global QoL scores than the patients with high anxiety scores. Symptom scale scores of the patients with high anxiety scores were higher than that of the patients with low anxiety scores. The scores of GRISS except premature ejaculation and vaginismus were higher in patients with high anxiety scores and a significant difference was determined in touch, avoidance and anorgasm.

Conclusions
This study demonstrated that there is a significant association between anxiety/depression symptoms and QoL scores/sexual dysfunction. Sexual dysfunction is significantly more common in patients with high anxiety and depression scores.

18-25-P

QUALITY OF LIFE IN COLORECTAL CANCER PATIENTS [IZMIR ONCOLOGY GROUP (IZOG) STUDY]

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Introduction
Quality of life (QoL) is now considered as an important endpoint for oncology community. QoL of colorectal cancer (CRC) patients can also provide valuable information regarding the behavior of the disease and the side effects of cancer therapies.

Objectives
The aim of the presented study is to investigate the variables of QoL among Turkish patients with CRC.

Methods
This is a prospective study that investigated the QoL of 222 Turkish CRC patients. Sociodemographic form and European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30) were used.

Results
The study group consisted of 142 males and 80 females. The majority of the patients had local disease and in an order followed by advanced stage disease and locally advanced stage disease. The most common complaints were fatigue, economic difficulties and constipation. Gender, education level and disease stage of patients were associated with QoL. Physical, role and social functioning were more adversely affected in female patients. Compared to women, men had more favourable global QoL ($p=0.044$). Some functional scales were worse in advanced disease compared to other stages. These outcomes were statistically significant in the functional scales of global health ($p=0.07$), physical ($p=0.03$), cognitive ($p=0.01$) and emotional function ($p=0.07$). Patients with advanced disease had worse outcomes in some symptoms (nausea, vomiting, dyspnea, loss of appetite and financial distress).

Conclusions
Female gender and advanced disease were strongly associated with the poorer quality of life among Turkish colorectal cancer patients.

18-26-P

EXPERIENCE OF NURSING PROFESSIONAL SUPPORT FROM THE PERSPECTIVE OF PATIENTS IN CANCER

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Introduction
Exploring professional supportive care needs from view of patients with cancer is prerequisite for nurses to provide such care accordingly.

Objectives
The present study aimed to understand the needs regarding nursing professional support from patient own perspectives, explore partially met and unmet support among those identified needs, and explain reasons for the disparity between the needs and the support that is actually received.

Methods
A qualitative approach with in-depth interviews was used. A purposive sample of 22 patients with different types of cancer was enrolled and content analysis of the data was performed.

Results
Several needs regarding nursing professional support were expressed by patients with cancer, including informational, psychological, technical needs, and the needs for care coordination and communication. There were still some unmet needs (especially related to psychological and care coordination needs) or partially met needs (such as the need for information and for symptom management). The reasons for the disparities between patients’ needs and what they actually received included both patient and nurse aspects, such as patients’ lack of awareness of how to search for professional assistance and reluctance to express their needs.
and nurses’ lack of active communication with patients, inability to provide specific support, and limited resources for coordination.

**Conclusions**
The needs of nursing professional support did not always correspond to the actual delivery of nursing care. Understanding these mismatches will enable nurses to develop tailored interventions to meet cancer patients’ personalized needs, which may contribute to enhancing the quality of care.

**18-27-P**

**DEVELOPMENT AND PRELIMINARY VALIDATION OF THE PROFESSIONAL INFORMATIONAL NEEDS SCALE (PINS) FOR PATIENTS WITH CANCER**

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**Introduction**
Patients with cancer always require large amounts of professional information. However, health professionals tend to underestimate this informational need. The comprehensive assessment of patients’ informational needs is prerequisite for health professionals to provide corresponding care.

**Objectives**
The present study aimed to develop a new clinical tool and assess its psychometric properties.

**Methods**
The domains were constructed based on literature review, our previous qualitative approaches and the guideline of Oncology Nurse Navigator Core Competencies. The PINS, a self-report measure adopted to assess the amount of informational needs was administered among 563 Chinese patients with cancer from five hospitals in two cities of Anhui Province during May and November 2014. The process of item analysis, validity and reliability was measured.

**Results**
There remained 18 items which met the criteria of item analysis. Exploratory Factor Analysis (EFA) (n=309) revealed three factors replicating the factorial structure of the original PINS (information about diagnosis and pre-treatment, effects of treatment and prognosis, post-treatment consultation) accounting for 53.588% of the total scale variance. Derived Cronbach’s alpha values of each domain varied from 0.722 to 0.850. The Confirmatory Factor Analysis (n=254) endorsed the results of EFA for the domains of PINS.

**Conclusions**
Data on the PINS show good evidence of reliability and construct validity. Further studies are needed to provide new evidence on the structure of the scale. Health care professionals should be aware of the discrepancy between patients’ informational needs that are perceived important and care that is provided by nurses, so that educational interventions can be accurately and appropriately planned.

**18-28-P**

**Explaining the association between physical symptom distress and health engagement control strategies among people with cancer**

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**Introduction**
Health Engagement Control Strategies (HECS) have consistently been found to play an important role in determining an individual’s physical and psychological health when facing health challenges. Nevertheless, the underlying mechanism of HECS remains unclear especially among people with more intractable chronic medical conditions like cancer.

**Objectives**
This study aims to investigate whether and how perceived social support moderates the inverse association between physical dysfunction and HECS among Chinese people newly diagnosed with cancer.

**Methods**
A total of 265 Chinese cancer patients were recruited and administered questionnaire assessing cancer-specific symptoms (Memorial Symptom Assessment Scale; Cheng, Wong, Ling, Chan & Thompson, 2009), physical functioning (Medical Outcomes Study Short Form-36; Lam, Gandek, Ren, & Chan, 1998), perceived social support (Berlin Social Support Scale; Schulz & Schwarzer, 2000), and health-related control processes (Wrosch, Miller & Schulz, 2009). Structural equation modelling (SEM) with latent variables using MPlus 7.0 (Muthen & Muthen, 2012) was conducted to test the moderation effect of perceived social support in the inverse association between physical dysfunction and HECS.

**Results**
SEM revealed that cancer patients’ perceived social support moderated the inverse association between physical functioning and HECS. Patients with lower physical dysfunction reported higher HECS, particularly those who also reported higher perceived social support.

**Conclusions**
The findings point to feasible direction for developing education/ intervention programs that involve both cancer patients and caregivers. The possible benefit of the programs on patients’ and caregivers’ social and emotional well-being will also be discussed.

**18-29-P**

**PSYCHOMETRIC VALIDATION OF THE CENTER FOR EPIDEMIOLOGICAL STUDIES DEPRESSION (CES-D) SCALE IN HEAD AND NECK CANCER (HNC) PATIENTS.**

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**Introduction**
Rates of depression in HNC are high. The CES-D is a 20 item scale developed and validated to screen for depression in the general population however it has not been validated for use with HNC patients.

**Objectives**
To psychometrically evaluate and validate the CES-D scale in HNC patients.

**Methods**
The CES-D was applied to 130 subjects from a clinical trial at baseline and 3 months. Psychometric analysis was conducted through face and
content validity using expert raters, internal consistency using Cronbach’s alpha, test retest reliability, concurrent validity against the FACT-H&N and Pain disability Index (PDI), and construct validity via exploratory factor analysis.

Results
Patients were Caucasian (94 %), male (76.7 %) receiving chemoradiation (76.2 %). Face validity for measuring depression in HNC was strong (alpha=0.85). A significant difference was found in the mean score ($t=-15.841, p=0.0001$) (95 % CI=[−17.18, −13.33]) between depressed (CES-D cut point ≥16) vs. non-depressed. Internal consistency of the scale was high (alpha=0.840). Test retest reliability showed moderate-strong correlations (0.512, $p=0.0001$), however was not sensitive to change across this time. Strong inter-correlations ($r=0.778, 0.515$) with FACT-H&N and PDI were noted. Factor analysis (baseline) explained 54.92 % of variance, with 3 distinct factors; depressed affect, somatic /retarded activity and positive affect. In contrast to general populations, the factor “disturbed interpersonal skill” was not retained.

Conclusions
Findings confirm the reliability and validity of the CES-D and support the use of the CES-D as a measure of depression in HNC populations.

18-30-P

LOCUS OF CONTROL AND RELIGIOUS BELIEFS IN PATIENTS WITH CANCER AND DIABETES

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Introduction
Illness challenges people core believes about life, meaning and spirituality. Any chronic diagnosis is strongly associated with feelings of loss of control. While generally patients benefit more from psychosocial interventions when they have an internal locus of control, studies show that in unpredictable diseases such as cancer, an external locus of control might be beneficial. Romania is still a very spiritual country and spirituality might become an important factor in the patient’s adjustment.

Objectives
The purpose of the present study was to explore the specific features of locus of control in cancer and diabetes patients and the relationship between causal attributions and chronic patients’ religiosity.

Methods
The sample consisted of 300 patients diagnosed with cancer and with insulin dependent diabetes. All participants completed the Locus of Control Scale and an adapted Sentence Completion Test to measure their spiritual and religious beliefs.

Results
Sixty-three percent of the cancer patients present an external locus of control compared to only 13% of the diabetes patients. Most cancer patients consider that Divinity is in charge of the course of their lives, while diabetes patients score significantly lower on religious beliefs.

Conclusions
Chronic patients have different psychological needs depending on their illness. Cancer is associated to a higher loss of control and spirituality becomes an important resource for their adjustment. Intervention efforts should consider these differences and customize their approach.

18-31-P

SEXUAL WELLBEING PROBLEMS AFTER BREAST CANCER

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Introduction
Sexuality is an intrinsic part of human nature, which plays an important role in psycho-emotional support in cancer.

Objectives
The purpose of the present study is to evaluate the impact of breast cancer (BC) on sexuality and relationship.

Methods
The Relationship Questionnaire was developed and used to determine the influence of mastectomy and chemotherapy on sexual functioning, family relationship, and quality of life.

Results
Four hundred twenty-four women with BC (29-55 y.o.) participated, with lack of sexual interest (18.5%), inorgasmia (15.8%), poor lubrication (24.8%), reduced satisfaction with masturbation (13.2%), reduced frequency of masturbation (11.9%), painful intercourse (17.8%), vaginismus (4.9%). 94% reported at least one sexual problem, although 25% reported neither no or slight concerns about their sexual difficulties. It was found that one of the most commonly occurring secondary sexual symptom among women with BC is fatigue (92.7%). Fatigue greatly interferes with sexual desire and physical ability to initiate and sustain sexual activity. The physical changes (mastectomia, hair loss) due to BC and chemotherapy can also negatively affect body image. 76% of women might have difficulty feeling physically appealing or “sexy”. Some of them (49%) may fear they are no longer sexually desirable to their partner. Additional problems may occur in the relationship when the partner assumes the role of caretaker (9.9%).

Conclusions
Obtained information about sexuality and BC makes possible to develop the programme for psychosocial support and clinical guidelines to modify treatment regimes to best accommodate sexual needs.

18-32-P

COST-UTILITY OF A STEPPED CARE PROGRAM TARGETING PSYCHOLOGICAL DISTRESS AMONG HEAD AND NECK CANCER AND LUNG CANCER SURVIVORS

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Introduction
In stepped care (SC), effective yet least resource-intensive treatment is delivered to patients first, followed by, when necessary, more resource-intensive treatments. Among head and neck cancer (HNC) and lung...
cancer (LC) survivors with psychological distress, a SC program was found to be effective in improving distress levels. Information on the SC program’s value for money is now called for.

**Objectives**
To assess the cost-utility of a SC program targeting psychological distress in HNC and LC survivors compared to usual care (UC).

**Methods**
In total 156 survivors were randomized to SC or UC. Intervention costs, medical costs, non-medical costs, productivity losses and quality of life data during the SC or UC period and 12 months follow-up were calculated using TIC-P, PRODISQ and EQ-5D measures and data from the hospital information system. The SC program’s value for money was investigated by comparing mean cumulative costs and quality adjusted life years (QALYs).

**Results**
Mean cumulative costs were €2,941 lower and mean number of QALYs were 0.154 higher in the SC compared to the UC group when including 47 SC and 56 UC survivors with completed data. After imputation of missing data, mean cumulative costs were €1,942 lower and QALYs were 0.079 higher in the SC group.

**Conclusions**
Since the number of QALYs was higher and cumulative costs were lower, SC can be seen as dominant compared to UC. However, further analyses should be performed to assess the robustness of this finding, which will be presented at the MASCC symposium as well.

**18-33-P**

**AN EVALUATION OF THE BURDEN OF ANXIETY DISORDERS IN INDIVIDUALS WITH BREAST CANCERS: IMPLICATIONS FOR CANCER CARE**

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**Introduction**
Co-existence of anxiety disorders among people with breast cancer have been linked with delay in presentation, impairment of treatment and poor quality of life. However, anxiety disorders are often undetected and relatively addressed in researches among Africans with breast cancer scantily.

**Objectives**
This study investigated 200 participants with histological diagnosis of breast cancer for anxiety disorders and explored its determinants.

**Methods**
A designed questionnaire was used to elicit relevant socio-demographic and clinical factors among participants, while the Schedule for Clinical Assessment in Neuropsychiatry (SCAN) was used to ascertain the presence of anxiety disorders.

**Results**
The mean age was 49.6±11.2 years and more than half (54 %) presented late (stage 3 and 4). Anxiety disorder was observed in 38(19 %) participants. Of those with anxiety disorders, the types elicited include mixed anxiety and depressive disorder (44.7 %), social phobia (18.4 %), panic disorder (13.2 %), generalized anxiety disorder (10.5 %), simple phobia (7.9 %) and agoraphobia (5.3 %) in descending order. Low income, absence of previous history of breast cancer and early stage of breast cancer were the significant determinants of anxiety disorders (p<0.05). However, only absence of previous history of breast cancer (Odds ratio [OR]=3.460, 95 % Confidence Interval [CI]=1.200–6.960) and early stage of breast cancer (OR=1.560, 95 % CI=1.120–2.174) were the independent determinants of anxiety disorders.

**18-34-P**

**THE LEVEL OF DEMORALIZATION, DEPRESSION AND ANXIETY AMONG HEAD AND NECK CANCER PATIENTS**

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**Introduction**
Demoralization is a feeling of existential distress, despair, sense of failure and hopelessness.

**Objectives**
The aim of the current study was to investigate level of demoralization and depression among head and neck diagnosed cancer patients.

**Methods**
Fifty-two head and neck cancer patients (males 33, females 19) with an age range of 20–80 years were selected through purposive sampling. Symptoms of depression and anxiety were assessed by the Hospital Anxiety and Depression Scale (HADS-4 points rating scale), demoralization aspects assessed by demoralization scale (5 points rating scale) that had been adapted by the researcher.

**Results**
The results show that there was high significant level of correlation between demoralization and depression (2-tailed) though anxiety and demoralization have less significant level of correlation than depression (2-tailed). Analysis also shows that age up to 40–60 years have higher level of anxiety and depression. There was no statistically significant difference found between gender, education and marital status.

**Conclusions**
This study highlights high rate of depression among those patients who scored high on demoralization. It also indicates that demoralization has significant positive correlation with depression and higher rate of depression, anxiety and demoralization between the age of 40–60, as at this age people are usually in struggling or full bloomed career stages. They also share major portion of responsibility at this stage of age and their illness increases their demoralization, anxiety and develops depression. They have to interact with the society and they feel incompetent to interact with the society due to their illness.

**18-35-P**

**PATIENTS’ AND DOCTORS’ VIEWS ON PHALLUS IMPUDICUS ROLE IN SUPPORTIVE CARE IN CANCER**

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Introduction
(PhI) is an edible fungus from the order of Gasteromycetes. Young fruiting bodies of an “egg”-stage are used for food. PhI was found to contain polysaccharides, phytosterols and other nutrients. PhI is regarded as anticancer food and the most commonly used supportive care remedy in Latvia.

Objectives
This study aims to explore the patients’ and doctors’ views on PhI role in supportive care in cancer.

Methods
During the period from 1991 to 2014, 2896 cancer patients with small cell or non-small-cell bronchogenic carcinoma, breast carcinoma, ovarian carcinoma FIGO (IIIB–IV) and carcinoma of the colon, rectum or stomach and 45 cancer specialists were involved in a transversal survey. Patients’ and doctors’ views on PhI role in supportive care and differences between them: agreement with statements rated on a 5-point scale, ranging from “strongly disagree” to “strongly agree.”

Results
Cancer patients less than doctors consider the immunomodulating, antithrombogenic and adaptogenic effects of PhI (mean 3.6, 1.9 and 2.2 versus 4.6, 4.1 and 4.9) and cancer patients much more than doctors believe that PhI cures cancer and prolongs survival time of patients with advanced cancer (mean 4.2 and 4.9 versus 1.9 and 4.7).

Conclusions
Cancer patients appeared to differ from doctors in views on the role of Phallus impudicus in supportive care. Nevertheless, both groups consider the necessity to use PhI to achieve relevant prolongation of survival time of cancer patients.

18-36-P

INFLUENCE OF ANEMIA ON COGNITIVE FUNCTIONS IN CANCER PATIENTS ASSESSING BY COMPLEX REACTIONMETER DRENOVAC (CRD)

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Introduction
Cancer patients are very vulnerable to neurocognitive dysfunctions.

Objectives
Purpose of our study was to analyse hypotesis that anemia deteriorate cognition in therapy naive cancer patients and that cognitive functions could be improved by correction of anemia.

Methods
A total of 400 patients were included in the study. With a prospective fourfold coupling, four similar groups of subjects were formed (100 in each group) categorised on the basis of two independent variables: malignant disease and anaemia (1: anemic cancer pts, 2: with cancer but no anaemia, 3: anemic patients without cancer, 4: healthy persons).

Cognitive abilities were evaluated by Complex Reactionmeter Drenovac (CRD) for perceptive abilities (detection, identification, visual orientation, spatial visualisation), memory (short term memory, maze learning, actualisation of memorized contents), thinking (operative thinking, problem solution, convergent thinking), psychomotor reactions (simple and complex), dynamic features of CNS function (excitability, agility, stability, balance, endurance, reliability), attention (attention span, concentration, vigilance) and functional disturbances (rigidity, agitation, perseverance, regression). We applied standardized tests batteries in all pts twice (before and after correction of anemia in group 1 and 3).

Results
Hemoglobin(Hb) is in positive correlation with cognitive abilities, more then age, education and gender. Anemia and cancer have additve negative effect. Cognitive abilities in cancer patients with anemia were the worst among all groups. Correction of anemia significantly improve cognition.

Conclusions
By setting normatives for individual groups and especially cancer patients, we plan to carry out further clinical research in order to monitor cancer patients for their cognitive functions before, during and after chemotherapy.

18-37-P

PSYCHIATRIC DISORDERS IN PATIENTS WITH COLORECTAL CANCER 9 MONTHS AFTER DIAGNOSIS

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Introduction
Patients with cancer have a high rate of psychiatric comorbidity; approximately one-half exhibit emotional difficulties.

Objectives
To investigate the prevalence of psychiatric disorders in patients hospitalized for colorectal cancer, 9 months after diagnosis.

Methods
Seventy-three(59 male, 14 female, age: mean±SD:60,3±11,3) patients with colorectal cancer were assessed with SCID-I, a structural clinical interview that yields diagnoses according to DSM-IV criteria for psychiatric disorders.

Results
Out of the 73 patients, 45 (61,6 %) showed evidence of psychiatric disorders: Dysthymia (n=20) and alcohol dependence (n=8) were the most frequent diagnoses. In addition, 9 patients satisfied the criteria for subsyndromal symptomatic depression.

Conclusions
The high comorbidity of psychopathological conditions and especially of depression, should be brought to the attention of physicians for the management of colorectal cancer.

18-38-P

FEAR OF CANCER RECURRENCE – IS THAT A CASE FOR EARLY STAGE LUNG CANCER SURVIVORS?

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2Surgery, National Taiwan University Hospital, Taipei, Taiwan

Introduction
Fear of cancer recurrence (FCR) is a common concern experienced by cancer survivors. It might have negative impacts on patients’ quality of life. However, limited researches have explored FCR in early stage lung cancer patients.
Objectives
(1) To explore the experiences of FCR in early stage lung cancer patients at three months post surgery, and (2) to explore patients’ coping strategies dealing with FCR.

Methods
A cross-sectional study with consecutive sampling was conducted to recruit newly diagnosed lung cancer patients, but exclude patients with stage IIIIB and IV in a medical center in Taiwan. We used the Fear of Cancer Recurrence Inventory (FCRI) to examine FCR and their coping strategies.

Results
A total of 90 early stage lung cancer survivors were recruited in the study. 47.8% patients reported to have FCR experiences which were triggered by seeing or hearing someone’s television shows or newspaper articles about cancer; 35.6% patients felt a little worry, fear or anxiety while thinking about such unpleasant events; however, 26.7% patients recognized FCR or having negative emotion as normal. For coping strategies, 46.7% patients tried to convince themselves that everything will be fine or to think positively to cope with this distressful concern and 24.4% of patients went to hospital or clinic for an examination, if they had some physical discomfort.

Conclusions
Almost half of patients felt FCR at 3 months after surgery. Suggest that health care professionals should address patients’ concerns, provide mental support appropriately, and develop the FCR related intervention to help them manage the distress of fear of cancer recurrence.

18-39-P
EFFECTS OF ANXIETY AND DEPRESSION IN BREAST CANCER (BC) PATIENTS ON INFORMATION FOLLOWING A DIAGNOSIS OF CANCER

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2Pharmacology & Therapeutics, Baba Farid University Of Health Sciences, Sadiq Road Faridkot, India
3Medicine, GGS Medical College, Sadiq Road Faridkot, India

Introduction
The optimal amount of treatment information given to BC patients following diagnosis is still an unsolved dilemma.

Objectives
The aim of this study is to evaluate whether anxiety and depression influence patient’s treatment choice.

Methods
80 BC patients after their initial consultation with their oncologist completed an information needs (IN) questionnaire and Hospital Anxiety and Depression (HAD) score. The results were independently analyzed statistically using Kruskal-Wallis 1-way ANOVA. The IN categorized patients into (a) those who wanted all available information (b) only positive information, (c) wished to let the doctor decide. The HAD score categorized anxiety and depression separately into four levels of severity.

Results
Patients who required all available information had significantly higher levels of anxiety where those who preferred to let the doctor decide were least anxious (P=0.03). There was no increased level of depression in this group (P=0.3).

Conclusions
Those patients who want all the available information are more anxious than others. We have now commenced a prospective randomized trial evaluating whether informing patients using an analytical video format will reduce their anxiety levels.

18-40-P
PSYCHOLOGICAL DISTRESS IN CANCER PATIENT DURING CHEMOTHERAPY: A CROSS SECTIONAL STUDY.

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Introduction
The State of Punjab is experiencing rising burden of cancer. The cancer prevalence in the southern Punjab is about 1089/million/year, higher than national average of 800.

Objectives
The objective was to analyze and compare depression, anxiety and stress levels in cancer patients

Methods
Validated questionnaire (Depression anxiety stress scale 21-DASS 21) was used for data collection

Results
300 cancer patients, 300 matched controls participated. Details in table. Comparison of DAS with different variable

<table>
<thead>
<tr>
<th>Variable</th>
<th>Depression M+/− SD</th>
<th>Anxiety M+/−SD</th>
<th>Stress M+/−SD</th>
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<tr>
<td>Age</td>
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<td></td>
<td></td>
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<tr>
<td>&lt;50 year</td>
<td>9.35(4.57)</td>
<td>5.50(4.60)</td>
<td>7.80(4.87)</td>
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<td>&gt;50 year</td>
<td>9.67(3.55)</td>
<td>6.10(4.65)</td>
<td>8.42(4.45)</td>
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<tr>
<td>P value</td>
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<td>0.2558</td>
<td>0.2565</td>
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<td>Duration</td>
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<td>0–12(months)</td>
<td>9.41(5.54)</td>
<td>6.21(3.58)</td>
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<td>12–24(months)</td>
<td>9.2(4.60)</td>
<td>6.53(3.63)</td>
<td>7.66(2.99)</td>
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<td>&gt;24(months)</td>
<td>10.26(3.58)</td>
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<td>8.71(2.90)</td>
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<tr>
<td>P value</td>
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<td>0.0262 (SS)</td>
<td>0.1300</td>
</tr>
<tr>
<td>Gender</td>
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<tr>
<td>Male</td>
<td>9.26(4.54)</td>
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<td>6.13(4.95)</td>
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<tr>
<td>Female</td>
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<td>P value</td>
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<td>Genital Cancer</td>
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<td>8.37(4.90)</td>
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<td>Head &amp; neck thorax Cancer</td>
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<td>6.71(4.58)</td>
<td>7.28(4.66)</td>
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<td>GIT Cancer</td>
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<td>5.63(4.98)</td>
<td>7.04(4.17)</td>
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<td>Connective, Blood Cancer</td>
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<td>P value</td>
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<td>Cases with control</td>
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<td></td>
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<tr>
<td>Case</td>
<td>9.5(4.96)</td>
<td>5.58(4.89)</td>
<td>8.1(5.98)</td>
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<tr>
<td>Control</td>
<td>4.87(5.39)</td>
<td>3.51(2.88)</td>
<td>4.88(3.87)</td>
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<tr>
<td>P value</td>
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<td>0.0001 (SS)</td>
<td>0.0001(SS)</td>
</tr>
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<td>Chemotherapy cycle</td>
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<td>1–2</td>
<td>9.11(5.66)</td>
<td>4.22(3.96)</td>
<td>7.44(4.96)</td>
</tr>
<tr>
<td>3–4</td>
<td>10.05(4.80)</td>
<td>5.36(4.90)</td>
<td>8.16(5.90)</td>
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</tbody>
</table>
Conclusions
Judicious diagnosis with psychological consultation, social support at appropriate time alleviates the burden of psychological disorder; enhance the quality of life.

18-41-P
PATIENT EMPOWERMENT AND QUALITY OF LIFE: A QUALITATIVE STUDY ON THE DOCTORS’ PERSPECTIVE
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Introduction
Patient’s empowerment implies that the clinical setting is organized completely around patients’ with the aim to provide tailored clinical services. Patients who receive medical information report greater impact on, social, physical well-being, and QoL aspects.

Objectives
We designed a qualitative study aimed at analyzing how doctors understand the concept of empowerment and how they implement it.

Methods
Participants were from Istituto Europeo di Oncologia and a semi-structured interview was administered (Figure 1). Interviews were coded using content analysis for conceptual categories and emergent themes were analyzed by an in-person meeting to reach a strong consensus (α=0.86).

Data were organized according to collected themes (Figure 2).

Results
Participants were completely aware of the need of a new paradigm in medicine, even though a very limited knowledge of what empowerment really implies was observed. Patients are not considered completely ready to take clinical decisions, the use of Internet is often considered dangerous, because patients acquire information not always related to their clinical situation. QoL plays a fundamental role in guiding clinical choices, but they any systematic instrument to measure it is in place.

Psycho-oncologists aren’t consulted to monitor QoL issues and emotional unmet needs.

Conclusions
Patient empowerment is a problem. The doctor/patient relationship is fundamental even if a lack of the proper skills to manage it is present. The need of a specific education in patient empowerment implementation and in the management of communication is needed.

18-42-P
FATALISM IS NEGATIVELY ASSOCIATED WITH CANCER-RELATED INFORMATION SEEKING BEHAVIORS AMONG CHINESE ELDERS
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Introduction
Effective communication in health information plays an important role in facilitating decision making including cancer prevention. Fatalism is defined as a belief that health is beyond the control of an individual and depended on fate or luck. Fatalism is found to be associated with avoidance of cancer related information.

Objectives
To examine level of cancer related information seeking behaviors, and the associated factors among Hong Kong Chinese elders.

Methods
A convenience sample of 223 community dwelling adults aged 60 or above and cognitively intact was recruited. Cancer related information seeking behaviors on six preventive behaviors including colonoscopy, PSA test for men, mammography for women, exercise, fruit and vegetable consumption and weight loss attempts in the past 12 months via six sources was measured by self reports. Logistic regression identified their associated factors.

Results
The mean age of the respondents was 77.3 years, 74.0 % were female, and 22.0 % had secondary education. A total of 23.8 % of the respondents reported had sought for at least one of the six topics. Seeking behaviors was associated significantly and negatively with age (OR 0.93) and fatalism (OR 0.68).

Conclusions
The low level of seeking behaviors for cancer related information in this elderly sample suggests a need to provide professional support to further promote effective health communication in this group. Healthcare professionals could focus their support on cancer related information to elders who are very old and believed in fatalism.

18-43-P
RELATIONSHIP BETWEEN HOPE AND PSYCHOLOGICAL DISTRESS IN PATIENTS WITH GASTRIC CANCER UNDERGOING CHEMOTHERAPY: MEDIATING EFFECT OF COPING STYLE
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2Nursing, School of Nursing Anhui Medical University, Nursing International Union Research Center of Anhui Province Hefei China, Hefei, China

Introduction
Psychological distress in patients with gastric cancer undergoing chemotherapy can not be ignored, the relationship between coping style, hope and psychological distress in patients with gastric cancer undergoing chemotherapy were not yet clear.

Objectives
To explore the mediating effect of coping style on the relationship between hope and psychological distress among patients with gastric cancer undergoing chemotherapy.

Methods
Simple sampling. The Distress Management(DM), Herth Hope Index(HHI) and Cancer Coping Modes Questionnaire(CCMQ) were administered to 181 patients with gastric cancer undergoing chemotherapy. A mediation analysis was performed.

Results
Significant negative correlation was found between psychological distress and hope(r=−0.274, P<0.05), while the correlation between psychological distress and avoidance and suppression, resignation, fantasy, catharses were positive(r=0.320,0.367,0.219,0.323,P<0.05).resignation, fantasy,catharses mediate partly the relationship between hope and psychological distress.
Conclusions
Hope, coping style had mediating effect on psychological distress. Hope that low levels of the patients tended to use resignation, fantasy, catharses coping style, thereby increasing the psychological distress. The tips can be from manage hope level and improve the coping style to manage psychological distress of patients with gastric cancer undergoing chemotherapy.

18-44-P

IMPACT OF SURGERY ON PSYCHOLOGICAL MORBIDITY IN UROLOGICAL CANCER PATIENTS
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2Medicine, Nishtar Medical College Hospital, Multan, Pakistan
3Oncology, Nishtar Medical College Hospital, Multan, Pakistan
4Radiology, Nishtar Medical College Hospital, Multan, Pakistan

Introduction
In cancer patients undergoing surgical intervention, factors such as the effect of intervention on psychological health, psychosocial adjustment and quality of life assume great importance

Objectives
The objective of this study was to determine the effect of surgery on psychological morbidity in urological cancer patients.

Methods
This study was done in outpatient department of Multan Institute of Nuclear Medicine and Radiotherapy, Multan (MINAR), Aga Khan University Anxiety & Depression Scale was used to estimate the prevalence of anxiety and depression in 70 patients who had undergone surgery and 70 patients who did not receive surgical intervention. Informed consent was taken before administering the questionnaire. Study was carried out in accordance with the Declaration of Helsinki. Data analysis was done using SPSS v. 16.

Results
The urological cancer patients who had undergone surgery were found to have significantly more psychological morbidity as compared to patients without such interventions (OR=2.73, p<0.01). Several factors were found to be affecting psychological morbidity in surgical intervention group including being male (OR=5.09), married (OR=5.41), illiterate (OR=4.5), having low income (OR=2.67), and those receiving concomitant chemotherapy and radiotherapy. (OR=5.02).

Conclusions
The study shows that urological cancer patients undergoing surgery are more anxious and depressed. This has important implication as timing the surgery appropriately may improve the psychiatric health of patient improving outcome.

18-45-P

THE INFLUENCE OF MARITAL INTIMACY ON TREATMENT-RELATED SYMPTOMS IN PATIENTS WITH PROSTATE CANCER IN KOREA
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Introduction
Patients with prostate cancer tend to rely entirely on their spouses because the characteristics of their treatment-related symptoms are private. Although depression and anxiety interfere with recovery from the symptom experience in patients with prostate cancer, marital intimacy may play a positive role in improving symptom experiences.

Objectives
The aim of this study is to explore the influence of marital intimacy on treatment-related symptoms despite the influences of depression and anxiety in patients with prostate cancer.

Methods
A convenience sample of 44 men who had been diagnosed with prostate cancer was recruited. The Expanded Prostate Cancer Index Composite (EPIC) consisted of the urinary, bowel, sexual and hormonal domains; a marital intimacy scale; and the Hospital Anxiety and Depression Scale were used to measure the variables. Hierarchical multiple regression analyses were used to identify the influence of marital intimacy.

Results
With regard to the urinary, bowel and sexual domains as assessed by EPIC, it was only when marital intimacy was added that the highest adjusted R-square was found, thus demonstrating evidence of a significant regression model. The increases in the explained variances with the addition of marital intimacy to the regression model were 25.6 % in the urinary domain, 8.2 % in the bowel domain, and 6.8 % in the sexual domain.

Conclusions
Marital intimacy is a strong predictor of the urinary symptom experience in patients with prostate cancer. Further studies that investigate whether marital intimacy is a mediator or moderator with regard to symptom experiences of patients with prostate cancer are necessary.

18-46-P

COMPARISON OF ZOLPIDEM AND LORAZEPAM EFFECT ON INSOMNIA IN HEMATOPOIETIC STEM CELLS TRANSPLANT RECIPIENTS
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2Psychiatry, Medical Faculty, Tehran, Iran
3Bone Marrow Transplant, Medical Faculty, Tehran, Iran
4Student research Committee, School of Pharmacy, Tehran, Iran

Introduction
Hematopoietic Stem Cell Transplantation (HSCT) is one of the precipitating factors associated with sleep disturbances. Chemotherapy, corticosteroids and immunosuppressant agent, and changes in immunologic performance during HSCT can cause disrupted sleep or insomnia. Zolpidem is a short acting hypnotic drug which has less side effects as compared with benzodiazepines (BDZs).

Objectives
Main objective of this study is comparison of Zolpidem and Lorazepam effect on insomnia in HSCT patients.

Methods
In a randomized, single blind trial, 35 HSCT inpatients, aged 18–65, were allocated into Zolpidem (5–10 mg) or Lorazepam (1–2 mg) group. Epworth Sleepiness Scale (ESS) questionnaire and Hospital Anxiety and Depression Scale (HADS) were completed at baseline, weekly, and end of one month treatment.

Results
ESS score showed no significant difference between groups (p=0.17). SMI score significantly decreased at the end of fourth week in zolpidem group (p=0.047). At the end of first week, zolpidem decreased latency of sleep onset greater than Lorazepam (p=0.046). Up to end of the second
week. Lorazepam decreased disrupted sleep better than zolpidem ($p=0.04$). At the end of treatment, more significant patients had normal sleep in zolpidem group and there was no anxious or depressed patient in both groups. Rate of side effect were similar in both groups.

Conclusions

Based on this study, it is better to use zolpidem for patients with long sleep onset time and lorazepam for patients with disrupted sleep in HSCT recipients during first two weeks of insomnia or less. After that, zolpidem is preferred to Lorazepam.

**18-47-P**

**A MIXED-METHODS EVALUATION OF ANXIETY IN PROSTATE CANCER PATIENTS: NEO-ADJUVANT HORMONES AND RADICAL RADIOTHERAPY**

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$^2$Department of Oncology, Nottingham University Hospitals NHS Trust, Nottingham, United Kingdom

**Introduction**

Researchers recognise that anxiety may be highly prevalent amongst patients diagnosed with prostate cancer (PCa). However to-date, no research has considered anxiety in the context of neo-adjuvant hormones and radiotherapy, despite this being a standard treatment option for localised and locally-advanced PCa, and despite the potential for anxiety to be associated with the delay in definitive treatment.

**Objectives**

To identify the prevalence and potential causes of anxiety amongst PCa patients treated with neo-adjuvant hormones and radiotherapy.

**Methods**

Patients were invited to complete the HADS and Memorial Anxiety Scale for Prostate Cancer (MAX-PC), and were additionally invited to participate in an interview exploring the causes of any anxiety. Prior informed consent was obtained.

**Results**

68.4 % of patients scored in the normal range on the HADS anxiety sub-scale, 5.3 % were identified as having a possible anxiety disorder, and 26.3 % a probable anxiety disorder. According to the MAX-PC, 21.1 % had clinically significant anxiety. There was also an apparent trend for anxiety to decrease over the course of treatment. Common causes of anxiety included the wait for MRI results, fear of progression (due to delays, and doubts regarding treatment efficacy), and through negative comparisons to others' experiences. Some patients were reassured by the experiences of others, and treatment explanations provided by HCPs appeared to go some way in alleviating anxiety.

**Conclusions**

Despite common causes, the experience of anxiety appeared to be specific to the individual. Clinicians should discuss initial preconceptions, challenge misconceptions, and elicit a holistic understanding of how the disease and treatment may lead to potential anxieties.

**18-49-P**

**NEUROTICISM AND ITS RELATIONSHIPS WITH COGNITIVE ANXIETY IN BREAST CANCER SURVIVORS**

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**Introduction**

Introduction: The personality dimension of Neuroticism has been widely studied in survivors. There is a huge evidence of the relations of Neuroticism with relevant aspects in cancer survivorship such as depression, quality of life and others. Neuroticism has also shown their association with anxiety measures, but there is few information about what type of anxiety is the most influenced by this personality dimension.

**Objectives**

Objectives: To determine if there are associations between Neuroticism and different types of anxiety: cognitive, physiological and motor.

**Methods**

Method: Twenty-five breast cancer survivors whose treatment was finished were assessed using the Eysenck personality questionnaire revised, complete spanish version (EPQ-R) to collect data about Neuroticism, and the Inventory of anxiety situations and responses (ISRA). This instrument assess anxiety in a triple, separate way collecting information about cognitive (i.e.: feelings of insecurity, concentration problems), physiological (i.e.: headache, palpitations) and motor (i.e.: smoking, crying easily) anxiety. Pearson's correlations were used to test the association between Neuroticism and the anxiety measures and lineal regression analysis were
performed to test the predictive ability of Neuroticism over the three anxiety systems.

Results
Results: Survivors obtained scores within the normality in Neuroticism and in the anxiety measures. The results show relations between Neuroticism and cognitive, but not with physiological or motor anxiety. Linear regression analysis results support the predictive ability of Neuroticism over cognitive anxiety only.

Conclusions
Conclusions: In breast cancer survivors, Neuroticism is strongly related with cognitive anxiety.

18-50-P

SPIRITUAL ATTRIBUTIONS AND COPING WITH BREAST CANCER: A LONGITUDINAL STUDY

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Introduction
Religious/spiritual factors play a role in coping with breast cancer. However, virtually no research has focused on spiritual causal attributions. The purpose of the present study is to explore the function of spiritual attributions in women’s coping with the diagnosis and treatment of breast cancer.

Objectives
To investigate: 1) frequency of use of positive versus negative spiritual causal attributions; 2) pattern of change in spiritual attributions across time; 3) interrelationships between spiritual attributions and general cognitive appraisals and coping behaviour; 4) relationship of spiritual attributions with emotional distress across time.

Methods
Ninety-three women with breast cancer were assessed on spiritual causal attributions (e.g., cancer is due to God’s Will), general cognitive appraisals, coping, and emotional distress at pre-diagnosis, 1 week pre-surgery and 1, 6, 12, and 24 months post-surgery.

Results
Women reported greater use of positive spiritual attributions around the time of diagnosis and surgery whereas an attribution to God’s Anger peaked at 12 months post-surgery. Positive spiritual attributions were related to women adopting a more positive perception of their cancer situation and to the use of meaning-making coping. An attribution to God’s Anger was related to negative perceptions of the illness, a reliance on avoidance coping, and an increase in emotional distress across time.

Conclusions
Spiritual causal attributions of breast cancer have important implications for women’s process of adjustment especially in the earlier stages of diagnosis and treatment. Attributions may function as resources that enhance a positive attitude or as negative factors that may trigger a spiritual struggle.

18-51-P

THE NEED FOR PSYCHOONCOLOGICAL SUPPORT IN BREAST CANCER PATIENTS – A LONGITUDINAL STUDY

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Introduction
Breast cancer is frequently associated with psychooncological burden for the affected patients. However, the extent of this burden is often not readily assessable, as many patients do not express their need for professional counselling.

Objectives
The aim of this study was to identify breast cancer patients in need of psychooncological support and to monitor these patients in the long-term.

Methods
To assess the patients’ burden, the standardized self-rating Questionnaire for Psycho-Oncological Burden of Cancer Patients, (10 items, FBK-R10) was to be answered by each patient (n=82) at different time points during their treatment in either of two participating German oncological practices from 02/2012 to 10/2014.

Results
According to the initial survey, a total of 37 patients (45.1 %) needed psychooncological support. This need was still present in 62 % of these patients, at the time of the second FBK-R10, which in the median was answered 29 months later. When considering solely adjuvant/curative treated patients (n=27), the second FBK-R10 results indicated that 54 % of the initially affected patients still needed psychooncological support. At the same point in time, a substantial higher proportion (73 %) of initially burdened palliative patients (11 out of 22 patients) still required support.

Conclusions
The psychooncological burden in breast cancer patients is influenced by many factors. In this context, the FBK-R10 has proven to be an appropriate instrument to identify these factors, and thus to reveal the need for psychooncological support. Early intervention and initiation of adequate measures as well as long-term monitoring is necessary to meet the individual requirements of breast cancer patients.

18-52-P

PILOT EVALUATION OF FUNCTIONAL NEAR-INFRARED SPECTROSCOPY TO ASSESS WORKING MEMORY TASK-BASED PREFRONTAL CORTICAL DYNAMICS IN BREAST CANCER PATIENTS

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Introduction
Cancer patients/survivors (>80 %) frequently struggled with memory impairments that can deleteriously impact their psychosocial functioning and quality of life.

Objectives
To use fNIRS to index working memory task-based prefrontal cortex activity in breast cancer patients undergoing chemotherapy.

Methods
We applied a 16-channel continuous-wave fNIRS system at a rate of 2 Hz, with sensors separated by about 2.5 cm and penetration depth of approximately 1.25 cm, to index working memory task-based prefrontal cortex activities. We used HomER for channel-wise waveform analysis (CWA). We applied General-Linear-Modeling on 567-to-1098 temporal data points from two 56-year-old right-handed (RH) breast cancer patients.
(Repeatable Battery for the Assessment of Neuropsychological Status, RBANS<50 %ile) and one 48-year-old RH healthy control (HC) female (RBANS=58 %ile) to define t-maps of task-stimuli-related hemodynamic changes in dorsolateral prefrontal (DLPFC) and frontopolar (FPC) cortices using NIRS-SPM8.

Results
CWA revealed maximum oxygenated hemoglobin (HbO) in left inferior-FPC (LI-FPC) for the cancer patients, and increased activation (0-Back=low activation to 2-Back=positive activation) in the LI-FPC for the HC (Figure 1). Cancer patients showed sustained/increased activation in left FPC with increased working memory load. Brain activities did not return to baseline for the cancer patients during the 2-Back task, which maybe due to possible sustained brain activation between blocks during resting states (Figure 2). We observed an overall ceiling effect with a short period of activation for the 3-Back task.

Conclusions
These findings confirmed previous NIRS studies with non-cancer populations, and suggested that optical brain imaging can be used to provide hemodynamic based-biomarkers to assess/monitor memory problems for cancer patients.

18-53-P
A SPECIFIC INTERVENTION TO ENHANCE COMMUNICATION IN THE FAMILY WITH CHILDREN ABOUT THE PARENT’S CANCER

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Introduction
The evidence indicated that children of parents with cancer are at increased risk to develop emotional and behavioral problems. Some studies have focused on the efficacy of an open communication with children about the parent’s illness to reduce distress. Parents with cancer, however, have difficulties to explain their illness to children.

Objectives
This project is characterized by the collaboration of different specialists and it is dedicated to patients with cancer diagnosis and with underage children. The aims of the intervention are to inform or improve the children’s knowledge of their parents’ cancer, facilitate children coping with the illness, enhance parents’ competence and communication about cancer inside family.

Methods
After the fact-finding parents sessions, the pediatric hemat-oncologist and the psychologist, without parents’ presence, describe to children, with the support of metaphors and images, the parent’s cancer and understand their needs or fears. Then the specialists share the content of the individual session with the parents. Counseling sessions to parents are also organized to increase the parental competence and the sharing of cancer-related concerns in the family. It has been realized a specific questionnaire to evaluate the family atmosphere and the children’s psychological conditions.

Results
Actually 32 families have participated in the program. Preliminary analyses underline the absence of severely psychological symptoms in children, the family satisfaction and the increase of collaboration and communication in the family.

Conclusions
The project reveals the advantages of the direct engagement of children in the communication of parent’s cancer to reduce family distress.

18-54-P
STUDY PROTOCOL OF A RANDOMIZED CONTROLLED TRIAL OF PAIN AND PAIN BELIEFS IN PATIENTS WITH ADVANCED GASTROINTESTINAL CANCER DURING CHEMOTHERAPY

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Introduction
Few intervention studies focused on pain and pain beliefs among patients with cancer. Recently, it has been shown that Therapeutic Communication System (TCS) is effective in reducing psychological and physical symptoms in gastrointestinal cancer patients in China.

Objectives
The present study aimed to develop a clinical protocol based upon the TCS and evaluate its effectiveness versus treatment as usual (TAU) in patients with advanced gastrointestinal cancer during chemotherapy.

Methods
A parallel group, randomized controlled trial is conducted to compare TCS with TAU. Advanced gastrointestinal cancer inpatients receiving chemotherapy treatment who have pain complaints are recruited. Assessments will take place at baseline, post intervention and at three-month follow-up. The primary outcome is pain and pain beliefs. Secondary outcomes are quality of life.

Results
The enrolment of participants started from July 2014. These patients experienced moderate to severe pain. The baseline scores showed that patients had maladaptive beliefs about pain, especially in poorly understood and self-blame perceptions. The majority of participants expressed that they enjoyed the intervention, had learned useful skills, and perceived improvement in their pain and beliefs.

Conclusions
Considering the difficulty of studying advanced cancer patients, our trial will offer valuable information about the clinical of TCS compared to TAU in gastrointestinal cancer pain patients receiving chemotherapy.

18-55-P
DECISION QUALITY AND FEAR OF RECURRENCE IN BREAST CANCER PATIENTS

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Introduction
Informed consent is an essential ethical and legal procedure in medical practice. However, recent studies highlight discrepancies
between patients’ need of complete and correct information and their desire to autonomously choose their treatment. Quality decision-making regarding treatment options impacts patients’ health and resilience.

**Objectives**
The paternalistic approach towards patients is still prevalent in Romanian medical system. The present study aims to assess decision quality regarding cancer treatment in relationship to fear of recurrence in Romanian breast cancer patients.

**Methods**
73 patients with early stage breast cancer took part in the study. 43 patients underwent radical mastectomy and 30 had lumpectomy.

**Results**
Patients’ answers show strong ambivalence regarding their decision even in post-treatment phase. Only one patient answered correctly all five questions assessing their knowledge about treatment and survival rates. 43 % of women who underwent conservative surgery and 63 % of mastectomy patients report no health care provider discussed with them about the other surgery option. Better informed patients worry less about cancer related death. However, patients with higher fear of recurrence discussed more about treatment options with their health care providers.

**Conclusions**
Our results indicate breast cancer patients are poorly informed about their disease. They show limited knowledge about surgery consequences and survival rates. Implications on post-treatment adjustment and resilience are discussed.

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**18-56-P**

**WHAT HAVE I DONE TO GET CANCER, MS PSYCHOLOGIST?**

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**Introduction**
Although it is not fully understood why most types of cancer develop, many cancer patients often believe that cancer is a punishment. An individual’s psychological response to cancer diagnosis is influenced by the patients’ interpretation of the reasons for the occurrence of the disease.

**Objectives**
The aim of this retrospective analysis was to explore the patients understanding of what caused their illness.

**Methods**
During one year 87 cancer patients were interviewed by a psychologist. In semi-structured interviews, through their own search of the meaning of the cancer experience, patients were encouraged to share their own interpretation for the occurrence of their disease.

**Results**
Patients spoke of different profound life issues and concerns before and after the cancer diagnosis. They replayed different scenarios in their minds trying to figure out what they could have done differently. Stress, not seeking medical attention earlier, wrong values, insufficient care of themselves, repression of emotions, working too hard, wrong choice of partner, smoking, nutrition, were the most common reported interpretations. Guilt, a feeling of blame and regret, was common.

**Conclusions**
Although evidences that stress cause cancer are weak, cancer patients indicate a link between psychological stress and cancer occurrence. Patients search for the meaning of cancer experience in an attempt to regain control over their disease and “right” a wrongdoing. The role of a psychologist is to support patients in that search and enhance their ability to cope with the disease.

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**18-57-P**

**DEPRESSION AND SOCIO-ECONOMICAL BURDEN ARE MORE COMMON AMONG PRIMARY CAREGIVERS OF PATIENTS WHO ARE NOT AWARE OF THEIR CANCER (TURQUOISE STUDY)**

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**Introduction/Objectives**
We aimed to determine the personal, social, and economic burden and the frequency of depression in caregivers of cancer patients.

**Objectives**

**Methods**
The study was designed as a cross-sectional survey study using a five-point Likert-type response scale, and the last part of the questionnaire includes the Beck Depression Inventory.

**Results**
The depression rate was found to be 64 % (n=476) among all subjects (n=968), with 91% of those with depression demonstrating signs of mild depression. In this study, a significant difference was found between the presence of depression and age (young), sex (female), educational level (high), economic status (low), financial loss during treatment, patient’s lack of knowledge about his/her diagnosis, metastatic disease, and short survival time.

**Conclusions**
In conclusion, depression incidence and burden rate increased among cancer caregivers.

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**18-58-P**

**INFORMATION AT THE POINT OF CARE: AN INFORMATIONAL APPLICATION FOR CANCER RESOURCES**

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S257
Conclusions: The goal of the Cancer Resource app is to aid the community cancer resources and categorized for ease of use.

Methods

Methods: The project design used a mixed method survey. A convenience sample of nurses and cancer survivors were asked to complete the survey. A modified Questionnaire for User Interaction Survey 7.0 (QUIS) was administered at the end of three months. The survey evaluated the design, implementation and overall satisfaction. The survey was used to guide the semi-structured interviews.

Introduction

Results: A total of 12 participants completed the study survey. The participants were mostly female (92%) between the ages of 31–60 years of age. A majority of the participants indicated familiarity with operating systems and reported they spent less than one hour a week on the system provided. Overall, the majority of the participants scored the app favorably in all aspects.

Conclusions

Conclusions: The goal of the Cancer Resource app is to aid the cancer community in locating necessary, up-to-date cancer care resource information. People with chronic illnesses such as cancer are at the greatest need for support on improving their quality of life and minimizing their distress. The accessibility of such an app is crucial to improving the public health system and psychosocial needs.

Introduction

Most support groups are offered to women with breast cancer. Therefore, a vast amount of research is unrepresentative of the whole cancer population. Current literature includes minimal studies on support groups for male cancer patients. Several factors increase the likelihood of psychological morbidity in male cancer patients, especially GI patients who have unique challenges. Therefore, in 2010 Tom Baker Cancer Centre established a Men’s Supportive Expressive Therapy Group for this patient population. The longevity of the support group suggests that it must be fulfilling a therapeutic need. However, its impact has not been objectively or systematically examined.

Objectives

Objectives: The proposed study aims to understand, using both qualitative and quantitative methods, the longitudinal impact of the group experience on psychological distress, anxiety, coping with cancer, quality of life, and to describe the group experience.

Methods

Methods: Men who enroll into the clinical program will volunteer to participate in the research. This entails completing questionnaires (distress, anxiety, coping, and quality of life) and a brief interview at baseline, after 3 months and after 6 months. It is anticipated that between 25 and 50 men will be involved in this research study.

Results

Quantitative analyses will explore changes over time for each measure (paired sample t-tests) as well as the relationship between these changes and demographic characteristics, cancer and treatment history. Qualitative interviews will be transcribed and analyzed using thematic analysis.

Conclusions

Insights provided by group participants will help in developing effective and truly supportive intervention strategies for male cancer patients who have received relatively little attention previously.
proxies for obligations, mores and norms, which have consequences for careers and available resources for women.

**Conclusions**

Challenge in developing world is to evolve a culturally socio-economically appropriate system of care, addressing psychosocial issues along with long-term care needs that is accessible to the majority. We also need to be aware of macro level issues such as poverty, inadequacy of health care services and gender issues such as patriarchy which contribute to the oppression, submission and exploitation of women which is not only a wife a sister or a friend but also the mother because of which we are in this world.

18-61-P

**PSYCHO-ONCOLOGICAL SUPPORT OF DISCLOSING POOR PROGNOSIS TO THE ADOLESCENT WITH ADVANCED CANCER**

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**Introduction**

Although withholding medical information was reported to limit adolescents’ participation in their treatment, small percentage of adolescents with cancer care fully informed about prognosis in Japan.

**Objectives**

To discuss importance of multidisciplinary intervention to the adolescent with advanced cancer.

**Methods**

Ours support team included psychotherapists, doctors, nurses, and child life specialists. We shared patient background information, assessed patient’s awareness of her status, and reviewed the respective roles.

**Results**

A 16-year-old girl with a 1-year treatment history of advanced rhabdomyosarcoma was diagnosed as having life expectancy of <1 year. Her father died 1-year before her diagnosis of rhabdomyosarcoma due to heart disease. She wanted to know more about her disease including prognosis but had concealed her feelings because it might greatly sadden her mother. After several meetings with her sister and mother, she was notified of detailed disease information and her life expectancy. She kept calm, accepted her prognosis, and cared for her mother. During the following 5 months, the patient accepted her end-of-life, chose some treatment options by herself, and shared peaceful life with her mother and sister until her death.

**Conclusions**

In the process of disclosing prognosis to adolescent, multidisciplinary support might help free expression of feelings and emotional conflict in patients and family members, which promote participation in the management of their own cancer.

19-02-P

**EXAMINING THE ROLE OF CLUB CELL SECRETORY PROTEIN (CCSP) AS A CLINICAL MARKER FOR RADIOTHERAPY-INDUCED LUNG INJURY (RILI)**

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**Introduction**

RILI (radiation pneumonitis and/or fibrosis) is a serious adverse effect of thoracic radiotherapy (RT) and a dose-limiting toxicity. There is need for a non-invasive clinical marker of this condition.

**Objectives**

We conducted a cross-sectional study to examine CCSP levels from plasma samples in healthy non-smokers (HNS), healthy smokers (HS), treatment naïve lung cancer patients (pre-Tx) and post-RT lung cancer patients (post-RT) obtained from Roswell Park Cancer Institute Data Bank and Biorepository (RPCI DBBR). N=18 per group.

**Methods**

Primary analyses employed t-tests to compare CCSP levels between pre-Tx and post-RT groups. Additionally, ANOVAs were conducted, using
RT (Yes/No), lung cancer (Yes/No), smoking (Yes/No) as factors, to examine the effects of smoking and lung cancer on CCSP levels.

**Results**

Mean CCSP levels (ng/ml) for HNS, HS, pre-Tx and post-RT were 57.7, 55.6, 79.4, and 59.9, respectively. We found significantly lower CCSP levels in the post-RT group compared to pre-Tx group (25%, P=0.036). We found no significant effect of smoking on CCSP levels for the four groups (P=0.698), but lung cancer patients had significantly higher CCSP levels than non-lung cancer patients (23%, P=0.003).

**Conclusions**

Significantly lower CCSP levels were observed in the post-RT group compared to pre-Tx group, thereby demonstrating the potential efficacy of using CCSP assay to examine radiation-related changes in the lung. A planned longitudinal study will determine the clinical relevance of CCSP as a marker for RILI by examining the correlation of CCSP levels with RILI as assessed by CT scans.

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**19-03-P**

**LUNG ADENOCARCINOMA WITH PERITONEAL METASTASIS: A CASE REPORT**

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**Introduction**

Lung cancer and its metastasis is leading cause of cancer-related mortality.

**Objectives**

The most common sites of lung cancer metastasis are lymph nodes, liver, adrenals, brain and bones. Peritoneal metastasis of lung cancer is seen in approximately 1% of cases.

**Methods**

We present a case of EGFR negative lung adenocarcinoma developing EGFR positive peritoneal carcinomatosis, which responds well to erlotinib therapy.

**Results**

A 60-year old never-smoker female patient’s thoracic computed tomography (CT) showed a 3.6x3.9 cm solitary mass in the left lower lobe. The biopsy revealed EGFR negative lung adenocarcinoma. Staging was made with mediastinoscopy, which showed metastasis in the right paratracheal and subcarinal lymph nodes. The patient was accepted as having T2N3Mo disease (Stage IIIB). She received Cisplatin+Gemcitabine treatment and radiotherapy. After 6 months cranial radiotherapy was applied for metastasis. In the follow-up period she received second-line treatment with paclitaxel and carboplatin for progression. Partial response was achieved. After nearly one treatment-free year, PET-CT revealed peritoneal carcinomatosis (Figure 1–2). Peritoneal biopsy was performed which was negative for gastrointestinal, genital and mesothelial markers but was positive for TTF-1 and EGFR. Erlotinib treatment resulted in complete remission in peritoneal metastasis (Figure 3) and the patient is asymptomatic.

**Conclusions**

Peritoneal metastasis is a rare finding in the lung cancer. EGFR positive metastasis of EGFR negative tumors is also rarely seen. Targeted therapy with erlotinib is a successful option in advanced lung cancer treatment which provides symptomatic relief and improved survival.

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**19-04-P**

**HYDROMORPHONE SR EFFECTIVE AND SAFE FOR THE TREATMENT OF CANCER DYSPNEA IN LUNG CANCER PATIENTS: POSITIVE PRELIMINARY RESULTS**

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**Introduction**

Cancer related dyspnea and pain are common in patients with lung cancer (LC). Morphine is an effective medication for both symptoms. Morphine (Mo) SR is not available in Serbia. Hydromorphone SR (HM SR) is used instead. The efficacy and tolerability of immediate-release (IR) HM is in the treatment of cancer dyspnea was documented previously.

**Objectives**

To assess the efficacy and tolerability of oral SR HM (24 h release) for the treatment of cancer pain and dyspnea in lung cancer patients.

**Methods**

Patients with LC (N=20) with severe dyspnea as the main complaint and pain (both assessed on 0–10 scale) were included. On day 1 (D1) patients were treated with IR Mo 5 mg Q4h with the same dose for breakthrough pain and dyspnea (BTP/BTD). All patients who required at least 30 mg/24 h of IR Mo were converted to SR HM (8 mg) on D2 with IR morphine 5 mg for BTP/BTD. On D2-D5, the success of conversion to SR HM, as well as its efficacy and tolerability were monitored.

**Results**

On D1, the mean intensity of dyspnea was 7.40 (SD=0.503) (range 7–8/10) and of pain was 6.10 (SD=1.021) (range 5–7/10). On D5 all patients were still on 8 mg of SR HM without the need for BTP/BTD dosing. On D5 the mean intensity of dyspnea was 2.25 (SD=0.639), with significantly less intensity compared to D1 (p<0.001). There were no unexpected side effects of SR HM.

**Conclusions**

Use of convenient, 24 h-release SR HM resulted in sustained relief of dyspnea with acceptable tolerability.

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**20-01-O**

**LOW LEVEL LASER THERAPY FOR THE MANAGEMENT OF RADIATION DERMATITIS: FINAL RESULTS OF THE DERMIS-TRIAL, A PILOT STUDY IN BREAST CANCER PATIENTS**

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**Introduction**

Dermatitis is a frequent, distressing, and potentially dose-limiting side effect of radiotherapy.

**Objectives**

To assess the efficacy of low level laser therapy (LLLT) in managing radiation dermatitis (RD) in breast cancer patients.

**Methods**

This study compared two successive groups of breast cancer patients undergoing identical radiotherapy regime post-lumpectomy. The first group received our institutional skin care protocol (CTRL group, N=41) and the second one, this protocol plus LLLT (6 sessions), starting at fraction 20 of radiotherapy (LLLT group,
N=38). Patients’ and treatment characteristics were equivalent between groups (see Table 1). LLLT was provided two times a week, using a diode laser in the infrared range (808–905 nm) with a fixed energy density (4 J/cm²). Skin toxicity was assessed by trained nurses before the start of LLLT and at the end of radiotherapy according to the Radiation Therapy Oncology Group (RTOG) criteria.

**Table 1. Characteristics of patients in the control (CTRL) and the low level laser therapy (LLLT) groups**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>CTRL (N = 41)</th>
<th>LLLT (N = 38)</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years), M (SD)</td>
<td>54.54 (10.01)</td>
<td>55.63 (8.69)</td>
<td>.641</td>
</tr>
<tr>
<td>Body Mass Index, M (SD)</td>
<td>23.66 (3.77)</td>
<td>24.03 (3.64)</td>
<td>.686</td>
</tr>
<tr>
<td>Current Smoker (%)</td>
<td>19.5</td>
<td>23.7</td>
<td>.897</td>
</tr>
<tr>
<td>Skin type (%)</td>
<td>75.6</td>
<td>68.4</td>
<td>.330</td>
</tr>
<tr>
<td>Melenocomprised (type I-II)</td>
<td>17.1</td>
<td>28.9</td>
<td></td>
</tr>
<tr>
<td>Melenocompetent (type III-IV)</td>
<td>75.6</td>
<td>68.4</td>
<td></td>
</tr>
<tr>
<td>Melenoprotected (type V-VI)</td>
<td>7.3</td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>Cancer stage (%)</td>
<td></td>
<td></td>
<td>.620</td>
</tr>
<tr>
<td>0</td>
<td>7.3</td>
<td>7.9</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>61.0</td>
<td>52.6</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>29.3</td>
<td>39.5</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>2.4</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Radiotherapy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breast target volume (cm³), M (SD)</td>
<td>623.11 (304.53)</td>
<td>727.64 (373.20)</td>
<td>.175</td>
</tr>
<tr>
<td>Electrons boost (%)</td>
<td>51.2</td>
<td>65.8</td>
<td>.254</td>
</tr>
<tr>
<td>Max. received irradiation dose (% of prescribed dose), M (SD)</td>
<td>107.05 (0.76)</td>
<td>106.88 (1.12)</td>
<td>.434</td>
</tr>
<tr>
<td>Chemotherapy prior to radiotherapy (%)</td>
<td>34.1</td>
<td>31.6</td>
<td>1.000</td>
</tr>
<tr>
<td>Trastuzumab</td>
<td>14.6</td>
<td>7.9</td>
<td>.484</td>
</tr>
<tr>
<td>Hormone therapy (%)</td>
<td>87.8</td>
<td>84.2</td>
<td>.750</td>
</tr>
</tbody>
</table>

* Independent t-tests, chi-square tests, or Fisher’s exact tests, as appropriate (two-tailed)

**Results**

Before LLLT, at fraction 20, skin toxicity was equivalent between the two groups (p=.352), with most patients presenting RTOG grade 1. At the end of radiotherapy, skin toxicity significantly differed between the two groups (p=.002): There was a significant intensification of RD in the CTRL group (with an increase of RTOG grade 2) whereas RD remained stable in the LLLT group (see Table 2).

**Table 2. Skin toxicity for the control (CTRL) group and the group receiving low level laser therapy (LLLT) before the start of LLLT and at the end of radiotherapy (RT, after 6 LLLT-sessions)**

<table>
<thead>
<tr>
<th></th>
<th>CTRL group (N = 41)</th>
<th>LLLT group (N = 38)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bfr LLLT</td>
<td>End RT</td>
</tr>
<tr>
<td>RTOG grade N (%)</td>
<td>3 (7.3)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>.004</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>36 (87.8)</td>
<td>29 (70.7)</td>
</tr>
<tr>
<td></td>
<td>.283</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2 (4.9)</td>
<td>12 (29.3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Chi-square tests or Fisher’s exact tests (two-tailed)

**Conclusions**

These findings indicate a beneficial effect of LLLT on RD in breast cancer patients. Further research to confirm these findings is forthcoming.

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**20-02-O PALMAR PLANTAR ERYTHRODYSESTHESIA PREVENTION WITH ATORVASTATIN AND POLYPRENOL**

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**Introduction**

Recent data suggest that statins exhibit inhibitory effects on cysteinyl leukotrienes and IgE-dependent histamine release in human mast cells. Polyprenol (Pp) is a substitute of Dolichyl Phosphate Cycle and the rate limiting factor in N-glycosylation and could prevent cell-mediated cytotoxicity against skin fibroblasts.

**Objectives**

The purpose of this study was to evaluate the mechanism of action and efficacy of Atorvastatin (As) with Pp in PPE prevention.

**Methods**

The NCI-CTCAE version 3.0 was used to measure the severity of skin toxicity and to evaluate the effect of PPE prevention with As (10 mg/day, per os) and Pp (20 mg/day, per os) in a randomized, double-blind, placebo-controlled study in 98 breast cancer patients during capecitabine 500 mg monotherapy. Leukotriene E4 and dolichol (Dol) were assayed in urinary excretion, IgE levels were measured in serum.

**Results**

PPE was observed in 39 % of patients in control group and in 11 % of patients with PPE prevention during capecitabine therapy. Groups who started prevention course one or two weeks before capecitabine, developed symptoms of PPE in 6 % and 2 % of patients. Patients with PPE were found to have a statistically significant increase in leukotriene E4 (4-fold) and Dol (6.2-fold) excretion, IgE levels and GPT activity in fibroblasts. Significant difference of PPE symptoms severity between As with Pp and placebo groups (P <0.01) was recognized.

**Conclusions**

The present study demonstrates approach to prevention of PPE with the use of the As with Pp. The activity of this combination involves the main links of PPE pathogenesis.

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**20-03-P ORAL HYPERKERATOTIC LESIONS INDUCED BY BRAF INHIBITORS**

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**Introduction**

Vemurafenib and dabrafenib are selective serine threonine kinase inhibitors now approved for the management of unresectable or metastatic melanoma harbouring a BRAFV600E codon mutation. Cutaneous adverse events represent the most common toxicity of BRAF inhibitors, especially secondary hyperkeratotic lesions (verruca pavillo-pomas, squamous cell carcinoma, keratosis-pilaris – like lesions…).
Paradoxically, description of oral hyperkeratotic lesions remains wholly exceptional in this context.

**Objectives**

To demonstrate that oral hyperkeratotic lesions with BRAF inhibitors are not uncommon in clinical practice and are probably underestimated.

**Methods**

We describe here patients treated with BRAF inhibitors ( vemurafenib, dabrafenib, LGX) developing progressive oral hyperkeratotic lesions. Patients underwent a systematic oral and cutaneous evaluation at baseline and on a monthly basis. Mucosal biopsies of induced lesions have been taken. In situ hybridisation and immunohistochemistry have been carried out in order to identify a HPV coinfection.

**Results**

Nine patients progressively developed hyperkeratotic cutaneous lesions and asymptomatic hyperkeratotic mucosal lesions (fig 1). The histopathological analysis of the oral lesions revealed a leucokeratotic papillomatous pattern with parakeratosis without any malignancy except for one patient who has developed, within a month, a well-differentiated microinfiltrative squamous cell carcinoma of the lip mucosa (fig 2–3). For all biopsies, immunohistochemical labelling showed no P16 protein overexpression and in situ hybridisation revealed no associated human papillomavirus.

**Conclusions**

Oral hyperkeratotic lesions with BRAF inhibitors do not appear rare and seem to be associated with a class effect. Given the potential risk of induced oral squamous cell carcinoma, a close oral examination on a monthly basis should be performed.

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**20-4-5-P**

**EFFECTS OF TREATMENT OF HAND-FOOT SYNDROME IN CANCER PATIENTS USING NEW ANTIOXIDANT-CONTAINING TOPICAL FORMULATION FROM PHYSICIAN’S AND PATIENT’S PERSPECTIVE**

T. Nikitina, K. Kurbatova, I. Bazin, A. Belonogov, G. Kolesnikov, M. Panina, P. Borisov, T. Ionova

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**20-05-P**

**PLASMAPHERESIS OF PEGYLATED LIPOSOMAL DOXORUBICIN: A NEW APPROACH TO REDUCE TOXICITY DURING CHEMOTHERAPY (CARL-TRIAL)**


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Introduction
To reduce toxicity of chemotherapeutic drugs, nanoscale drug delivery systems (DDS) are used. DDS accumulate to some extent in tumor tissues, but only a very small portion of a given dose reaches this target. Accumulation of DDS in tumor tissues is much faster than in tissues where side effects occur (“Kinetic Targeting”). Once maximum concentration in tumor tissue is achieved, most of the administered DDS still circulate in the plasma.

Objectives
The scheduled extracorporeal elimination of the excess of circulating nanoparticles may reduce toxicity and adverse effects.

Methods
For the CARL-trial (Controlled Application and Removal of Liposomal chemotherapeutics), pegylated liposomal doxorubicin (PLD) and double filtration plasmapheresis (DFPP) was performed for extracorporeal elimination of liposomes. PLD was given as 40 mg/m$^2$ every 3 weeks in combination with vinorelbine 2x25 mg/m$^2$ (neoadjuvant treatment of breast cancer, 12 patients), or as 40 mg/m$^2$ every 4 weeks (recurrent ovarian cancer, 3 patients). Primary endpoints were the efficiency and safety profile of DFPP, and secondary endpoints were side effects and tumor response.

Results
DFPP eliminated ~62% of circulating PLD, corresponding to ~45% of the total dose (n=57 cycles). Only five grade 2 events and one grade 3 event (mucoisitis, neutropenia or leucopenia) and a single palmar-plantar erythrodysesthesia grade 2 were reported. Reduction in tumor size >30% occurred in 10/12 (neoadjuvant) and in 1/3 patients (recurrent).

Conclusions
Extracorporeal elimination of PLD by DFPP is safe and efficient. CARL can diminish the main dose-limiting side effects of chemotherapy with PLD and probably many different DDS alike.

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20-06-P
SUCCESSFUL 3TO BRACE® TREATMENT FOR ONYCHOCRYPTOSIS AND PARONYCHIA INDUCED BY CHEMOTHERAPEUTIC AGENTS

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Introduction
Onychocryptosis (ingrown nail) and paronychia are induced by many chemotherapeutic agents including EGFR inhibitors. We propose a notion of “chemotherapy related onychocryptosis/paronychia (CROP)” to describe these nail disorders. We successfully treated CROP by using 3TO brace® and retrospectively analyzed its effectiveness.

Objectives
To examine the effects of 3TO brace® treatment in CROP patients.

Methods
Retrospective data of CROP patients followed by medical records and patients’ photographs were examined from Dec 2012 to Nov 2014. 29 patients underwent 3TO brace® procedures. 12 of the patients had 19 periungual pyogenic granuloma-like changes altogether in their lesions and were evaluated as contracting a severe type of CROP. We analyzed the residual ratio of periungual pyogenic granuloma-like lesions in CROP patients after 3TO brace® treatment. Additionally, we analyzed changes of periungual pain of 9 patients before and after 3TO brace® treatment by using a Visual Analogue Scale (VAS) questionnaire.

Results
Residual ratio of 19 periungual granuloma-like lesions in CROP patients improved significantly after 3TO brace® treatment (Fig 1). The average residual ratio was 22.9%, 12 of the lesions (63.1%) had completely disappeared. The residual lesion≦50% of the original lesion was 3 of 19 lesions (15.8%). On the other hand, 1 of 19 lesions (5.26%) was becoming worse than before 3TO brace® treatment. VAS in 9 CROP patients that had been able to be assessed by questionnaire was significantly (p<0.003) ameliorated.

Conclusions
3TO brace® treatment for severe CROP patients was effective to reduce periungual granuloma. In addition, it was also effective to ameliorate pain derived from CROP.

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20-07-P
FINAL RESULTS OF A PLACEBO-CONTROLLED RANDOMISED PHASE II STUDY OF TOPICAL VITAMIN K3 FOR TREATMENT OF CETUXIMAB INDUCED FOLLICULITIS

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Introduction
Cetuximab-induced cutaneous folliculitis is a frequent adverse effect causing physical and psychosocial discomfort for the patient. Vitamin K3 (menadione) has preclinically shown to be a potential activator of the Epidermal Growth Factor Receptor (EGFR).

Objectives
The study investigated the effect of vitamin K3 cream on cetuximab-induced folliculitis.

Methods
From May 2010 to May 2012, 30 patients receiving biweekly cetuximab 500 mg/m$^2$ plus chemotherapy for metastatic cancer were enrolled. Treatment with vitamin K3/placebo was administered for up to two months. In each patient two areas of minimum 10x10 cm was selected. Each area was applied with either placebo or vitamin K3 cream twice daily. Folliculitis was monitored by clinical photos and physician/patient assessment every second week. Ten pts had skin biopsies taken before and after one month of treatment from each area. Biopsies were stained for p27, EGFR and p-EGFR.

Results
Mean number of inflamed follicles was 4.9 vs. 5.1 (placebo/K3) at baseline (p=0.9), increasing to 11.1 vs. 14.1 (placebo/K3) at two weeks (p=0.5), and declining to 8.9 vs. 7.3 (placebo/K3) at 4 weeks (p=0.7). In fact, at any time point there was no significant difference between placebo and vitamin K3 areas within 18 fully evaluable pts. No subjective or severe difference in skin toxicity was reported. For
skin biopsies, no difference in p27, EGFR or p-EGFR expression was observed.

Conclusions
We found no objective or subjective benefit and no histological difference after one month application of vitamin K3 cream. The results do not support topical vitamin K3 for cetuximab-induced folliculitis.

20-08-P

DOES PALIFERMIN AFFECT HAND-FOOT SYNDROME (HFS) CAUSED BY HIGH-DOSE CHEMOTHERAPY IN HEMATOPOIETIC STEM CELL TRANSPLANT (HSCT) PATIENTS?

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Introduction
Prior to HSCT, patients may receive high-dose chemotherapy with total body irradiation (TBI) and palifermin, a keratinocyte growth factor used to decrease the severity of mucositis. HFS, a chemotherapy toxicity affecting the palms and soles, is infrequently reported in these patients.

Objectives
To determine risk factors, incidence, onset, duration, and severity of HFS in patients receiving etoposide/TBI±palifermin and cyclophosphamide/TBI±palifermin.

Methods
An institutional review board-approved cohort study of patients who received allogeneic HSCT between 1/2001-12/2006 and 1/2010-12/2013 was conducted. Patients ≥18 years old who received etoposide/TBI±palifermin or cyclophosphamide/TBI±palifermin were included. Patients’ medical records were reviewed for dermatologic changes suggestive of HFS, date of onset, duration, and severity. Patient age, gender, ethnicity, diagnosis, and donor type were recorded.

Results
Etoposide/TBI (n=88) vs. etoposide/TBI±palifermin (n=88): HFS incidence was 32% vs. 36% (p=0.63, Fisher’s exact); onset (days) was 10.8±3.3 vs. 8.4±2.9 (p=0.0069, Mann–Whitney); duration (days) was 9.6±8.2 vs. 5.8±4.3 (p=0.0235, Mann–Whitney). Cyclophosphamide/TBI (n=70) vs. cyclophosphamide/TBI±palifermin (n=75): HFS incidence was 13% vs. 21% (p=0.19, Fisher’s exact); onset (days) was 16.4±2.6 vs. 8.6±2.5 (p=0.0001, Mann–Whitney); duration (days) was 6.4±9.7 vs. 2.9±1.7 (p=0.6622, Mann–Whitney). Differences in HFS severity were not significant. Being female increased the likelihood of HFS (OR 2.12, 95%CI: 1.26-3.59).

Conclusions
Among patients who received palifermin, there was no difference in incidence and severity of HFS, but there was a statistically significant reduction in time to onset of HFS. There was significant HFS duration reduction in VP16/TBI±palifermin and non-significant trend towards reduction in CTX/TBI±palifermin. Palifermin may affect HFS development, possibly through effects on keratinocytes.

20-09-P

MUCOCUTANEOUS TELANGIECTASIAS RELATED TO T-DM1: A ROLE IN SECONDARY BLEEDING EVENTS?

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4Oncology, Institut Claudius Regaud -Institut Universitaire Du Cancer Toulouse Oncopole, Toulouse, France
5Pathology, Institut Claudius Regaud -Institut Universitaire Du Cancer Toulouse Oncopole, Toulouse, France
6Dermatology, Memorial Sloan Kettering Cancer Center, New York City, USA

Introduction
The antibody-drug conjugate T-DM1 (Kadcyla®), combining the cytotoxic activity of emtansine with trastuzumab, demonstrated improved overall survival in patients with HER 2-positive metastatic breast cancer and is now approved. The most frequently reported adverse events of T-DM1 include fatigue (35%), thrombocytopenia (28%) and hemorrhage (30%).

Objectives
To date, cutaneous or mucosal telangiectasias have not been reported in association with T-DM1, trastuzumab or emtansine.

Methods
It was a muticentric, transversal and non prospective dermatologic evaluation performed in metastatic breast cancer patients treated with T-DM1 during a phase III study.

Results
We observed twelve cases of cutaneous and/or mucosal telangiectasias –akin to spider nevus- in association with T-DM1. Telangiectasias were mainly located to the chest and shoulders, also with concentration on palms. Three patients presented associated oral telangiectasias, mimicking hereditary hemorrhagic telangiectasia. Moreover, 9 patients presented bleeding events, including three grade 3 despite the absence of thrombocytopenia.

Conclusions
Mucosal bleeding events are frequent with T-DM1 and have been attributed to associated thrombocytopenia. Nevertheless, those induced thrombocytopenias remain grade 1 or 2 in two thirds of the cases and there have been reports of severe hemorrhage in treated patients, who, like our three patients, did not present any associated thrombocytopenia. We hypothesize that mucocutaneous telangiectasias observed in this context may contribute to the mucosal bleeding observed in association with T-DM1 exposure. This appears to be all the more crucial in view of the expected additional development in the adjuvant setting.
20-10-P

THE SAFETY AND EFFICACY OF EGF-BASED CREAM FOR THE TREATMENT OF RADIOThERAPY-INDUCED SKIN INJURY: RESULTS FROM A MULTICENTER OBSERVATIONAL STUDY

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Introduction
Radiation-induced skin injury is one of the most common side effects of ionizing radiation.

Objectives
This study was designed to evaluate the efficacy and safety of topicaly applied recombinant human epidermal growth factor (rhEGF) for the prevention of radiation-induced dermatitis in cancer patients.

Methods
From December 2010 to April 2012, a total of 1,172 cancer patients who received radiotherapy (RT) of more than 50 Gy were prospectively enrolled and treated with EGF-based cream. An acute skin reaction classified according to the RTOG 6 point rating scale was the primary end point and we also assessed the occurrence of edema, dry skin, or pruritus.

Results
The percentage of radiation dermatitis with maximum grade 0 and grade 1 was 19 % and 58 % at the time of 50 Gy, and it became 29 % and 47 % after completion of planned RT. Adverse events related to the EGF-based cream developed in 49 patients (4 %), with mild erythema the most common. Skin toxicity grade >2 was observed in 5 % of the patients. Edema, dry skin, and pruritus grade ≥3 developed in 9 %, 9 %, and 1 % of the patients, respectively.

Conclusions
Prophylactic use of an EGF-based cream is effective in preventing radiation dermatitis with tolerable toxicity. Further studies comparing EGF cream with other topical agents may be necessary.

20-11-P

INCIDENCES, ONSET AND SEVERITY OF REGORAFENIB-RELATED TOXICITIES IN SINGAPORE

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Introduction
Severe hand-foot syndrome (HFS) and fatal drug-induced hepatotoxicity have been associated with the use of regorafenib at National Cancer Centre Singapore (NCCS).

Objectives
The primary objective is to evaluate the incidences, onset and severity of regorafenib toxicities. The secondary objectives include determining the average starting dose, incidences and reasons for dose adjustment and cases of regorafenib-related hospitalization.

Methods
A retrospective cohort study was conducted at NCCS. All regorafenib-treated patient from April 2013 to November 2014 were included. This study focused on four major toxicities: hepatotoxicity, HFS, haematological and hypertension. Severity of hepatotoxicity, HFS and haematological were classified using the Common Terminology Criteria for Adverse Events (version 4.0). Hypertension was classified according to World Health Organisation grading.

Results
A total of 31 patients were recruited; four were excluded. Eleven (40.7 %) had at least a ≥grade 3 toxicities. Seventeen (63.0 %) developed HFS after 15.1 days (8–23). Five (18.5 %) had grade 3 HFS. Twenty (74.1 %) experienced deranged liver function test after 29.5 days (7–84). Three (11.1 %) had ≥grade 3 hepatotoxicity. Thirteen (51.9 %) had haematological toxicities after 21.2 days (12–54). Three (11.1 %) developed grade 3 haematological toxicities. Eight (29.6 %) experienced hypertension after 12.5 days (8–15). Four (14.8 %) had a grade 3 hypertension. The average starting dose was 126 mg (80-160 mg). Thirteen (48.1 %) required dose adjustment, of which ten (37 %) were attributed to side effects. Seven (25.9 %) patients were admitted for regorafenib-related toxicities.

Conclusions
Regorafenib-related adverse effects were very common and severe. About half the patients requiring dose modification. Close monitoring is critical during the first month of treatment.

20-12-P

DEVELOPMENT OF A STANDARDISED PATIENT REPORTED OUTCOME MEASURE FOR CHEMOTHERAPY-INDUCED ALOPECIA AND SCALP COOLING EFFICACY

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2Oncology, Patricia Ritchie Centre for Cancer Care and Research Mater Hospital and University of Sydney, Sydney, Australia
3Oncology, Warwick Medical School University of Warwick, Coventry, United Kingdom

Introduction
Data on the incidence of chemotherapy-induced alopecia (CIA) and the efficacy of scalp cooling during cancer treatment are scarce. Wide incidence rates make it impossible to define reliable estimations for our patients.

Objectives
The recent world-wide increase of scalp cooling to prevent CIA requires appropriate clinical trials to further increase efficacy, which will require an international standard patient reported outcome measure.

Methods
First, a literature search was conducted on scoring methods used to measure scalp cooling efficacy. Secondly, during focus groups and patient interviews in the Netherlands (n=19) and Australia (n=17), patients were asked for their opinions and suggestions to develop an optimal evaluation method. They were shown examples of the most frequently used methods and asked to rate them in terms of ease of understanding and use.

Results
Eight five papers and abstracts published since the 1970’s about the effectiveness of scalp cooling were reviewed. Results identified 34 different Likert scales, in addition to Visual Analogue Scales and pictorial assessments. From the most frequently used, some patients ranked numerical measures like the VAS scale highest, while others felt that using words like Dean’s grading was most easy to use. A pictorial scale was quite well ranked but patients felt the present picture may be confronting.
Conclusions
This study shows that measurement of CIA should be improved and standardised. This will ensure that, in the future, meaningful comparisons can be made to adequately assess the efficacy of prevention techniques and interventions to reduce the impact of QoL associated with this burdensome side effect of cancer treatment.

20-13-P
HEALING OF ACUTE RADIO DERMATITIS 4 WEEKS AFTER COMPLETION OF BREAST IRRADIATION – A PILOT STUDY
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Introduction
Acute radio dermatitis (ARD) occurs in the majority of cases of patients undergoing radiotherapy for breast cancer. ARD ranges from slight redness with or without scaling to excessive and painful redness with moist desquamation, frequently associated with itch, pain and warmth. Theory describe that ARD appears 10–14 days from commencement of radiotherapy and continues to increase in severity until 14 days after completion of treatment. In the literature there is a lack of evidence supporting the duration of the skin healing after radiotherapy.

Objectives
We aimed to investigate the skin healing 4 weeks after completion of breast irradiation.

Methods
Assessment of ARD took place once a week in the first 4 weeks after treatment completion. The healing of the ARD was documented by clinical photos and measured using radiation therapy oncology group score. The patients experience of itching, pain and warmth was measured using visual analogy score.

Results
A total of 20 patients were included. 95 % of the patients had the most severe ARD earlier than 14 days after treatment completion and 40 % of the patient had the most severe ARD the last day of treatment. 80 % of the ARD waned within 14 days after treatment. Only 20 % of the patients had no signs of ARD 4 weeks after treatment.

Conclusions
With current treatment technique and recommended skin care, it seems that ARD heals faster than the theory describes, but the findings need to be further investigated.

20-14-P
PATIENTS’ EXPERIENCES WITH DERMATOLOGICAL TOXICITIES RELATED TO ANTI-CANCER THERAPIES
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Introduction
Dermatological toxicities related to anti-cancer therapy are serious and potentially life-threatening. Moreover, clinicians and patients report that dermatological toxicities have a negative effect on patients' physical, functional, emotional, and social well-being. Skin irritation, papulopustular eruption, facial flushing/erythema, nail changes and dry skin are common skin reactions that negatively affect cancer patients.

Objectives
The aim of this study was to determine cancer patients’ experiences living with dermatologic toxicity following anti-cancer therapy.

Methods
This descriptive study has been carrying out in two oncology outpatient units of a University Hospitals located in Ankara and Adana, in 2015. The sample of the study consisted of the patients with dermatologic toxicity due to cancer therapy. Eligibility criteria were patients receiving at least two cycles of chemotherapy or targeted agents which is known to causing skin toxicity and developed any grade based on clinicians assessment, over age 18, literate and being willing to participate in an interview.

Data has been collecting with two tools. Descriptive form for patients consisted of 11 questions included sociodemographic, disease and treatment characteristics, and open-ended questions to gather their experiences and problems.

Results
So far we have reached to 10 patients and continuing to data collection. Results will be presented at the congress.

Conclusions
Exploring patients experiences with Dermatologic toxicities related to anti-cancer therapy can contribute to symptom management and improve the quality of patient care.

20-15-P
SPECTACULAR EFFICACY OF LOW LEVEL LASER THERAPY (LLLT) FOR THE MANAGEMENT OF SEVERE RADIATION-INDUCED DERMATITIS: A CASE REPORT
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Introduction
LLLT is a recommended treatment for radio-induced mucositis; it is also used for many dermatologic inflammatory reactions, but controlled studies, in those indications are lacking.

Objectives
We report here a case of severe radiotherapy-induced dermatitis in which a spectacular improvement occurred rapidly after the onset of LLLT.

Methods
A 7-year old girl received a diagnosis of alveolar rhabdomyosarcoma of the left leg; she received 4 courses of induction chemotherapy (actinomycin D, doxorubicin, vincristine and ifosfamide); after debulking surgery, consolidation radiotherapy (54 Gy planned for 4 weeks) was started on 12/12/2014. Actinomycin D was discontinued during radiation therapy. After 2 weeks of radiation therapy, severe radio dermatitis, with redness, edema, pain and ulcerations developed. (See figure 1).

On 01/09/2015, LLLT was initiated using a Laser Oncolase 500 mW, with a wavelength at 650 nm and the scanning modality; each square centimeter treated with the required time to a tissue energy dose of 2 to 4 J/cm²; 3 treatments per week.

Radiotherapy was continued without changes of dose or schedule.

Results
Within a week after starting LLLT, there has been an impressive decrease of pain (from scale 7 to 1) and the stage of the radio dermatitis regressed from 3 to 1, as shown in figure 2.

Radiotherapy could be safely terminated without further skin complications and the patient was started on consolidation chemotherapy.
Conclusions
LLLT has been used successfully in patients receiving radiochemotherapy for head and neck tumors. Our observation suggests that LLLT might be effective in symptomatic radiation-induced dermatitis.

Introduction
The role of low level laser therapy (LLLT) / LED Photobiomodulation (PBM) for the prevention and management of radiation dermatitis has not been adequately evaluated despite encouraging reports. The mechanism of action for LLLT has been reported for other pathologies but has not been explored for radiation dermatitis.

Objectives
To review the available literature, assess the mechanisms of action, irradiation parameters, and treatment dose of LLLT/PBM for radiation dermatitis.

Methods
A systematic review was performed of clinical and in-vivo studies. Search criteria included 70 alternative terms for LLLT/PBM and radiation dermatitis or radiodermatitis or X-ray dermal necrosis.

Results
Two in-vivo studies and two randomised clinical trials were identified. One of the human studies found no significant effect, the other concluded that LED photobiomodulation immediately after IMRT significantly reduces the incidence and severity of skin reactions and reduced the incidence of treatment interruption due to severe skin reaction. The in-vivo studies concluded that photobiomodulation ameliorated the development of late radiation dermal necrosis. LED photobiomodulation irradiation parameters were not adequately reported. None of the studies investigated the mechanism of action. A recently published review of prophylactic effects of photobiomodulation identified cytochrome c oxidase in mitochondria as the primary photoacceptor. Studies show photobiomodulation can activate anti-apoptotic proteins, antioxidant defence pathways and anti-inflammatory cytokines via the NF-κB pathway.

Conclusions
There is some evidence for LED photobiomodulation efficacy in radiation dermatitis management and prevention. Reporting of irradiation parameters were inadequate. More studies are needed to understand Photobiomodulation dose, mechanisms of action and efficacy.

20-16-P
LOW LEVEL LASER TREATMENT FOR THE PREVENTION AND MANAGEMENT OF RADIATION DERMATITIS: EFFICACY, MECHANISMS OF ACTION, IRRADIATION PARAMETERS AND DOSE
J.D. Carroll

20-17-P
THE EFFECTS OF ENTERAL GLUTAMINE ON RADIOTHERAPY INDUCED DERMATITIS IN BREAST CANCER
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Introduction
The most common side effect of breast cancer radiotherapy is skin reaction. In some patients with severe skin reactions interruptions in radiotherapy program is required. Many centers keep local therapies in scope. Glutamine is an amino acid which has been proved to stimulate wound healing in burn patients…Breast radiotherapy results in damage of the basal epidermal layer of the dermis and endothelial cells. Therefore glutamine may reduce radiotherapy induced dermal side effects and stimulates healing...
Objective
To investigate the effects of oral glutamine on radiation induced dermatitis

Methods
Forty patients who received radiotherapy for breast cancer were randomized into 2 groups. In group 1 the patients were treated with 15 gr of enteral glutamine whereas the patients in group 2 were treated with placebo. The radiation induced skin reactions were evaluated in both groups. Radiotherapy in dose of 50 Gy was given to breast/thoracic wall and axilla while tumor bed received 16 Gy of boost (2 Gy/fraction). During radiotherapy, radiation oncologist and oncology nurse evaluated the patients for skin reactions using RTOG scale twice weekly. Informed consent was taken from all subjects

Results
In glutamine treated group 88.9 % of patients developed grade I toxicity comparing to 80 % of patients in placebo group developed grade II toxicity. This difference between the groups was statistically significant. (p<0.001)

Conclusions
Glutamine via growth hormone stimulation of epidermal and dermal cells increases the secretion of structural proteins and contributes wound healing. In our study we found that glutamine decreases radiation induced skin reaction during breast cancer radiotherapy

20-18-P
ONCOLOGY NURSES’ ROLE IN MANAGEMENT OF DERMATOLOGIC ADVERSE EVENTS IN METASTATIC MELANOMA: A FOCUS ON NOVEL AGENTS AND IMPORTANCE OF EARLY REFERRAL TO A DERMATOLOGIST

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Introduction
In 2014, approximately 76,100 new cases of melanoma were reported in the United States. Historically, patients with distant metastasis have a less than 10 % 5-year survival rate. The exciting era of novel agents in the treatment of metastatic melanoma has provided a more “targeted” approach, simultaneously expanding the field of OncoDermatology. Dermatologic adverse events (dAE) not only pose cosmetic burdens, but can result in inconsistent dosing or discontinuation of life-saving therapies. Current approved targeted/novel therapy include BRAF inhibitors, MEK inhibitors, Anti-PD1 inhibitors and CTLA-4 inhibitors all of which can result in mechanism-based dAEs. Early referral to a dermatologic interdisciplinary team is essential in the management of these untoward events.

Objectives
We present a case study of a metastatic melanoma patient on Pembrolizumab who developed erythema multiforme on therapy.

Methods
Assessments were made using the Common Terminology Criteria Adverse Events Version 4.0.

Results
An 80 year old male with history of metastatic melanoma s/p excision, Ipllimumab and Temodar, progressed after third month of surveillance and began Pembrolizumab. After the third dose, patient developed a grade 1 maculopapular rash progressively worsening to grade 3 with oral mucosal involvement. A skin biopsy was performed by a dermatologist consistent with erythema multiforme-like drug rash which was treated with topical and systemic steroids. His clinical course was complicated by discontinuing Pembrolizumab, progression of disease, respiratory distress and death.

Conclusions
The role of the oncology nurse is vital in the timely referral and management of dAE in metastatic melanoma patients on targeted/novel therapies.

20-19-P
CHAMOMILLA RECUTITA GEL FOR PATIENT SKIN REACTIONS SUBMITTED TO CHEMORADIOTHERAPY: A CASE REPORT

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Introduction
Although chemoradiotherapy be beneficial in anticancer therapy, combination therapy can increase the incidence and severity of side effects such as radiodermatitis. Although the radiodermatitis is a common complication for patients undergoing chemoradiotherapy, there is little evidence about its prevention and treatment. Topical application of Chamomilla recutita has been demonstrated in studies regarding its benefits in relation to the treatment of skin reactions.

Objectives
Describe the effect of C. recutita gel in radiodermatitis from chemoradiotherapy

Methods
Case report

Results
Male patient, 48, oropharyngeal cancer, submitted to radiotherapy with 9000.0 cGy in 25 fractions in the first phase and the second phase 2520.0 cGy in 14 fractions, concurrent chemotherapy with cisplatin every 3 weeks. Patient used a C. recutita gel 8.35 % in the irradiated region three times a day. From the 16th session, presented radiodermatitis Grade I, according to RTOG score, characterized by mild erythema in irradiated region (Figure 1). Only at the end of the second phase of radiotherapy the patient began to present radiodermatitis Grade II (Figure 2), hyperpigmentation of the irradiated region and areas of dry desquamation, which usually still occurs in the first therapeutic phase. The patient reported feeling of relief, comfort and freshness in the region.

Conclusions
It has been found that topical application of C. recutita gel, in this case report, reduced the intensity of local reaction, delayed the development of grade I to grade II skin reaction, there was a protective effect related to the severity of reaction and has been positively evaluated by the patient.
VENEUS THROMBOLISM IN CANCER- A PROSPECTIVE STUDY
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Methods
Prospectively collected data of cancer patients diagnosed with VTE in the year 2013 at a tertiary cancer centre was analysed. Demographic data, details of cancer, co-morbidities, details of VTE and treatment given for VTE and their outcomes were recorded and analyzed.

Results
115 cancer patients were diagnosed to have VTE. Females were predominant 76/115(66.08 %). In females gynecologic malignancies (45.7 %) and in males genitourinary malignancies 16(35.5 %) were the commonest sites. Most patients had advanced stage cancer (68.7 %). 83(72.2 %) patients had deep vein thrombosis(DVT), 14(12.2 %) patients pulmonary embolism(PE) and 18(15.7 %) patients DVT and PE. Most patients had proximal lower limb DVT 75(65.2 %). The associated risk factors included recent or ongoing chemotherapy 37(32.2 %) and recent surgery 12(10.4 %). 32 % were given long term low molecular weight heparin.
1 patient underwent catheter directed thrombolysis and thrombectomy each, 5 received systemic thrombolysis and 8 underwent IVC filter placement. The median follow up duration was 7 months. 19/50 (38 %) patients had complete recanalisation .5 patients expired due to fatal PE

Conclusions
A higher incidence of DVT is noted in female patients with gynecological malignancies and in male patients with genitourinary malignancies. Most patients had advanced disease. Risk stratification for VTE should be done in all cancer patients and thromboprophylaxis should be optimally used.

ANALYSIS OF ADVERSE EVENTS OF INTEREST AND HEMOGLOBIN VALUES FROM 4 PLACEBO-CONTROLLED PHASE III DARBEPOETIN ALFA TRIALS
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Introduction
There are no current data examining events of interest (EOIs) with darbepoetin alfa (DA) by hemoglobin (Hb) level.

Objectives
To evaluate incidence of EOIs and corresponding Hb levels in patients receiving DA or placebo.

Methods
Data from patients with chemotherapy-induced anemia receiving DA or placebo were analyzed. EOIs included myocardial infarction (MI), cerebrovascular accidents (CVA), and venous thromboembolic events (VTEs); mean Hb, platelet (Plt), and transferrin saturation (Tsat) values at closest visit prior to EOI were evaluated. This retrospective analysis is subject to bias and confounding.

Results
For 1631 patients, most common tumor types were small-cell lung (43 %), non-small cell lung (16 %), and multiple myeloma (12 %). Mean baseline Hb level was 10.7 g/dL. Overall rates of EOIs were 10 % DA and 7 % placebo. EOIs and closest Plt and Tsat results are shown (Table). For patients reporting VTE, mean Plt counts and Tsat % levels at closest visit prior to VTE were not different between DA and placebo. Analyses of Hb response and transfusions will be presented.

Conclusions
Average Hb closest to MI, CVA, and VTE was elevated in the DA group but did not exceed the normal Hb range in either group. Incidence of thrombovascular EOIs was low, but higher numerically for patients receiving DA, consistent with labeled class-reported adverse reactions.
21-03-P

MANAGEMENT OF CANCER ASSOCIATED THROMBOSIS (CAT) IN FRANCE: A NATIONAL SURVEY IN VASCULAR DISEASE AND SUPPORTIVE CARE SPECIALISTS

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Introduction
Low-molecular-weight heparins (LMWH) are recommended by international guidelines for 3–6 months in patients with CAT. Surveys report insufficient guidelines implementation in usual practice (~50 %)

Objectives
To assess guidelines awareness and implementation.

Methods
SFMV and AFSOS members were included in a National survey about CAT treatment in clinical situations: patient with lung cancer and symptomatic deep venous thrombosis (DVT) or pulmonary embolism (PE) or incidental PE. Answers were compared to the reference defined by a multidisciplinary panel before the survey.

Results
401 specialists completed the survey, representing oncology (12 %), vascular medicine (68 %), hematology (2 %), internal medicine (3 %), pneumology (2 %), others (15 %). LMWH treatment doses were indicated as first choice by more than 90 % for the long-term treatment of symptomatic DVT and PE. Treatment duration were either 3 months (20 % for DVT, 5 % for PE), or 6 months (70 % for DVT, 67 % for PE), or 12 months (9 % for DVT, 27 % for PE). In case of active cancer, and beyond 12 months, specialists used treatment LMWH doses (51 % for DVT, 50 % for PE), prophylactic LMWH doses (19 % for DVT, 16 % for PE), or vitamin K antagonists (VKA) (13 % for DVT, 14 % for PE). In case of incidental PE, 91 % of specialists used treatment LMWH doses while in case of proximal old PE, 22 % used treatment LMWH doses, 31 % prophylactic LMWH doses and 41 % no treatment.

Conclusions
Vascular specialists and oncologists from both societies involved in supportive care are aware of CAT treatment guidelines. Information about guidelines to other specialists is essential to improve guidelines implementation.

21-04-P

TREATMENT OF CANCER-ASSOCIATED THROMBOSIS (CAT): A FRENCH HOSPITAL-BASED COHORT STUDY TO ASSESS COMPLIANCE WITH ESTABLISHED INTERNATIONAL GUIDELINES

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Introduction
LMWHs are recommended for a period of 3–6 months in patients with CAT.

Objectives
To assess compliance in daily clinical practice

Methods
To assess compliance in daily clinical practice

Results
Out of 240 patients included from January to December 2012 of whom 60 % had metastatic cancer, 219 therapeutic strategies were analysable. Compliance with guidelines was 56 % among patients during T1, but decreased during T2 and T3 (33 % and 11 %, respectively). In T4, 65 % of patients received appropriate treatment due to less restrictive recommendations after 6 months. Overall compliance was estimated at 52 % for all periods. Compliance was lower (46 %) in patients with special conditions (renal failure, thrombocytopenia, CAT recurrence while on anticoagulation). Treatment of patients with advanced cancer was more often compliant with guidelines (58 %). Patients who experienced pulmonary embolism were more often adequately treated (60 %) than patients with deep vein thrombosis (40 %).

Conclusions
Treatment of CAT is compliant with guidelines in only half of patients. Compliance drops significantly after the first 10 days of treatment. Only cancer stage seems to impact prescription. There is a need to further promote adequate therapeutic strategies in usual care. Keywords: Anticoagulant therapy, Cancer, Guidelines, Venous thromboembolism
21-05-P

VENOUS THROMBOEMBOLISM: WHAT PHARMACISTS LEARNED? WHAT IS THEIR KNOWLEDGE KNOW? A SURVEY ONE YEAR AFTER

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Introduction
Low molecular weight heparins are recommended for prevention/treatment of thrombosis in cancer. Community pharmacists are very often faced with patients’ questions (dosage, tolerance, duration). A survey was carried out in 2014 to assess pharmacist’s knowledge [MASCC 2014–0292].

Objectives
Educational sessions took place and information leaflets were created. One year after, pharmacists knowledge was assessed again to evaluate if the learning objectives had been reached.

Methods
A web-questionnaire was open between January and February 2015 to community pharmacists in Champagne-Ardenne region. Collected data were 1) pharmacy’s general organization for cancer patients’ management, 2) management of ‘thrombosis and cancer’ patients 3) pharmacists’ knowledge assessment through a simple case report.

Results
Partial results are available to date. Full results will be available for the conference. An information booklet was built to inform patients on venous thromboembolism, its prevention and treatment. 50 000 copies were printed and handed out.

Approximately 15 % of the community pharmacists answered the questionnaire. Knowledge regarding thrombosis and cancer has improved dramatically.

Among those, in 65 %, the number of patients with cancer was 6–15/ pharmacy. In 70 % the number of patients with thrombosis and cancer was 1-10/pharmacy. Whereas 96 % had not heard about “Thrombosis and Cancer” recommendations in 2014, more than 60 % were aware of the existence of recommendations and knew how to apply them, one year after.

Conclusions
Continuous education sessions were successful and knowledge has improved. These results support that community pharmacists must be part of the patients’ management in cancer, especially for “thrombosis and cancer” issues.

21-06-P

INFERIOR VENA CAVA FILTERS IN CANCER PATIENTS: INDICATIONS AND OUTCOME.

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Introduction
Cancer and its treatment are recognized risk factors for venous thromboembolism (VTE). Inferior vena cava (IVC) filters are utilized to provide mechanical thromboprophylaxis to prevent pulmonary embolism (PE) or to avoid bleeding from systemic anticoagulation.

Objectives
Our experience with IVC filter placement in cancer patients with venous thromboembolism was reviewed to identify indications, patient characteristics, complications, and long-term outcome.

Methods
Analysis of 42 patients with active cancer who received IVC filters placement and followed up at our institution was performed between January 2012 and January 2014.

Results
All 42 patients (median age=59 years) received permanent (TrapEase) IVC filter placement. Most common cancer was of female genital tract (26 %) followed by colon (17 %), prostate (12 %), central nervous system (10 %), urinary bladder (10 %), leukemia/lymphoma (7 %), bones (7 %), lungs (5 %), renal (2 %), sarcoma (2 %) and germ cell tumor (2 %). A deep venous thrombosis (DVT) was diagnosed in 32 (76 %) patients, a PE in 6 (14 %), both DVT and PE in 4 (10 %) patients. Indications for IVC filter placement were DVT or PE in the presence of contraindications to anticoagulation therapy includes renal failure (n=4), thrombocytopenia (n=2), bleeding (n=1), liver failure (n=1) and presence of more than one of these contraindications (n=10). The remaining 24 patients had no apparent contraindication to anticoagulation. Post filter DVT occurred in 2 patients and 4 died of cancer related complications. None of the patients developed filter placement complications during a median follow up of 70 days with an overall survival of 90 %.

Conclusions
IVC filter placement in patients with cancer and thromboembolism is safe, well tolerated, and can offer effective therapy/prophylaxis with a low incidence of treatment failure.

21-07-P

ANTICOAGULATION THERAPY IN SELECTED CANCER PATIENTS AT RISK OF RECURRENT OF VENOUS THROMBOEMBOLISM

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Introduction
Venous thromboembolism (VTE) in cancer patients is an important clinical challenge. Identifying patients with recurrent VTE may have health economic benefits whilst reducing patient risk through over-treatment. In the UK, dalteparin is the licensed anticoagulant for treatment and prevention of recurrence of VTE in cancer patients. Rivaroxaban is a highly selective direct Factor Xa inhibitor with oral bioavailability.

Objectives
- To assess VTE recurrence in SELECTcD cancer patients treated with rivaroxaban or dalteparin
- To ensure patient safety
- To assess acceptability and compliance
To assess 6 months and 12 months anticoagulation treatment in SELECT-D patients

To assess VTE recurrence in patients with evidence of residual vein thrombosis (RVT) and those with no evidence of RVT

Methods
Select-d is a prospective, randomised, open label, multicentre pilot trial comparing dalteparin (200 IU/kg daily subcutaneously for 1 month and 150 IU/kg months 2–6); and rivaroxaban (15 mg orally twice daily for 3 weeks and 20 mg once daily for 6 months in total) for cancer patients with VTE, with a second placebo-controlled randomisation (rivaroxaban vs placebo) comparing the duration of therapy (6 vs 12 months) in RVT positive patients. 530 patients are being recruited to provide reliable estimates of the primary outcome.

Results
60 centres will participate. As of 19th December 2014, 129 patients have been recruited from 37 UK sites.

Conclusions
The select-d trial will recruit for two years. The results will support optimal treatment for this key patient group. The independent TSC and DSMC fully support this trial.

21-08-P
LONG-TERM TREATMENT WITH TINZAPARIN (TZ) FOR ACUTE VENOUS THROMBOEMBOLISM (VTE) IN A CANCER PATIENTS COHORT.

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Introduction
In cancer patients long-term treatment with TZ reduces in 40 % the risk of recurrent VTE. There are not prospective randomized trials to assess the best dose and duration of long-term treatment for VTE with low molecular weight heparins.

Objectives
The aim of this study was to analyze the efficacy and safety of TZ in preventing recurrent VTE in patients with active cancer in this cohort.

Methods
Twenty two cancer active patients with VTE which received TZ 175 IU/kg once daily between February 2013 and May 2014 in Hospital Universitario La Paz were included.

Results
Most common primary tumor sites in were colorectal, pancreatic cancer and glioblastoma. Metastatic disease was present in 68 % of patients. Only one patient was high risk by Khorane score and VTE events were proximal deep vein thrombosis, followed by pulmonary embolism, thrombosis associated with central venous catheter and visceral thrombosis. 50 % of VTE were incidental and 27 % occurred at tumor progression time. All of cases of VTE were during the chemotherapy treatment, included monoclonal antibodies therapy. The mean TZ dose was 14.000 IU once daily and mean duration was 8.8 months. No major bleeding was observed with TZ and no changes of dose were required. Only one patient experienced recurrent VTE coinciding with tumor progression.

Conclusions
Long-term treatment for VTE with full dose of TZ during >6 months is effective and safety in this cancer patients cohort.

21-09-P
THROMBOEMBOLIC EVENTS AND THROMBOPROPHYLAXIS IN THALIDOMIDE-TREATED MULTIPLE MYELOMA PATIENTS IN HONG KONG - A RETROSPECTIVE STUDY

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Introduction
Previous studies have reported that Asians patients with multiple myeloma (MM) have a lower thromboembolism (TE) rate due to the use of thalidomide.

Objectives
The present study aims to identify the local incidence and risk factors of TE, and the effectiveness of thromboprophylaxis in thalidomide-treated patients in Hong Kong.

Methods
This retrospective study investigated local MM patients who were treated by thalidomide-based regimens between 2005–2013. Primary endpoint was diagnosis of any symptomatic TE. Secondary endpoints were potential risk factors, effect of thromboprophylaxis, and local thromboprophylaxis prescribing patterns. Statistical analysis was performed by Binary Logistic Regression Model for identification of risk factors associated with TE development. Further analysis for thromboprophylaxis effectiveness were done by Cochran-mantel-haenszel test in specific patient groups.

Results
One hundred forty-nine newly diagnosed or relapsed/refractory Hong Kong MM patients were analyzed with the median treatment duration of 15.37 months (range: 0.23-91.1). The rate of TE was 10.1 % (n=15) with a median treatment by thalidomide of 1.5 months (range 0.23–19 months). No risk factors (eg. age, concomitant chemotherapy, thalidomide dose, history of TE, concomitant use of steroids, etc.) were found to be significantly associated with TE development. Thromboprophylaxis was found to be ineffective in reducing rate of TE. In Hong Kong, aspirin (n=26, 92.9 %) was the most commonly prescribed thromboprophylactic agents, followed by warfarin.

Conclusions
Rate of TE in thalidomide-treated MM patient in Hong Kong was not as low as other Asian countries. Further investigation is needed to identify possible clinical risk factors.

21-10-P
PATIENT’S SELF-ASSESSED KNOWLEDGE ABOUT VENOUS THROMBOSIS IN CANCER

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Introduction
Numerous studies have shown that cancer and venous thrombosis are associated. In cancer patients it increases morbidity and risk of premature death. Therefore it is important that patients are aware of the risk, the symptoms and are compliant in the prophylactic and therapeutic treatment.

Objectives
To investigate how much knowledge cancer patients have about thrombosis related to cancer, prevention, complication and treatment.

Methods
In all forty-two (22 men, 20 women) randomly selected cancer patients with either gastrointestinal or lung cancer were asked to complete a self-administered questionnaire.
There were three possible answers: adequate knowledge, too little knowledge, and no knowledge. The patient defined knowledge.

**Results**

The patients had a median age of 65 years (range 43–82)

- General knowledge about thrombosis:
  - adequate knowledge 2 %, too little knowledge 41 %, no knowledge 57 %
  - Knowledge about thrombosis specific related to cancer:
  - adequate knowledge 2 %, too little knowledge 17 %, no knowledge 81 %
  - Knowledge about prevention of thrombosis:
  - adequate knowledge 5 %, too little knowledge 36 %, no knowledge 59 %
  - Knowledge about complications to thrombosis:
  - adequate knowledge 0 %, too little knowledge 31 %, no knowledge 69 %

**Conclusions**

The majority of the patients assess themselves to have little or no knowledge about thrombosis.

In both a treatment and supportive care perspective thrombosis is a highly relevant topic for patients to have knowledge about.

**Quality of Life**

**22-01-O**

**QUALITY OF LIFE IN ELDERLY/FRAIL PATIENTS WITH GliOBLASTOMA MULTIFORME: RESULTS OF THE IAEA RANDOMIZED PHASE III STUDY COMPARING SHORT AND STANDARD COURSE OF RADIOTHERAPY**

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**Methods**

EORTC core questionnaire QLQ-C30 and the brain module QLQ-BN20 were used to assess HR-QoL along with Mini Mental Status Examination (MMSE) at baseline, 4 weeks after RT completion and every 3 months thereafter until the disease progression. QoL scores over time were examined using generalized estimating equation adjustment for the treatment arms.

**Results**

Of 98 randomised patients, 96 were eligible for QoL analysis. Response rate is provided in table 1.

![Table showing quality of life data](image)

There was no difference in global QoL/main function scales/symptoms (except for insomnia) between arms. Improvement of global QoL, social and physical function, fatigue and insomnia at 4 months after treatment was observed as compared to baseline in both arms, however, only significant for insomnia. Difference of ≥10 points from baseline to 4 months was demonstrated for social function and insomnia (arm1), physical function (both arms) and fatigue (arm2) (Figure 1). More patients from arm1 showed improvement of MMSE as compared to baseline (16 vs. 7 patients at 1 month and 9 vs. 5 patients at 4 months).

**Conclusions**

There was no difference in HR-QoL between the two arms. The short RT regimen may be recommended as a treatment option given the similar OS, PFS and QoL results.

**22-02-O**

**VALIDATION OF THE EORTC QLQ-INFO 25 QUESTIONNAIRE IN LEBANESE CANCER PATIENTS: REVEALING A STATE OF BLISSFUL IGNORANCE?**

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Introduction
Despite worldwide trends towards optimising full disclosure of information (DOI), the prevailing belief that cancer diagnosis should be concealed from patients, for their own good, has endured for a substantial period of time in middle eastern communities.

Objectives
This trial was designed to quantify DOI to Lebanese cancer patients and how the diversity of information provided relates to differences in patient characteristics.

Methods
A sample of patients, being treated for a variety of malignancies, was prospectively evaluated. A physician interviewed patients using the Arabic version of the European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-INFO 25).

Results
201 patients were interviewed. A considerable proportion of patients had little or no information at all about their diagnosis (24.4 % and 14.4 % respectively) whereas 34.3 % and 26.9 % had a reasonable or comprehensive amount of information about their diagnosis, respectively. Overall, 86.5 % of patients expressed their satisfaction about the amount of information provided and 89.5 % believe the information provided was useful. Analysis of variance while controlling for age, sex, educational status, cancer site and stage, performance status will be performed once complete sorting of data is complete. Reliability, multi-trait scaling analysis, construct validity, and confirmatory factor analysis will also be assessed.

Conclusions
Although a good proportion of patients were not properly informed about their diagnosis, the overwhelming majority were satisfied with the amount of information they received and believed it was useful, reflecting the complexity of middle eastern cultural influences on cancer patients perspectives.

Prevalence of Hypogonadism in Patients with Previously Treated Germ Cell Tumors

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Introduction
Hypogonadism (HG) can be associated with depression, fatigue, lower quality of life (QOL) and is a possible late consequence in survivors of germ cell tumor (GCT).

Objectives
To identify the prevalence of HG in GCT survivors and correlate the symptoms of HG in those who are previously treated with platinum combination chemotherapy (PCC) or chemotherapy-naive.

Methods
Eligible patients were male with diagnosis of GCT, age 18–50, treated with chemotherapy (Group 1) or orchiectomy +/- other surgery +/- radiotherapy (Group 2). Patients receiving supplemental testosterone were not eligible. Total testosterone was measured. Patients completed a validated QOL questionnaire. HG was defined as a serum total testosterone <300 ng/dl. Cancer diagnosis and treatment variables were obtained from medical records.

Results
The overall prevalence of HG in 172 patients was 49.4 % (95 % CI 41.9-57.0), including 51.5 % (95 % CI 41.7-61.2) in Group 1 (N=103) and 46.4 % (95 % CI 34.5-58.3) in Group 2 (N=69). Within Group 1, there was no difference in prevalence of HG when patients were divided into those who received <3 cycles of PCC, 3 cycles of PCC, >3 cycles of PCC, or salvage chemo (p=0.8131). Overall, compared to patients with testosterone ≥300, patients with HG reported worse perceived general health (p=0.0003) and worse sleep quality (p=0.0344), but no statistically significant difference in depression (p=0.3131) or fatigue (p=0.0622).

Conclusions
The overall prevalence of HG is higher than would be expected and can be a potential cause of medical and psychological distress if not recognized and treated.
22-05-P
COMBINING EFFICACY AND TOXICITY EFFECT SIZES FROM CLINICAL TRIALS INTO AN INTERPRETABLE QUALITY-ADJUSTED EFFECT SIZE ESTIMATE OF TREATMENT EFFICACY
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Introduction
How can a clinician incorporate efficacy and toxicity information into a single expression of comparative treatment benefit? We developed a new Quality Adjusted Life Year (QALY) method to combine efficacy and toxicity clinical trial data into a single quality-adjusted effect size (QASES).

Objectives
Demonstrate a method to compare QALY estimates across a series of clinical trials to improve interpretation of efficacy.

Methods
QASES is a weighted combination of the efficacy and toxicity effect sizes based on differences in efficacy and toxicity using the ½ standard deviation method. We demonstrate the QASES method on 20 exemplary hematological oncology clinical trials.

Results
The relative effect sizes observed for differences in efficacy (0.64 SD, \(p<0.05\)) were significantly diminished when combined with differences in toxicity (0.25 SD, \(p>0.05\)). For example, QASES estimates for a phase III clinical trial of Thalidomide plus dexamethasone compared with dexamethasone alone in newly diagnosed multiple myeloma indicated that the statistical significance of the superior response rates achieved for thalidomide plus dexamethasone became non-significant when the increased relative toxicity of the combination was incorporated. Results will be presented for the four possible case combinations of significant/non-significant differences in survival and toxicity data using 20 completed hematological oncology clinical trials.

Conclusions
The QASES approach allows for an intuitively appealing and mathematically simple and robust approach to combining efficacy and toxicity data. Clinicians can use QASES to interpret and communicate the findings of clinical trials to patients by weighing both the efficacy and toxicity information into a single quality-adjusted estimate of efficacy.

22-06-P
SELF-EFFICACY, PHYSICAL ACTIVITY, AND QUALITY OF LIFE IN CANCER PATIENTS AFTER RADIOTHERAPY
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Introduction
Physical activity improves quality of life (QOL) in several cancer survivor groups. Findings from these studies indicate that the relationship between physical activity and QOL is indirect and likely mediated by variables such as self-efficacy.

Objectives
The aims of this study were to describe the levels of physical activity, self-efficacy, and QOL in cancer patients after radiotherapy and to determine if self-mediates the relationship between physical activity and QOL.

Methods
A cross-sectional descriptive correlational design was used. One hundred fifty participants completed the Godin Leisure Time Exercise Questionnaire (LETQ), the physical activity preference survey form, The European organization for research and treatment of cancer (EORTC QLQ- C30), and Physical Activity Self-efficacy Scale. Descriptive statistics were used to analyze the levels of physical activity, self-efficacy, and QOL in the sample. Multiple regression was used to test the mediating effect of self-efficacy in the relationship between physical activity and QOL.

Conclusions
This is to explore how the phenomenon of self-efficacy affects quality of life in cancer and to investigate the mediating role of self-efficacy that physical activity on quality of life. The current findings could be of clinical importance and improved self-efficacy of physical activity for cancer patients.

22-07-P
HEAMOPTIMAL: RANDOMIZED FEASIBILITY STUDY OF THE OPTIMAL HEMOGLOBIN TRIGGER FOR RED BLOOD CELL TRANSFUSION TO ANEMIC CANCER PATIENTS TREATED WITH CHEMOTHERAPY
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2The Finsen Laboratory, Rigshospitalet Copenhagen University Hospital, Copenhagen, Denmark
3Section for Transfusion Medicine, Rigshospitalet Copenhagen University Hospital, Copenhagen, Denmark

Introduction
Anemia in cancer patients undergoing chemotherapy (CT) is associated with decreased quality of life (QoL) often mitigated by transfusion with red blood cell transfusion (RBCT). However, the optimal trigger for transfusion is unknown.

Objectives
The objectives were to assess the feasibility of randomizing cancer patients to two hemoglobin triggers for RBCT and to identify QoL and symptom scores associated with anemia.

Methods
The study was an open-label two arm feasibility study randomizing cancer patients receiving CT to a transfusion hemoglobin trigger of 9.7 g/dL in arm A, or below normal level (female: 11.5 g/dL, male: 13.1 g/dL) in arm B. Assessments were done using the Functional Assessment of Cancer Therapy-General (FACT-G) and the FACT-Anemia (FACT-An), a Numeric Rating Scale on symptoms of anemia, and self-reported Performance Status. The association between hemoglobin and QoL variables was assessed using a linear mixed model with random effects.

Results
A total of 133 patients were enrolled of which 88 patients received RBCT (arm A: 29; arm B: 59). Hemoglobin level was significantly associated to transfusion with decreased quality of life (QoL) often mitigated by transfusion with red blood cell transfusion (RBCT). However, the optimal trigger for transfusion is unknown.

Conclusions
Randomizing anemic cancer patients to different triggers for transfusion is feasible. QoL scores and symptoms of anemia are associated with anemia. Comparative analysis of QoL between arms will be presented.
**22-08-P**

**EYE DISORDERS, AN UNDERESTIMATED SIDE EFFECT DURING TREATMENT WITH PEMETREXED: A RETROSPECTIVE STUDY.**

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**Introduction**

Pemetrexed is a treatment option for advanced non-small cell lung cancer. In the product information of Pemetrexed, conjunctivitis is described as a common side effect; other eye disorders are not described. However, in daily clinical practice we have experienced that patients treated with Pemetrexed describe different kinds of eye disorders during their course of treatment. These eye disorders may have a negative impact on patient quality of life (QoL).

**Objectives**

The purpose of the study is to identify the kind of eye disorders patients experience during the treatment with Pemetrexed, how many patients experience the eye disorders, and grade the detected eye disorders according to Common Toxicity Criteria for Adverse Event version 4.0 (CTCAE).

**Methods**

This is a retrospective study of patients treated with Pemetrexed in the Department of Oncology, Odense University Hospital, Denmark from 1st January 2013 to 31st December 2014. Data are obtained from patient files.

**Results**

During the study period 264 patients were treated with Pemetrexed. Half of the patients 132 experienced eye disorders. The observed eye disorders were dry eyes, tear flow, stinging eyes, materie in the eyes, blurred vision, redding and swelling of skin under the eyes and unspecific eye disorders. Grade 1 eye disorders were experienced by 34 patients, grade 2 by 133. None experienced grade 3.

**Conclusions**

Eye disorders are an underestimated side effect from Pemetrexed. There is a need for increased attention to this side effect in order to initiate treatment and maintain QoL of the patient during the palliative treatment with Pemetrexed.

**22-09-P**

**SURVEY OF ONCOLOGY SYMPTOMS (SOS) AMONG A LOW-INCOME, ETHNICALLY DIVERSE CANCER PATIENT POPULATION IN NEW YORK CITY: VALIDATION OF A BRIEF SYMPTOM CHECKLIST**

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**Introduction**

While many quality-of-life (QoL) instruments have been developed in oncology, brief yet comprehensive tools tailored to the literacy needs of an inner city U.S. population are lacking.

**Objectives**

Experts in Psycho-oncology, Palliative Care, and Evaluation Science sought to develop a culturally-competent QoL screening tool, the Survey of Oncology Symptoms (SOS), among cancer outpatients in Bronx, New York, one of the poorest urban communities in the U.S.

**Methods**

A 17-item symptom checklist rated on a 0–5 severity scale was designed to capture salient symptoms identified in validated instruments and clinical practice. Between 2008–2014, a convenience sample of 1,011 cancer patients identified in cancer clinics or via referral completed the SOS along with the Distress Thermometer (DT) and a psychosocial needs assessment in English (78 %) or Spanish (22 %).

**Results**

The sample was 45 % Hispanic, 38 % African American, and 17 % Caucasian, and 82 % female (most had breast-41 % or gynecologic-14 % cancers). Mean age was 58.73±12.67(sd) years (range 20–94 years), and mean time since diagnosis was 1.94±3.36 (sd) years (range 1 week-36 years). As shown in Table 1, symptom endorsement varied by ethnicity and language, with more physical, emotional, and cognitive difficulties reported by Hispanic and Spanish-speaking patients. An SOS summary score was significantly correlated (r=.59) with the DT and comparable in predicting interest in counseling and complementary medicine (see Table 2).

**Conclusions**

The SOS distinguishes QoL disparities by ethnic groups and provides comparable predictive validity to the DT in predicting psychosocial needs. It goes beyond the DT to offer symptom-specific severity ratings.

**22-10-P**

**QUALITY OF LIFE AND SYMPTOM BURDEN IN BREAST CANCER PATIENTS ACROSS THE CONTINUUM**

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**Introduction**

Pemetrexed is a treatment option for advanced non-small cell lung cancer. In the product information of Pemetrexed, conjunctivitis is described as a common side effect; other eye disorders are not described. However, in daily clinical practice we have experienced that patients treated with Pemetrexed describe different kinds of eye disorders during their course of treatment. These eye disorders may have a negative impact on patient quality of life (QoL).

**Objectives**

The purpose of the study is to identify the kind of eye disorders patients experience during the treatment with Pemetrexed, how many patients experience the eye disorders, and grade the detected eye disorders according to Common Toxicity Criteria for Adverse Event version 4.0 (CTCAE).

**Methods**

This is a retrospective study of patients treated with Pemetrexed in the Department of Oncology, Odense University Hospital, Denmark from 1st January 2013 to 31st December 2014. Data are obtained from patient files.

**Results**

During the study period 264 patients were treated with Pemetrexed. Half of the patients 132 experienced eye disorders. The observed eye disorders were dry eyes, tear flow, stinging eyes, materie in the eyes, blurred vision, redding and swelling of skin under the eyes and unspecific eye disorders. Grade 1 eye disorders were experienced by 34 patients, grade 2 by 133. None experienced grade 3.

**Conclusions**

Eye disorders are an underestimated side effect from Pemetrexed. There is a need for increased attention to this side effect in order to initiate treatment and maintain QoL of the patient during the palliative treatment with Pemetrexed.
Introduction
Patients with breast cancer experience a multitude of treatments and symptoms.

Objectives
To determine Quality of Life (QOL) and Symptom burden (SB) among breast cancer patients related to disease stage, treatment type, and disease free interval.

Methods
Edmonton Symptom Assessment System (ESAS) and the Functional Assessment of Cancer Therapy for Breast Cancer (FACT-B) were administered. Patients were categorized into 4 groups: DCIS, early stage, locally advanced or metastatic. Patients were further categorized on years since last treatment: <2, 2-<5, 5-<10, ≥10 years, age: ≤50, 51-60, 61-70, and ≥70 years, surgery type, recurrence status, time since diagnosis, radiation dose, chemotherapy and hormone therapy.

Results
From January to August 2014, 1,513 patients were enrolled. Metastatic patients (n=178) have the highest ESAS scores and higher depression and anxiety compared to DCIS (n=141) and early stage (n=769). Patients in the 2-5 years (n=255) or 5-10 years post treatment cohort (n=214) have lower QOL score compared to those in the ≥10 years cohort (n=101). Patients ≤50 with early stage (n=171) or locally advanced cancer (n=145) have lower QOL and higher ESAS scores for tiredness, depression, and anxiety. Patients treated with a lumpectomy (n=790) have significantly higher QOL scores, except for Social/Functional well-being, compared to those with mastectomy (n=611). Early stage patients who received chemotherapy (n=373) versus none (n=389) reported more ESAS symptoms and a lower QOL. Patients taking SERM treatments (n=438) versus none (n=528) have higher depression and lower QOL.

Conclusions
Individualized interventions need to be developed to tailor individual needs.

Methods
Frail patients were assessed (Vulnerable Elders Survey-13≥3 or Cardiovascular/Pulmonary comorbidities or Mini-Mental State <25 or Unipled stance test <5 s) and benefited from anti-androgen, nutritional coaching, supervised biweekly 45 min-physical training and psychological counseling for 2 years. Those with expected survival <16 weeks were excluded. Percent of fat (FM) and fat-free masses (FFM) derived from bioelectrical impedance analysis, 6 min-Walk Test, Timed Up&Go, handgrip strength, Hospital Anxiety and Depression scale (HAD) were assessed at time 0, 3, 6, 9, 12, 18, and 24 months. rANOVA were used to analyze differences between the means.

Results
Means of nutritional, physical and psychological variables remained stable during 2 years follow-up in the 36 men (71.2±6.7 years). p-values were non significant for all repeated measures.

Means of intermediate time-points (T3-6-9-18) not shown.

Conclusions
The expected side effects of a standard androgen-deprived treatment were not observed in frail prostate cancer patients who followed a 2 years-multidisciplinary approach. Further controlled studies are needed to confirm the beneficial effect of this care program.

22-11-P
PROSTATE CANCER AND ANDROGEN DEPRIVATION IN FRAIL PATIENTS: A 2YR PROSPECTIVE MULTIDISCIPLINARY PROGRAM, PRELIMINARY DATA.

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Introduction
Androgen deprivation is a therapeutic option for prostate cancer patients, however with a range of nutritional, physical, psychological side effects.

Objectives
A multidisciplinary care program was created to help frail patients manage side effects.

Methods
Frail patients were assessed (Vulnerable Elders Survey-13≥3 or Cardiovascular/Pulmonary comorbidities or Mini-Mental State <25 or Unipled stance test <5 s) and benefited from anti-androgen, nutritional coaching, supervised biweekly 45 min-physical training and psychological counseling for 2 years. Those with expected survival <16 weeks were excluded. Percent of fat (FM) and fat-free masses (FFM) derived from bioelectrical impedance analysis, 6 min-Walk Test, Timed Up&Go, handgrip strength, Hospital Anxiety and Depression scale (HAD) were assessed at time 0, 3, 6, 9, 12, 18, and 24 months. rANOVA were used to analyze differences between the means.

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Means of nutritional, physical and psychological variables remained stable during 2 years follow-up in the 36 men (71.2±6.7 years). p-values were non significant for all repeated measures.

Means of intermediate time-points (T3-6-9-18) not shown.

Conclusions
The expected side effects of a standard androgen-deprived treatment were not observed in frail prostate cancer patients who followed a 2 years-multidisciplinary approach. Further controlled studies are needed to confirm the beneficial effect of this care program.

22-12-P
IMPACT OF AN INTEGRATED BUDDHIST PRINCIPLES NURSING PROGRAM ON THE SPIRITUAL WELL-BEING OF FAMILY CAREGIVERS OF HOSPITALIZED WOMEN WITH ADVANCED GYNECOLOGICAL CANCER IN THAILAND

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Introduction
1,279 women were newly diagnosed with breast or ovarian cancer in 2012 in Thailand. Often these women usually came to receive treatment in advanced or late stage. Caregivers play key roles to support them during cancer journey. However, psycho-spiritual distress is a common issue among caregivers providing care for women with advanced cancer.

Objectives
To assess the impact of an integrated Buddhist principles nursing program on the spiritual well-being of family caregivers of hospitalized women with advanced gynecological cancer.
Methods
45 caregivers who cared for hospitalized women with advanced gynecological cancer participated. Twenty-five subjects were assigned to the control group receiving usual nursing care. Twenty subjects were assigned to the experimental group receiving an integrated Buddhist principles nursing program. The program was developed based on the eastern spiritual well-being concept and Buddhist principles. The Patient and Caregiver Demographic Data Form and the Spiritual Well-Being Questionnaire were used. The reliability of the Spiritual Well-Being Questionnaire was tested yielding Cronbach’s alpha coefficient of 0.90. The hypotheses were examined by paired t-test and independent t-test.
Results
Subjects in experiment group showed statistically significant increased in spiritual well-being (t=13.32, p<0.001). Spiritual well-being of the experimental group after receiving the nursing program was statistically significantly higher than that of the control group (t=7.87, p<0.001).
Conclusions
These findings suggest that a Buddhist application based nursing program can serve to promote spiritual well-being in caregivers of women with advanced gynecological cancer.

22-13-P
LONGITUDINAL STUDY ON THE IMPACT OF PHYSICAL ACTIVITY ON THE SYMPTOMS OF LUNG CANCER
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Introduction
Cancer symptoms are multidimensional from diagnosis to the treatment stage and are related to patient survival. Physical exercise can enhance the quality of life of cancer survivors.
Objectives
To examine the effect of physical activity on the physical and psychosocial symptoms of lung cancer survivors.
Methods
A longitudinal design was used in this study. Participants were recruited from the chest and surgical departments of medical centers in Taiwan. The instruments used were the Godin Leisure-Time Exercise Questionnaire and the Taiwanese version of the M.D. Anderson Symptom Inventory.
Results
In total, 185 survivors were followed up for 6 months. The results showed that sleep disturbance was the most prevalent symptom in lung cancer survivors. A generalized estimating equation (GEE) method was employed to analyze the relationships among physical activity intensity, symptom severity, and symptom interference with the daily life of lung cancer survivors. Regarding symptom severity, significant differences were observed in fatigue, drowsiness, and sleep disturbance between the lung cancer survivors who engaged in moderate physical activity and those who did not engage in any physical activity. Regarding symptom interference, the lung cancer survivors who engaged in light physical activity exhibited a significantly lower level of symptom interference than did those having a sedentary lifestyle.
Conclusions
These are the first study to explore the role of physical activity in alleviating symptoms in lung cancer survivors by using the GEE method. This study confirms that physical activity plays an essential role in alleviating the physical and psychological symptoms of lung cancer survivors.

22-14-P
PREVALENCE AND MANAGEMENT OF PULMONARY COMORBIDITY IN PATIENTS WITH LUNG AND HEAD/NECK CANCER
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Introduction
Cigarette smoking is the major risk factor for head and neck cancer (HNC) and lung cancer (LC) as well as chronic obstructive pulmonary disease (COPD).
Objectives
The aims of this study were to determine the prevalence of COPD in a HNC and LC population, and to determine the need and feasibility of a randomized controlled phase II trial comparing usual care with optimized medical treatment of COPD.
Methods
During a ten month period patients were invited to attend an evaluation of lung function. Patients who were found to have COPD were randomized to intervention or usual care. Primary endpoints were prevalence of COPD among the referred patients, whether the patients that were diagnosed with COPD already received treatment in accordance with guidelines. Secondary outcome was feasibility i.e., the proportion of eligible patients that accepted follow up in the pulmonary clinic for 24 weeks in addition to the oncological treatment.
Results
130 patients of whom 65 % had LC and 35 % HNC have been screened during the first seven months of this ongoing trial. 68 % of LC patients and 22 % of HNC patients had COPD. Out of 68 eligible patients 67 accepted randomization. (31 %) of the patients with COPD were diagnosed prior to study entry, and of these, 33 % were receiving correct treatment according to current guidelines.
Conclusions
For patients with LC, and HNC, there is a need for improved diagnosis and treatment of comorbid COPD. Patients found it acceptable to be scheduled for a follow-up in the pulmonary clinic.

22-15-P
PREDICTORS OF POOR QUALITY OF LIFE IN PATIENTS WITH COLORECTAL CANCER: WHO IS AT RISK?
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Introduction
A Cancer diagnosis and multimodal nature of treatment can have a major impact on a patient’s quality of life (QoL). Understanding who is most at risk of poor QoL following treatment is crucial for the development of support services.
Objectives
To identify predictors of patient QoL outcomes in the first six months following surgery, for colorectal cancer.
Methods
The ‘usual care’ control group of a multi-centre RCT (CONNECT trial) comprised study sample for this analysis. QoL was assessed using FACT-C at baseline (pre-surgery) and at 1, 3 and 6 months post-surgery. Patient demographics, clinical and treatment characteristics, health service use, unmet supportive care needs, and care coordination experience investigated as predictors. Multivariate regression used to identify predictors of QoL.

Results
Among 369 participants, mean age was 67(12SD), 54 % male, 33 % rectal cancer and 37 % advanced disease (stage III/IV). Mean FACT-C scores at baseline (pre-surgery), 1, 3 and 6 months were 105(CI:101–109), 100(CI:98–102), 103(CI:101–105) and 105(CI:103–107) respectively. Predictors of QoL at each time-point are summarized in table 1.

Table 1

<table>
<thead>
<tr>
<th>Predictor</th>
<th>1 month (SE)</th>
<th>3 month (SE)</th>
<th>6 months (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>p-value</td>
<td>p-value</td>
<td>p-value</td>
</tr>
<tr>
<td>Age(&gt;70)</td>
<td>3.66(1.70)</td>
<td>0.04</td>
<td>0.01</td>
</tr>
<tr>
<td>Comorbid disease(+)</td>
<td>-1.75(0.68)</td>
<td>0.005</td>
<td>-0.75(0.68)</td>
</tr>
<tr>
<td>Stoma</td>
<td>-8.32(1.67)</td>
<td>&lt;0.0001</td>
<td>-0.60(0.29)</td>
</tr>
<tr>
<td>Baseline distress(+)</td>
<td>-1.43(0.29)</td>
<td>&lt;0.0001</td>
<td>-0.60(0.29)</td>
</tr>
<tr>
<td>Rectal cancer</td>
<td>-0.60(1.68)</td>
<td>0.22</td>
<td>-0.60(1.68)</td>
</tr>
<tr>
<td>Private insurance</td>
<td>5.59(1.60)</td>
<td>0.001</td>
<td>0.001</td>
</tr>
<tr>
<td>Unmet needs</td>
<td>-14.14(2.50)</td>
<td>&lt;0.0001</td>
<td>-13.18(2.12)</td>
</tr>
<tr>
<td>Care coordination</td>
<td>0.30(0.09)</td>
<td>0.01</td>
<td>0.50(0.09)</td>
</tr>
<tr>
<td>Advanced stage</td>
<td>4.27(1.68)</td>
<td>0.01</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Conclusions
These findings identify specific patient groups with varying needs over time which could benefit from additional support post-operatively, and provide focus for future interventions to improve patient outcomes.

INTERNATIONAL PATTERNS OF PRACTICE IN RADIOTHERAPY FOR BONE METASTASES: A REVIEW OF THE LITERATURE

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Introduction
Radiation therapy is the standard treatment for symptomatic bone metastases. Several randomized controlled trials and meta-analyses have concluded a similar efficacy in pain relief when comparing single versus multiple fraction regimes. However, there continues to be reluctance to conform to published guidelines that recommend a single treatment for the palliation of painful bone metastases.

Objectives
The objective of this present review is to summarize international patterns of practice and to determine if guidelines recommending single fraction treatment have been implemented in clinical care.

Methods
A literature search was conducted in Ovid Medline, Embase, and Cochrane Central. Search words included, ‘bone metastases’, ‘radiation therapy’, ‘radiotherapy’, ‘patterns of practice’, and ‘dose fractionation’. Both prospective and retrospective studies that investigated the prescription of radiotherapy to bone metastases using actual patient databases were included. Articles were excluded if they investigated hypothetical scenarios.

Results
Six hundred and thirteen results were generated from the literature search. Twenty-six articles met the inclusion criteria. Of these, 11 were Canadian, 8 were European, 6 were American, and 1 was Australian. The use of single fraction radiotherapy (SFRT) ranged from 3 % to 75 %, but was generally lower in American studies. Choice of fractionation depended on a variety of factors, including patient age, prognosis, site of irradiation, and physician experience.

Conclusions
Despite the publication of robust randomized control trials, meta-analyses, and clinical practice guidelines recommending the use of a single treatment to palliate uncomplicated bone metastasis, SFRT is internationally underutilized.

A NEW INTERNET-BASED TOOL FOR REPORTING AND ANALYSING PATIENT REPORTED OUTCOMES (PROS) AND FEASIBILITY OF REPEATED DATA COLLECTION FROM PATIENTS WITH MYELOPROLIFERATIVE NEOPLASMS

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3National Institute of Public Health, University of Southern Denmark, Copenhagen, Denmark

Introduction
A new internet-based tool for reporting and analysing PROs has been developed for use in any disease group. Blood test results are imported electronically and data may be analysed by graphics.

Objectives
The tool has been tested by mixed methods on patients with myeloproliferative neoplasms (MPNs) to investigate whether MPN patients were willing and able to use the tool and submit PROs repeatedly.

Methods
An internet-based tool with an SMS and/or email dispatched when time to submit PROs was developed. Questionnaires in this study were SF-36, EORTC QLQ C-30, MPN-SAF and BFI sent monthly. Participants were recruited from a large haematological outpatient clinic. Quantitative data on participation, preference and persistency for completion of PROs was analysed according to demographics and disease. Qualitative focus group interviews evaluated patients’ acceptance.

Results
Among 135 invited 87 % accepted to participate. Important reasons for refusal were need for getting distance to the disease and lack of time. 91 % preferred to use the internet-based tool rather than paper. 88 % filled out PROs repeatedly for ≥6 month. Those who discontinued were older, more often female and had a lower education. The subgroups polycythaemia vera and myelofibrosis had highest symptom burden and filled out questionnaires most frequently. The qualitative study revealed that the internet-based tool was well-accepted. Repeated collection of PROs was meaningful to the participants.
Conclusions
An internet-based approach and repeated collection of PROs is well-accepted with high participation and persistency among MPN patients. Clinical use of the internet-based tool will be studied in the future.

22-18-P
IDENTIFYING CUT-OFF SCORES FOR THE EORTC QLQ-C30 AND EORTC QLQ-H&N35 REPRESENTING UNMET SUPPORTIVE CARE NEEDS IN HEAD AND NECK CANCER PATIENTS

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Introduction
The European Organization for Research and Treatment of Cancer (EORTC) generic (QLQ-C30) and head and neck cancer (HNC)-specific (QLQ-H&N35) module measuring health-related quality of life are increasingly being used for individual patient management. For use of these measures in clinical practice, guidance on interpretation of individual patient’s scores is helpful.

Objectives
To investigate cut-off scores for the EORTC QLQ-C30 and QLQ-H&N35 to identify HNC patients who may require clinical attention.

Methods
Ninety-six HNC patients completed the EORTC QLQ-C30, QLQ-H&N35 and questions on supportive care needs (SCNS-SF34 and SCNS HNC-module). For all EORTC domains with the ability to discriminate between patients with and without unmet needs (AUC≥0.85), the sensitivity and specificity of potential cut-off scores were calculated.

Results
For EORTC QLQ-C30 domains physical functioning, role functioning, emotional functioning and social functioning, a cut-off of 90 had sensitivity≥0.80 and specificity≥0.67. For EORTC QLQ-H&N35 domains on swallowing, sexuality and sticky saliva, cut-offs of 5 or 10 had sensitivity≥0.85 and specificity≥0.62. Borderline candidate cut-off scores of 80 were found on global quality of life and of 5–30 on fatigue, oral pain, speech and social eating with sensitivity≥0.70 and specificity≥0.60 or sensitivity≥0.80 and specificity≥0.50.

Conclusions
This study provides cut-off scores on the EORTC QLQ-C30 and QLQ-H&N35, that are valuable for use in clinical practice to identify patients with supportive care needs. Future research is needed to investigate whether these cut-off scores can be replicated and are useful in clinical practice.

22-19-P
LIFE AFTER CERVICAL CANCER: SEXUAL FUNCTION AND QUALITY OF LIFE IN LONG-TERM SURVIVORS OF CARCINOMA UTERINE CERVIX AMONG INDIAN WOMEN

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Introduction
Carcinoma cervix is the second most common type of cancer in the world. With the increasing proportion of women surviving carcinoma of the cervix, quality of life has been an important clinical issue.

Objectives
To assess sexual dysfunction and quality of life in patients of carcinoma cervix using the LENT SOMA scores.

Methods
A total of 85 patients were accrued comprising 6 stage IB, 6 stage II A, 25 stage II B, 2 stage IIIA, 45 stage IIIB and 1 stage IV A disease. Sixty six patients were treated with radiotherapy in which 46 patients received chemoradiotherapy and 19 had surgery prior to postoperative radiotherapy. The mean age was 47.81 years with a range of 25–68 years.

Results
Mean sexual function and satisfaction score was higher in 20–29 years age group (p – 0.002). Average objective score was more in higher age group patients (p=0.001). Average subjective score was significantly more in stage IIIA and IIIBB in comparison to IB (p = 0.004 and 0.024 respectively). Average overall score was higher in stage IIIB patients in comparison to stage IB and IIIB (p – 0.023 and 0.004 respectively). Average overall score was higher in pelvic field when compared to extended field (p – 0.044). Average subjective, objective and overall score was more in surgery plus chemoRT. Probability of DFS at 15 years was found to be 0.972.

Conclusions
The LENT SOMA system was acceptable and feasible to use and gave us an insight into the morbidity and will also help us to develop effective management plans to reduce the post treatment symptoms and improve quality of life.

22-20-P
CHANGES IN BODY IMAGE IN PATIENTS WITH ADVANCED CANCER: PERCEPTIONS OF HEALTH PROFESSIONALS

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Introduction
Cancer patient often presents changes in body image (BI), due to cancer treatments and natural evolution of disease, which provoke frequently a high emotional impact concerning to patient’s auto-esteem and identity. There are few studies that describe how health professionals are involved in these changes and their impact, and even less in advanced cancer.

Objectives
Explore the opinion of health professionals on the impact of BI changes of patients attending and their management.
Methods
Multicentre observational study based on a questionnaire administered to health professionals attending advanced cancer patients. Questionnaire includes 4 questions with Likert scale among agreement degree.

Results
Survey 164 professionals (78 physicians, 47 nurses, 37 others). Mean experience was 11, 1 years. Question 1: Is BI important for yourself? 95.7 % of professionals responded total and quiet agreement; Question 2: Is BI of your patients important? 79.9 % responded total and quiet agreement; Question 2: Do you explore BI of your patients? 64 % responded total and quiet agreement, 27.4 % occasionally. Question 4: Do you treat it? 84.7 % responded total and quiet agreement, 12 % occasionally. Interventions: basic advice 65 %, information specialized centres 45.7 %, consult to Psychologist / Social Worker 62.8 %, others (dermatology, dentistry, rehabilitation) 36.6 %. There are no significant differences between physicians and nurses.

Conclusions
Most professionals believe BI changes are very important and properly managed. These data are opposite to patient’s opinion expressed in a few previous studies, where feeling is that professionals are little interested in BI. More and deeper studies are needed for resolve controversy.

22-21-P

IMPACT OF NURSING AND PHARMACY CARE BETWEEN CAPECITABINE AND 5-FUOROURACIL REGIMENS IN THE MANAGEMENT OF METASTATIC COLORECTAL CANCER IN HONG KONG

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Introduction
The traditional chemotherapy for Metastatic colorectal cancer (MCRC) remains on intravenous (IV) fluorouracil (5-FU) based regimens. Recent years, oral chemotherapy has a more practical and economic advantages over IV regimen.

Objectives
The objective of this study was to compare the time savings for nursing and pharmacy time to manage MCRC patients using capecitabine-based regimens versus traditional 5-FU based IV chemotherapy in the Hong Kong.

Methods
This was a prospective time-and-motion study conducted in 2 public hospitals of Hong Kong. The preparation, dispensing and administration time for both capecitabine/oxaliplatin (XELOX) and IV 5-FU/leucovorin/oxaliplatin (FOLFOX4) were documented and compared. The cost and resource utilization per course was estimated based on the Hong Kong Gazette and the median pharmacist and nurse salary in Hong Kong.

Results
The average nursing time for FOLFOX was 83.7 versus XELOX was 33.7 min respectively. The average pharmacy dispensing time for FOLFOX was 25.3 min versus XELOX was 18.7 min respectively. The total time saved for each patient for a 24-week cycle in FOLFOX versus XELOX was 734.8 min in nursing and 154.0 min in pharmacy as well as in FP versus XP was 182 min in nursing and 269.2 min in pharmacy. Nursing and pharmacy could potentially spare 3.3 full time equivalent (FTE) and 1.5 FTE if all MCRC patients were converted to capecitabine-based chemotherapy.

Conclusions
Capecitabine-based chemotherapy regimens saved in both nursing and pharmacy time as compared to traditional 5-FU based IV chemotherapy in the Hong Kong public hospital setting for the management of MCRC.

22-22-P

THE NEED FOR A MORE SYSTEMATIC APPROACH TO ORAL CHEMOTHERAPY CARE: INSIGHTS FROM A MULTICENTRE SURVEY IN JAPAN

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Introduction
With a shift from clinic-based infusion to home-based oral chemotherapy, cancer patients are increasingly at risk of isolation.

Objectives
The objective of this survey was to determine a baseline of nursing practices for oral chemotherapy to improve patient adherence to oral chemotherapy.

Methods
We conducted a cross-sectional survey using nurse-based and patient-based self-reported questionnaires on current nursing practices for patients on oral chemotherapy in 309 cancer centres and 141 general hospitals in Japan. A multivariate logistic regression was used to identify factors associated with adherence-related nursing practices.

Results
A total of 62 nurses from 62 hospitals participated in the nurse-based and patient-based surveys about 249 patients. The results of nurse-based survey indicated that nurses were less likely to ask adherence-related questions of patients with refilled prescriptions than of new patients. The question about unused medicines was significantly related to the questions on side effects, discussions about barriers to achieving balance between treatment and daily activities, and medication management in the patient-based survey. Logistic regression revealed that adherence-related nursing practices were associated with the nurse’s background, type of treatment, and healthcare system-related factors. Patient orientation on oral chemotherapy, interdisciplinary learning, and having a system-based approach for detecting prescription errors were identified as healthcare system-related factors.

Conclusions
A more systematic approach is needed to ensure patients receive safe and effective oral chemotherapy. Nurses should play a vital role in patient education and monitoring.

22-23-P

PSYCHO-SPIRITUAL THERAPY TO IMPROVE THE QUALITY OF LIFE OF WOMEN WITH BREAST CANCER: A RANDOMIZED CONTROLLED TRIAL

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Introduction
Women with breast cancer are often faced with a combination of mental and physical problems, such as anxiety, depression, and fatigue. These problems can significantly affect their quality of life (QOL). Psycho-spiritual therapy (PST) is a holistic approach that integrates the psychological, spiritual, and physical dimensions of the individual. It is a promising intervention that has been shown to improve QOL and psychosocial well-being in women with breast cancer. A randomized controlled trial (RCT) was conducted to evaluate the effectiveness of PST in improving QOL in women with breast cancer.

Methods
A total of 50 women with early-stage breast cancer were randomly assigned to a PST group (n = 25) or a control group (n = 25). The PST group received eight sessions of PST, while the control group received usual care. The primary outcome measure was the quality of life (QOL) assessed using the European Organisation for Research and Treatment of Cancer (EORTC) QLQ-C30 questionnaire.

Results
The PST group showed significantly higher QOL scores in the physical, social, and emotional functioning domains compared to the control group. The PST group also reported lower levels of depression and anxiety. The PST intervention had a positive impact on QOL and mental health in women with breast cancer.

Conclusions
Psycho-spiritual therapy is an effective intervention for improving QOL and mental health in women with breast cancer. It should be considered in the treatment plans for these patients.
Introduction
Diagnosis of breast cancer is a tragic event for a woman. In addition to distress from physical symptoms, cancer patients may experience psychological, social and spiritual problems that threaten their quality of life.

Objectives
The aim of this study was to assess the role of psycho-spiritual therapy intervention in improving the QOL of patients with breast cancer undergoing radiation therapy.

Methods
This randomized controlled clinical trial (RCT) recruited 65 women with breast cancer, randomly assigned to a 6-week spirituality-based intervention (n=34) or control group (n=31). Before and after six-week spiritual therapy intervention, the QOL was assessed using European Organization for Research and Treatment of Cancer Quality of Life (EORTC-QLQ-C30) and its breast-specific module (BR-23). Functional Assessment of Chronic IllnessTherapy SpiritualWell-being scale (FACT-Sp12) was used to evaluate the spiritual well-being of the patients.

Results
In all, 65 patients actually completed the six-week intervention and were evaluated for the outcome. The mean Global health status score/QOL reached from 44.37 (SD:13.03) to 68.63 (SD:10.86), (p<0.00). All functional scales of QLQC30 (physical, role, emotional, cognitive, and social) were improved after intervention (p<0.05). There was a significant difference between arms of study (F=22.91, P<0.001). A significant positive correlation was detected between meaning and peace with all functional subscales on QLQ-C30 (P<0.05).

Conclusions
The results of this study suggest that participation in psycho-spiritual therapy program is associated with improvements in all domains of QOL. Targeted interventions to acknowledge and incorporate psychosocial needs into conventional treatment should be considered in caring of patients with breast cancer.

THE EFFECTIVENESS OF SUPPORT GROUPS IN ASIAN BREAST CANCER PATIENTS: AN INTEGRATIVE REVIEW

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Introduction
Cancer support group has been studied as an intervention to improve patient psychosocial wellbeing. The effectiveness of support groups among Asian breast cancer patients has been unclear and received limited attention to the evidence. The Social-Cognitive Processing Theory underlies the principles of support groups and advocates that a positive, supportive social environment can improve cognitive processing.

Objectives
This paper presents an integrative review of research evidence on the effectiveness of cancer support groups with Asian breast cancer patients.

Methods
Empirical studies related to support group among Asian breast cancer patients published between 1982 and April 2014 are reviewed. There are 15 studies selected (12 from the Asian-Pacific region and 3 from Western countries).

Results
The review includes one qualitative studies, three descriptive studies, one mixed method design, and ten experimental or quasi-experimental studies. The support group intervention activities include psycho-educational program such as health education, problem-solving, and stress management. These studies support the effectiveness of support group in alleviating psychological distress and supporting quality of life of Asian breast cancer women.

Conclusions
Overall, there is limited research on the use and effectiveness of support groups with Asian cancer patients in Asia and in Western countries. Without accounting for Asian immigrants overseas, the Asian population is expected to grow from 4.3 to 5.3 billion by 2050. As cancer patients become more diverse due to global emigration, more rigorous studies examining the effectiveness of psychosocial intervention among transcultural cancer patients are needed.

UNDERSTANDING ADVANCED PROSTATE CANCER DECISION-MAKING USING AN INTERACTIVE DECISION AID

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Introduction
Healthcare decision making is complex, particularly as it relates to cancer treatment. Decision aids help prepare patients and their support person make informed, shared decisions about recommended treatments. This is especially true for advanced prostate cancer patients experiencing important decision-making challenges.

Objectives
This program of research aims to enhance patient care for prostate cancer patients by understanding decision-making in this population. Qualitative findings are described from two studies that used an interactive decision aid for advanced prostate cancer patients with different trajectory stages along with their support person to facilitate informed, shared decisions about treatments that affect quality of life.

Methods
A mixed method design was used to test the decision aid among advanced prostate cancer patients. Institutional Review Board approval was obtained.

Results
Thirty-five pairs (patient/support person) from two cancer centers were interviewed. Similar themes between the two advanced prostate cancer trajectories included: 1) the decision aid helped to understand treatment options, and 2) contact with the healthcare provider team had a great influence on the decision. Two themes differed depending on early or later disease trajectory, respectively 1) quality of life was more important than quantity of life and 2) the decision aid helped patients and their support person become more involved in treatment decisions.

Conclusions
There were similarities and differences between the two trajectory groups. The majority of participants believed that the decision aid helped them become more aware of their personal values, assisted in their treatment decision-making, and enhanced the patient-healthcare provider relationship.
22-26-P

PROSPECTIVE ASSESSMENT OF THE QUALITY OF LIFE BEFORE, DURING AND AFTER RADIOTHERAPY FOR PROSTATE CANCER

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Introduction
Patients with prostate cancer (PCa) are often in good clinical condition and have a long life expectancy. Therefore, it is important that the treatment does not impair the quality of life (QoL).

Objectives
To prospectively assess the QoL before, during and after radiotherapy (RT) for PCa. Furthermore, the QoL one year after RT was compared to the QoL of a normal population.

Methods
The QoL was evaluated prospectively with the self-administered questionnaire SF-36 in a cohort of 87 patients with PCa. The SF-36 was completed before RT (baseline), at the start of RT, at the end of RT and one year after RT. A mixed model analysis was used to determine the changes in QoL at each time point compared to baseline. Furthermore, the QoL one year after RT was compared to the QoL of a normal population consisting of 462 reference subjects matched on age and education.

Results
Patients reported significantly less pain and fewer limitations due to physical health one year after RT compared to baseline. No clinically significant changes were observed for the mental QoL. Compared to the normal population patients reported significantly less pain one year after RT. However, patients also reported significantly less vitality, worse mental health and more limitations due to mental health one year after RT compared to the normal population.

Conclusions
Patients did not experience clinically significant impairment in the QoL one year after RT compared to baseline. One year after RT, patients reported less pain but also worse mental health than the normal population.

22-27-P

INCIDENCE OF PAIN FLARE IN RADIATION TREATMENT OF BONE METASTASES: A LITERATURE REVIEW

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Introduction
Pain flare is a temporary increase in pain and is a potential side effect of radiotherapy treatment that can lead to decreased quality of life and hesitancy in receiving further treatment. Its incidence has been reported previously with great variability. A few studies have reported on the use of dexamethasone as a prophylactic agent in the prevention of pain flare.

Objectives
Our objective is to present a review of the literature regarding the incidence of pain flare and use of prophylactic dexamethasone.

Methods
A literature search was conducted in PubMed using subject keywords including “radiation therapy”, “bone metastases”, “pain flare”, and “dexamethasone”. The search was limited to English only but not restricted to any time period. A search was also conducted in the American Society for Therapeutic Radiology and Oncology 2014 book of published abstracts. Inclusion criteria were primary studies published with full text or abstracts only.

Results
Seven articles investigated pain flare and/or dexamethasone use for conventional external beam radiation therapy (EBRT) while the remaining 4 investigated stereotactic body radiation therapy (SBRT). Pain flare incidence ranged from 2 to 44 % for EBRT and 10 to 68 % in SBRT. The use of dexamethasone is effective in both the prophylaxis and treatment of pain flare.

Conclusions
Pain flare is an acute toxicity of both EBRT and SBRT. The use of dexamethasone in the prophylaxis of pain flare is efficacious. Future studies are required in order to optimize the reporting of pain and dexamethasone regimens in the prevention of pain flare.

22-28-P

TRENDS IN THE AGGRESSIVENESS OF END-OF-LIFE CANCER CARE IN THE STATE OF QATAR

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Introduction
The quality of end-of-life (EOL) care is becoming recognized as a key component of excellence in cancer care. Monitoring these quality indicators is crucial to provide continuing excellence in cancer care.

Objectives
The aim of this study was to describe trends in the aggressiveness of EOL cancer care in Qatar and to compare our findings with those reported in North America.

Methods
This retrospective, population-based cohort study analyzed all cancer deaths in Qatar between January 1, 2009 and December 31, 2013 to measure markers of EOL cancer care. Aggressiveness of EOL care was then examined by a composite measure adapted from Earle et al. with scores ranging from 0 to 7, in which higher scores indicate more aggressive EOL care.

Results
The proportion of patients who experienced at least one event of potentially aggressive EOL cancer care decreased during the 5-year study period from 82.3 % to 71.0 % (p=0.038). The mean composite score for the aggressiveness of EOL care was 2.10 (mean)±0.77 (standard deviation), decreasing significantly from 2.24 in 2009 to 1.92 in 2013 (p<0.01). This change can be attributed to significantly reduced proportions of more than one ER visits and ICU admissions within 30 days of death since 2009.

Conclusions
The aggressiveness of EOL cancer care has decreased over time in Qatar, whereas the North American trends are increasing. Although trends are decreasing in Qatar, the overall rates of these measures are higher than those in North America.

22-29-P

SUPPORTING HEAD AND NECK CANCER PATIENTS THROUGH RADIOTHERAPY USING HOLISTIC THERAPY

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Introduction
The Beatson West of Scotland Cancer Centre treats approximately 400 new head and neck cancer patients each year. Patients undergoing
radiotherapy or chemo radiotherapy have a beam direction shell (BDS) made to immobilise them during radiotherapy. Wearing the BDS can cause heightened anxiety and claustrophobia. This in turn can lead to delays in treatment being carried out and in extreme cases refusal to have treatment. Evidence for psychological interventions to improve outcomes is well documented (Luckett 2010)

**Objectives**
The objective of this work was to use holistic therapies to improve the patient experience in patients suffering with anxiety

**Methods**
During a 5 month period in 2012 83 patients were screened using the distress thermometer a well recognised screening tool for measuring stress and anxiety.

11 patients (12 %) were identified as requiring interventions After introduction to the centre therapist, therapies carried out included reflexology relaxation breathing techniques and clinical hypnotherapy

During a 5 month period in 2012 83 patients were screened using the distress thermometer a well recognised screening tool for measuring stress and anxiety.

11 patients (12 %) were identified as requiring interventions After introduction to the centre therapist, therapies carried out included reflexology relaxation breathing techniques and clinical hypnotherapy

no patients required to be medicated which would have been the previous method of treatment

**Results**
All patients started and completed their radiotherapy in accordance with their planned patient pathway

Conclusions
by screening patients in this manner and resolving stress and anxiety relating to the BDS it has become apparent that patients journeys can be more stress free during radiotherapy these interventions have improved the patient journey and give patients access to therapies not normally available within our centre

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**22-31-P**

VALIDATION OF THE ARABIC VERSION OF THE EORTC QLQ-C15-PAL QUESTIONNAIRE IN CANCER PATIENTS

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**Introduction**
Quality of life is an important outcome in cancer care and needs assessment by a valid questionnaire.

**Objectives**
Evaluate the psychometric properties of the Arabic version of EORTC QLQ-C15-PAL Methods A cross sectional study of a convenient sample of inpatients with cancer.

**Results**
170 patients completed the questionnaire. Cronbach’s coefficient met the 0.7 alpha criterion.

Confirmatory Factor Analysis met the goodness of fit criteria; GFI, CI, NFI and NNFI>0.90 and RMSEA<0.06.

All item-scale correlation coefficients exceeded the set value of 0.40, indicating satisfactory convergent validity.

In terms of discriminant validity, all items in the questionnaire showed a higher item-scale correlation more than item-other scale correlation, except for items 1 and 2 (physical function scale) showed a higher correlation with fatigue. 86.4 % correlation tests were successful in terms of item discrimination.

Construct validity was tested by item inter scale correlation coefficient. All constructs had correlation coefficient >0.70. The strongest correlation were found between physical symptoms and fatigue (r=0.60).

Known group method analysis was used to compare scores of patients who had metastasis and who did not have metastasis. Significant differences (P value <0.05) were found in all scales except item 9. Age groups were compared and showed significant differences for physical function, fatigue and global score of quality of life.

**Conclusions**
Arabic version of the EORTC QLQ-C15-PAL is valid and reliable.”

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**22-30-P**

SOCIAL AND MEDICAL DETERMINANTS OF QUALITY OF LIFE IN ADVANCED CANCER PATIENTS WITH BRAIN METASTASES UNDERGOING PALLIATIVE RADIOTHERAPY.

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**Introduction**
Social determinants of health (SDOH; age, gender, marital status, education and employment) may affect quality of life (QOL) in patients with poor prognoses.

**Objectives**
To describe associations between SDOH, medical factors, and QOL in patients with brain metastases undergoing palliative radiotherapy.

**Methods**
The EORTC QLQ-BN20+2 was administered to 156 patients from four cancer centres (3 Canadian, 1 Spanish), at baseline and 1-month follow-up post-treatment. Univariate and multivariate analyses of variance were used to identify important factors at baseline. Wilcoxon rank-sum or Kruskal-Wallis tested scale changes of different variables between baseline and follow-up.

**Results**
Median age was 61y with 53 % = female. Median Karnofsky Performance Status (KPS)=80. Primary cancer sites included lung

(52 %), breast (23 %), and gastrointestinal (10 %). At baseline, patient KPS>80 predicted lower visual disorder (p=0.01), motor dysfunction (p=0.0001), drowsiness (p=0.045), bladder dysfunction (p=0.01), and communication deficit (p=0.04) scales. Female gender predicted more difficulty remembering (p=0.02) and higher communication deficit scales (p=0.02). Age<60y predicted fewer seizure-related issues (p=0.01). Patients with university-level education or higher predicted lower leg weakness scales (p=0.005). Employment predicted lower visual disorder scales (p=0.001). Marital status predicted less motor dysfunction (p=0.02) and less pruritus (p=0.001). Between baseline and follow-up, KPS>80 predicted greater decreases in pruritus (p=0.03); female gender predicted greater decreases in future uncertainty (p=0.01) and communication deficit scales (p=0.02); age<60y (p=0.03) and employment (p=0.02) predicted greater decreases in visual disorders.

**Conclusions**
KPS was associated with significant impacts on BN20+2 domain scores. SDOH had less importance across domains. Further defining these associations will help develop palliative strategies aimed to improve patient QOL.
PHYSICAL ACTIVITY AND QUALITY OF LIFE AFTER RADICAL PROSTATECTOMY.

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Introduction
Radical prostatectomy is the most common treatment for early stage prostate cancer and provides an effective cure in most cases. However, radical prostatectomy side-effects negatively affect health-related quality of life.

Objectives
Recent publications show that higher physical activity levels are continence-protective. Primary aims of this study were to investigate relationships between perioperative physical activity levels and post-prostatectomy quality of life.

Methods
We evaluated symptoms and self-assessments of quality of life in 51 men with localized prostate cancer 1 week prior to surgery, and 6 month postoperatively who completed the Patient Oriented Prostate Utility Scale and International Physical Activity Questionnaire. Urinary incontinence was measured 6 months postoperatively using a 24-h pad test. Including evaluation of preoperative quality of life allowed to treat the studied patients as controls for themselves. The mean age of patients was 64.4 years. Patients were treated from 2010 to 2014.

Results
There was a weak interaction between perioperative physical activity and post-prostatectomy sexual function. A worsening of the sexual function was observed in 81 % patients, who had reported having normal sexual activity preoperatively. There was no also interaction effect between preoperative physical activity category and time on the 24-h pad test. After 6 month follow up 70 % of patients were continent.

Conclusions
There was no relationship between perioperative physical activity levels and post-prostatectomy urinary incontinence, erectile dysfunction despite recent publications.

COVER MAKEUP IMPROVED CANCER PATIENTS’ QUALITY OF LIFE.

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Introduction
Appearance changes caused by cancer therapy could decrease patients’ Quality of Life (QoL). National Cancer Center in Japan showed that the appearance problems (e.g., alopecia, skin pigmentation) were more painful for cancer patients than physical symptom such as nausea and cancer pain. Our previous interview survey revealed that skin changes decreased patients’ QoL in various ways, e.g., “I cannot go swimming with this wound” and “I don’t like to see anyone due to the pigmented face”. Some care should be needed so that they could live as “ordinary members of society” not only as “patients”.

Table 1

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<tr>
<td>Q1</td>
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<tr>
<td>Q12</td>
<td>2.39</td>
<td>1.198</td>
<td>170</td>
</tr>
<tr>
<td>Q13</td>
<td>2.31</td>
<td>.993</td>
<td>170</td>
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<tr>
<td>Q14</td>
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<tr>
<td>Q15</td>
<td>3.76</td>
<td>1.763</td>
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</table>

P.S. Q15 is scaled from 1 to 7, values were inverted; 1 excellent; 7 very poor. Cronbach’s alpha for all items was 0.91

Table 2

<table>
<thead>
<tr>
<th>Pearson’s Correlations</th>
<th>Physical function</th>
<th>Pain</th>
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<th>Emotional</th>
<th>Physical symptoms</th>
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<td>0.46</td>
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<td>Pearson Correlation</td>
<td>-0.57</td>
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<td>Q3</td>
<td>Pearson Correlation</td>
<td>-0.68</td>
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<td>Q11</td>
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<td>Q7</td>
<td>Pearson Correlation</td>
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<tr>
<td>Q13</td>
<td>Pearson Correlation</td>
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<td>0.51</td>
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<td>Q14</td>
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<td>Q9</td>
<td>Pearson Correlation</td>
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Table 3

<table>
<thead>
<tr>
<th>Pearson’s correlations</th>
<th>Physical function (Q1,2,3)</th>
<th>Pain (Q5,12)</th>
<th>Fatigue (Q7,11)</th>
<th>Emotional (Q13,14)</th>
<th>Physical Symptoms (Q4,6,8,9,10)</th>
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<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1.00</td>
<td>-0.36</td>
<td>-0.37</td>
<td>-0.22</td>
<td>-0.28</td>
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</table>

Author's personal copy
Objectives
This study was performed to examine whether “cover makeup” on the skin appearance changes could contribute to the cancer patients’ QoL.

Methods
Cover makeup was introduced for the applicants. The QoL surveys (Skindex-16 and VAS) were performed before and 2–3 months after the first cover makeup respectively. The cover makeup cream that match each one’s skin color for the patients to use it freely for this period. The QoL values were compared between the two points.

Results
The analysis was performed for 44 patients (breast 22, thyroid 10, stomach 5, others 7). Both the Skindex-16 and VAS scale showed a value of improvement with significant difference.

Conclusions
This study showed that the cover makeup could improve the cancer patients’ QoL using subjective scales. Appearance changes tend to be denigrated but more attention should be paid appearance care so that cancer patients live their lives.

22-34-P

ROLE OF VAGINAL MOULD BRACHYTHERAPY FOR HAEMOSTASIS IN RECURRENT CERVIX CANCER – A PHASE 3 STUDY.

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2Radiotherapy, IPGMER, Kolkata, India

Introduction
Ligation of internal iliac arteries is commonly done in most cases of vaginal bleeding Cancer cervix. Reirradiation by HDR brachytherapy is another less invasive, less expensive better patient-compliant modality.

Objectives
The present study aims to compare the efficacy of brachytherapy mould with vessel ligation in recurrent vaginal bleeding

Methods
Study included locally advanced carcinoma cervix, with vaginal bleeding in post treatment phase. They were treated either by bilateral internal iliac ligation (Group A) or HDR brachytherapy with surface mold applicator (Group B) - delivered by Iridium-192 source. A dose of 400 Gy per fraction prescribed at 5 mm below vaginal surface epithelium, twice daily, 6-h apart for allowing normal tissue repair time for consecutive three days were given to GrB patients. The dose at ICRU bladder and rectal points were taken into account as organ at risk.

Results
Of 209 Patients of cancer cervix (stage III A&B, stage IV) 209(57.26 %) 82 had complained of bleeding episodes per vagina, per rectum or both. All patients had been treated with tranexamic acid, pressure pack and epsilon aminocaproic acid. Patients who failed to respond were treated either by bilateral internal iliac ligation (52 cases) or intra vaginal surface mold brachytherapy (30cases). Of 30 patients treated with palliative brachytherapy 25 patients (83.3 %) showed durable remission of hemorrhage. For the rest 5, 2 were tried with cryo-cauterisation and 3 (10 %) internal iliac ligation.

Conclusions
Mold brachytherapy for control of hemorrhage in recurrent locally advanced cancer cervix can be an effective procedure for improving the quality of life.

22-35-P

COMPARATIVE STUDY OF 132 PATIENTS WITH CANCER PAIN - MULTIDIMENSIONAL EVALUATION BASED ON THREE VALIDATED QUESTIONNAIRES

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2Biophysics/Biomathematic Depts, Coimbra University - Faculty of Medicine, Coimbra, Portugal

Introduction
Quality-of-life (QoL) can be markedly affected in cancer patients experiencing pain. Assessment is a challenge. Vicious cycle (chronic pain, sleep disturbances, anxiety, depression, changes in daily living activities (DLA) can worsen baseline pain-threshold. Uncontrolled psychosomatic system may influence pathology’s evolution and our study has a laboratorial investigation in course to evaluate the plasma levels of cytokines and chemokines relating different pain stages with pain treatment.

Objectives
Determine the impact of uncontrolled pain on QoL and bio-psycho-social conditional factors through comparison of three validated questionnaires.

Methods
Multifactorial, prospective, observational, cross-sectional study, approved by Hospital Ethics Committee, including 132 oncologic patients (informed consent signed) who fulfilled the validated Portuguese versions of Hospital Anxiety/Depression Scale (HADS), SF 36 (QoL), Brief Pain Inventory (BPI). Parameters assessed: pain, anxiety, depression, DLA, QoL. Statistical analysis (SPSS 20.0), Spearman’s correlation (significance p<0.05)

Results
Pain evaluated on BPI significantly correlated to anxiety (p<0.001), depression (p<0.001), majority SF36 parameters, and BPI sub-dimensions (p<0.001). HADS-anxiety and depression, significantly correlated with global QoL (p<0.003 and p<0.001, respectively). Dependence, significantly correlated to depression (p<0.001), global QoL (p<0.001) and sub-dimensions (p<0.01), but not anxiety (p=0.060).

Conclusions
Significant correlations found determine the impact of a poorly controlled pain in cancer patients’QoL, becoming crucial a global early psychosomatic diagnosis and an effective treatment of Total Pain. Due to evident collinearity, cost/benefit ratio must be weighed selecting the inquiry tools, considering patients’clinical conditions, appointment reduced time and physical/emotional overload of health professionals. However, more extensive studies would allow a more careful selection to minimize duplication of information.

22-36-P

QUALITY OF LIFE FOR CHILDREN WITH BRAIN TUMORS

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Introduction
By comparing children with brain tumors (BT) to children in the general population, one can better understand the impact of BTs on quality of life (QoL). This is possible with the Patient Reported Outcomes Measurement Information System (PROMIS), a national resource funded by the US NIH for precise and efficient measurement of common symptoms, functional status and QoL.
Objectives
This study aims to use PROMIS (anxiety, depression, fatigue, social function, mobility, and upper extremity) to monitor the long-term effects of BT treatment and compare the effectiveness across treatments.

Methods
We plan to recruit 450 children (ages 5–21) with BTs, at any disease stage, and their parents. As of today, 124 children (mean age=13.9 years; 49.2% boys; 76.2% white) with BTs were recruited. Of them, averaged years since diagnosis=5.2, 67% received surgery, 83% received chemotherapy, 58% received radiation, and 18% were<1 year post-diagnosis. Parents rated their child’s QOL using a single item (poor/fair/good/very good/excellent). T-test and ANOVA were used to compare group differences.

Results
Patients with <=1 year post-diagnosis had worse mobility and upper extremity but better social function than those with >1 year post-diagnosis (p<0.05). There was no significantly different scores between types of treatment. Patients who were rated fair/poor QOL had significantly poor (p<0.001) scores on all domains, except anxiety, than those who were rated with other ratings.

Conclusions
Brain tumor treatment may negatively impact QOL. These early trends must be confirmed in the full, complete study. Recruitment will be completed in 2016.

22-37-P

INDIVIDUAL DIFFERENCES AND COPING STYLES INFLUENCE IMPACT OF CHEMOTHERAPY INDUCED ALOPECIA

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1Research, Netherlands Comprehensive Cancer Organisation, Eindhoven, Netherlands
2Oncology, Patricia Ritchie Centre for Cancer Care and Research Mater Hospital and University of Sydney, Sydney, Australia

Introduction
Although chemotherapy-induced alopecia (CIA) can be considered a temporary, cosmetic side effect of cancer treatment, qualitative studies have described it’s impact on body image and quality of life (QoL). A few studies have focused on coping strategies for CIA.

Objectives
We have studied in detail the relation between coping strategy and impact of CIA.

Methods
Focus group and patient interviews were conducted in the Netherlands (n=19) and Australia (n=17). Patients were asked about the impact of CIA on their QoL and about their coping strategies. Interview transcripts from both countries were thematically analysed and data combined.

Results
The impact on QoL of CIA varied widely; from “not having been any problem at all” to “I was constantly aware of it for many months”. The coping style adopted at the beginning of chemotherapy was decisive for the whole treatment period. Although, over time, some acceptance of hair loss developed, negative impacts on QoL persisted throughout treatment. Patients who took CIA for granted mainly had problems with the often unexpected, unpleasant compassion they received from total strangers.

Conclusions
Type of coping style determined the short and long term impact of CIA, during all daily activities and contacts with patients’ close relatives, colleagues or total strangers. Patients were in favour of receiving more practical information from fellow patients about how to cope with alopecia and re-growth of hair.

22-38-P

IMPROVING QUALITY OF LIFE FOR FAMILY CAREGIVERS OF CANCER PATIENTS: A NARRATIVE REVIEW OF LITERATURE

B. Luao1, T. Wang1, W. Wang2, J. Hong3
1Nursing, School of NursingAnhui Medical University, Hefei, China
2Nursing, School of nursing Anhui Medical UniversityNursing International Union Research Center of Anhui Province Hefei China, Hefei, China
3Nursing, School of nursing Anhui Medical University, Hefei, China

Introduction
Most often, family caregivers are the primary and the most valued source of support and care for cancer patients. Changes in medical and economic practices increasingly put family caregivers at the center of care throughout the course of the patient’s disease without preparation for this role. It has been reported that family caregivers are at high risk for depression, anxiety, burden and poor physical health. All this not only decrease the quality of life of family caregivers, but also the quality of care and support they provide.

Objectives
To synthesize current research findings related to the quality of life of the family caregiver, so that to develop the intervention among family caregivers in practice settings.

Methods
A comprehensive search of seven electronic databases for literature between 2000 and August 2014 helped to identify intervention studies that addressed issues of intervention of quality of life among family caregivers of cancer patients. Pertinent websites were also searched. The reference lists and bibliographies of retrieved articles were hand-searched to identify other relevant studies.

Results
24 studies met the inclusion criteria. Three types of interventions were offered to family caregivers: psycho-educational, skills training, and therapeutic counseling. They significantly reduced caregiver burden, improved caregivers’ ability to cope, increased their self-efficacy, and improved aspects of their quality of life.

Conclusions
There is limited research about the intervention of family caregiver. This paper highlights the need for further research into intervention of improving the quality of life among family caregiver.

22-39-P

EXPLORING CANCER PATIENTS’ OUT OF POCKET COSTS AND QUALITY OF LIFE

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2Health Economics, MacMaaster University, Hamilton, Canada

Introduction
Existing quantitative study of cancer patient financial costs examines traditional items (i.e., parking, medications, assistive devices, etc.) but fails to garner insight regarding patients’ perspectives on other types of items that require financial outlay during and following a diagnosis of cancer.

Objectives
This project was undertaken to expand our understanding of cancer patients out of pocket costs related to their treatment and the implications on quality of life.
Methods
In-depth interviews were conducted with individuals either in person during clinic or by phone. Interviews were recorded and transcribed verbatim for analysis. Using a collaborative research team approach, the transcripts were subjected to a descriptive qualitative analysis.

Results
Seven individuals with breast cancer, 3 with colorectal cancer, 2 with lung cancer, and 2 with prostate cancer completed the interviews. Consistent with existing publications, participants expressed concerns regarding expenses related to: medications, complementary/alternative medicines, devices, parking and travel. These were exacerbated if they did not have insurance or lost insurance coverage. Several noted these financial challenges had a negative impact on their personal and family’s quality of life. Although many acknowledged in hindsight that additional insurance would have helped, they also recognized that at the time of their diagnoses it was not an option. Previously unidentified categorical costs identified included: modifications to housing arrangements or renovations, impacts of an altered diet, and special clothing.

Conclusions
We confirmed results of earlier quantitative work conducted in Canada and identified additional cost categories not previously explored in quantitative work. Clearly financial burden can decrease patient and family quality of life.

22-40-P
IDENTIFYING SPIRITUAL DISTRESS IN CANCER PATIENTS
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2Chaplaincy, Sunnybrook Health Sciences Centre, Toronto, Canada
3Palliative Care, Sunnybrook Health Sciences Centre, Toronto, Canada

Introduction
Spiritual care is recognized as an important component of holistic care. However, there is little consensus about what constitutes best practice to identify patients suffering from spiritual distress.

Objectives
The goal of the current project is to identify a simple question or questions that can be used by front line health care providers which will accurately identify patient suffering from spiritual distress.

Methods
A total of 16 patients and 22 health care providers (social workers, physicians, nurses) underwent in-depth interviews regarding their perspectives regarding spiritual distress and ways of identifying in their daily practice. Verbatim transcripts were subjected to a qualitative descriptive analysis.

Results
Patients had very little difficulty describing what constituted spiritual distress for them and the impact it had on their lives. They perceived spirituality, whether based on a traditional religious belief system or a wider universal view of the spiritual, as an important aspect of their recovery, dying, and overall well-being. In contrast, health care providers had difficulty describing spiritual distress and were not able to articulate one way of identifying it in their patient populations. There was a range of views about if, and when, spirituality was a component of their professional practice.

Conclusions
This work emphasized the importance of spiritual care for patients with cancer and underscored the challenges health care providers experience regarding the incorporation of spiritual care in their daily practice. Overall, few health care providers felt prepared and comfortable in approaching the topic with patients.

22-41-P
PSYCHOMETRIC PROPERTIES OF THE FUNCTIONAL ASSESSMENT OF CANCER THERAPY-NEUTROPENIA (FACT-N) IN ASIAN CANCER PATIENTS WITH CHEMOTHERAPY-INDUCED NEUTROPENIA
X.J. Wang1, C.M. Wong1, Y.T. Goh1, A. Chan1
1Department of Pharmacy, National University of Singapore, Singapore, Singapore

Introduction
Functional Assessment of Cancer Therapy-Neutropenia (FACT-N) is a self-reported instrument to assess neutropenia-specific concerns and quality of life (QOL) among cancer patients.

Objectives
To examine psychometric properties of FACT-N as a QOL measuring instrument for patients experiencing chemotherapy-induced neutropenia (CIN).

Methods
This cross-sectional study included cancer patients with CIN from the largest ambulatory cancer centre in Singapore. Either English or Chinese versions of the FACT-N and the European Quality of life-5 Dimensions (EQ-5D) were administered to participants face-to-face by interviewers. Reliability was evaluated by using Cronbach’s α within the neutropenia domains (NS). Known-group validity assessment was based on Eastern Cooperative Oncology Group (ECOG) status. Pearson correlation coefficient was calculated to examine the strength of the association between NS and other measures of quality of life including the validated Functional Assessment of Cancer Therapy-General (FACT-G) subscales and EQ-5D domains.

Results
A total of 78 English-version and 40 Chinese-version FACT-N questionnaires were completed from August 2014 to December 2014. There were high internal consistencies within NS (Cronbach’s α 0.76-0.88), except for the flu-like symptom subscale (Cronbach’s α 0.61). With regards to known-group validity, higher scores were observed among patients with good performance status (ECOG<2) than among those with poor performance status (ECOG≥2) for both FACT-N and EQ-5D (P=.003 and <.001, respectively). NS scores have moderate to strong correlations with pain/discomfort in EQ-5D and physical wellbeing, emotional wellbeing, and functional wellbeing in FACT-G (r=0.40-0.63).

Conclusions
FACT-N is a valid and reliable instrument for clinical and research use.

22-42-P
IMPLEMENTING A COMPLEX CAM (COMPLEMENTARY AND ALTERNATIVE MEDICINE) NURSING INTERVENTION IN TWO OUTPATIENT CANCER SERVICES – A FIRST PRELIMINARY REPORT OF THE CONGO STUDY
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2Department of Gynecological Endocrinology and Reproductive Medicine / Naturopathy and Integrative Medicine, University Women’s Hospital Heidelberg, Heidelberg, Germany
3Institute of General Practice, University Hospital Tuebingen, Tuebingen, Germany

Introduction
Increasingly, cancer centers integrate CAM into their supportive care program, but thorough investigation of the effectiveness of such programs is still missing.
 objectives

The purpose of the CONGO (complementary nursing in gynecologic oncology) study is to investigate if a complex CAM nursing intervention increases quality of life in patients with breast and gynecologic cancer undergoing a new chemotherapy regimen.

Methods

The CONGO study uses a partially randomized preference-based study design; 590 patients in two different clinical settings will be recruited. The intervention consists of three autonomous, but interweaved complementing elements: a) CAM nursing packet, b) resource-oriented counseling, c) evidenced-based information material. The first element targets 14 symptoms frequently experienced by patients during chemotherapy, which can be treated by CAM interventions either in the clinic or at home. The primary outcome QOL will be measured with the EORTC-QLQ-C30. Eleven secondary outcomes (e.g., fatigue, nausea, pain, anxiety/depression, patient competence, spiritual well-being) will be assessed with other validated instruments. A mixed-methods process evaluation will provide further information on the acceptability and feasibility of the implementation process from nurses, patients, and their family members.

Results

Recruitment of the study started in June 2014 and will last till 2016. Preliminary results will be presented at the conference.

Conclusions

Based upon a theoretical framework corroborated by evidence-based CAM studies and practical nursing experience, a complex CAM nursing intervention was compiled and implemented. Results of the CONGO study will contribute to evidence-based CAM nursing, providing recommendations on how to integrate CAM nursing interventions in supportive cancer care.

22-43-P

EFFEKTVENNENESS OF COOLING OF THE SCALP FOR PREVENTION OF ALOPECIA DURING ANTHRACYLINE AND TAXANE BASED CHEMOTHERAPY

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Introduction

Prevention of alopecia by Cooling Cap during chemotherapy improves quality of life of patients

Objectives

189 females with breast cancer were enrolled in the study.

Methods

Patients received anthracycline-based regimens (n=88, group 1), taxane-based regimens (n=63, group 2) and combination of taxanes and anthracyclines (n=38, group 3) as 1st-line chemotherapy. DigniCap™ was used as cooling system. The Cap was cooled to 5.5 °C. The Cap was applied 30 min. before, during and 2.5 h after chemotherapy.

Results

Total number of chemotherapy cycles reached 595. Effectiveness of the Cap in group 1 was 89.8 % (n=79) after the 1st cycle; 86.1 % (n=68) - after the 2nd cycle; 72.2 % (n=57) - after 4nd cycles; 66.7 % (n=6) - after 6nd cycles. Effectiveness of the Cap in group 2 was 82.5 % (n=52) - after the 1st cycle; 69.8 % (n=44) - after the 2nd cycle; 67.3 % (n=35) - after 4nd cycles; 72.7 % (n=8) - after 6nd cycles. Effectiveness of the Cap in group 3 was 50 % (n=19) after the 1st cycle; 36.8 % (n=7) - after the 2nd cycle; 10.5 % (n=4) - after 6nd cycles. Portability procedure was good. There were no complications.

Conclusions

The use of the Cooling Cap can effectively prevent alopecia during chemotherapy.

22-44-P

EVALUATION OF SEXUAL QUALITY OF LIFE IN WOMEN WITH GYNECOLOGICAL CANCER

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Introduction

Compared to other diseases, cancer causes higher rates of sexuality-related problems. Treatment and diagnostic procedures of gynecological cancers negatively affect the sexuality.

Objectives

The aim of the present study was to determine the Sexual Quality of Life-Female (SQOL-F) levels of the women of gynecological cancer and to find out the problems that affect their quality of life, and sexual health.

Methods

This was a cross-sectional, study conducted at A University’s Medicine Faculty Hospital in Edirne city in Turkey. Thirty seven women with gynecological cancer who attend the out patient clinic in the obstetrics and gynecologic department and thirty nine women with menapouse (control group) were included in the present study. Data were collected using the Sexual Quality of Life-Female (SQOL-F) questionnaire. Data were analyzed by percentage, mean, Mann Whitney-U test, Spearman Correlation analyses.

Results

The average age of the women were 52.7±7.6, the average women’s with gynecological cancer SQOL-F scores were 51.2±8.7, and women with menapouse were 54.3±6.0. There was no statistically significant differences between women’s with gynecologic cancer SQOL-F scores and control groups’ scores (p>0.05). There was a significant negative correlation between women’s with menapouse SQOL-F scores and Body Mass Index (rs=-0.435, p=0.015). Women with gynecological cancer who had vaginal dryness and pain in sexual intercourse were poor in their SQOL-F scores (p=0.025) (Figure 1).

Conclusions

SQOL-F scores of this sample was moderate. Gynecological cancer patients’ sexual function could be evaluated by nurses.

22-45-P

INFORMATION TECHNOLOGY AND CANCER PATIENT REPORTED OUTCOMES (PROS)

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2Faculty of Health Sciences, Trinity College Dublin School of Medicine & Medical Sciences University College Dublin, Dublin, Ireland

Introduction

PROs refer to self-reported symptoms, health status and quality of life (QoL) measures. Tablet computers (TC) may help collect them.

Objectives

We report a study of PRO’s in three instruments collected by TC in a Cancer Institute.

Methods

We conducted a retrospective cohort study (2012–2013) amongst cancer outpatients at a tertiary academic medical center. Demographic and disease related variables were extracted from an electronic medical record. Those ≥18 years with a histologically confirmed diagnosis were included. European Quality of Life (EQ5D), Emotional Thermometers (ET) and
Emotional and mental health domains were inter-related among experience during the course of in this population.

Most had pain/discomfort; nearly half had significant anxiety/depression.

Major physical/psychological symptom burden and distress were evaluated with the TC. In ET, the EQ5D anxiety/depression scored 2-fold higher for anxiety (coeff: 2.4; p<0.000), depression (coeff: 2; p<0.000) and distress (coeff: 1.7; p<0.000). About half were on private health insurance.

Conclusions

1. Major physical/psychological symptom burden and distress were highly prevalent in cancer patients during active cancer treatment.
2. Most had pain/discomfort; nearly half had significant anxiety/depression.
3. Emotional and mental health domains were inter-related among instruments.
4. Single people, ethnic minorities and persons with private insurance had more psychosocial distress.

22-46-P

SYMPTOM AND QUALITY OF LIFE IN CHINESE PATIENTS WITH PRIMARY GASTROINTESTINAL CANCER AFTER SURGERY: A CROSS-SECTIONAL STUDY

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Introduction

Growing number of researches have explored symptom and quality of life (QOL) in cancer patients, few studies have focused on the short-term outcome after surgery.

Objectives

This study aimed to determine the symptom characteristics in a sample of gastrointestinal cancer patients in the first seven days postoperative period, and evaluate the relationship between symptoms and QOL.

Methods

Gastrointestinal cancer inpatients who underwent surgery are recruited. Assessment included demographic data, Memorial Symptom Assessment Scale (MSAS) and Functional Assessment of Cancer Therapy-General Scale (FACT-G).

Results

The ten symptoms with the highest occurrence rates were weight loss, dry mouth, pain, sweats, lack of energy, cough, difficulty sleeping, feeling drowsy, feeling bloated, feeling nervous. In addition, difficulty sleeping, dry mouth, lake of energy, pain, sweats were the five most severe symptoms with pain, lack of energy, cough, and difficulty sleeping being the four most distressing symptoms. Total symptom scores and subscale scores were negatively correlated with overall QOL scores, as well as the QOL subscale scores except for the social/family wellbeing subscale (p<0.01).

Conclusions

Patients with gastrointestinal cancer in the postoperative period experience multiple concurrent symptoms. Patients experiencing severe symptoms had worst QOL scores of those studied. Oncology staff should consider evaluating the patient’s symptoms early during post surgical treatment for providing more effective management of symptoms.

22-47-P

CANCER OF CHILDREN AND ADOLESCENTS: NUTRITION-AL PROFILE, QUALITY OF LIFE, AND GASTROINTESTINAL SYMPTOMS

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Introduction

The relationship between nutritional status, quality of life and gastrointestinal symptoms in children and adolescents undergoing chemotherapy are of fundamental relevance and impact the development and therapeutic adherence.

Objectives

To evaluate the nutritional status and quality of life in children and adolescents with cancer.

Methods

We evaluated 100 patients, aged 4 to 12 years, regardless of sex. To determine the nutritional status we measured weight, height or length, arm circumference, and skinfold thickness. Anthropometric data were correlated with the quality of life, symptoms, and type of tumor with the quality of life.

Results

In relation to the nutritional assessment of patients, eutrophy prevailed for most parameters. Gastrointestinal symptoms were prevalent, including mucositis, anorexia, nausea, and vomiting. In relation to therapy, there was a higher prevalence in the use of chemotherapy. Through the analysis of isolated factors related to quality of life, one can observe a higher prevalence of “feeling happy,” but through the correlation of quality of life with the nutritional profile, we observed a higher prevalence of “feeling miserable” in this population.

Conclusions

We observed eutrophication in most of the measured anthropometric parameters. By analyzing the quality of life, we concluded that the nutritional status provided an improvement in this quality of life. It is necessary to apply the scale that assesses the quality of life before, during, and at the end of treatment, so the main objective is detecting changes and the factors most conducive to the emergence of these changes.

22-48-P

QUALITY OF LIFE IN GASTROESOPHAGEAL CANCER PATIENTS AFTER SURGERY

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Introduction

Quality of life measures are important as this data helps in efficient clinical decision making based on patients’ experience during the course of illness. It also helps us in selection of optimal treatment type, surgery, psychosocial interventions, and allocation of resources.

Objectives

The purpose of this study was to assess the affect of surgery on the quality of life in gastroesophageal cancer patients.

Methods

This study was conducted in outpatient department of Multan Institute of Nuclear Medicine and Radiotherapy using the brief version of World Health Organization Quality Of Life questionnaire (WHO QOL BREF).
70 patients with gastroesophageal cancer were included in the study and were divided into two groups on the basis of surgery.

**Results**
The gastroesophageal cancer patients who underwent surgery showed a significant improvement in the physical, psychological and social domains as well as the overall health related quality of life (p<0.05). However, quality of life in one domain, the environmental domain, did not improve and even deteriorated in certain facets, including more negative feelings, worse financial situation and ability to participate in leisure and pastime activities.

**Conclusions**
The study demonstrated that gastroesophageal cancer patients experience a significant improvement in their quality of life after surgery. These findings are important in selection of treatment intervention for improving the quality of life of patients.

22-49-P

**CRYOPRESERVATION OF OVARIAN TISSUE AS ONE OF METHODS OF FERTILITY PRESERVATION IN YOUNG CANCER PATIENTS.**

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**Introduction**
The cancer treatment may reduce fertility by damage of ovaries and testicles. Cryopreservation of ovarian tissue is a procedure to preserve the fertility of young patients with a high risk for premature ovarian failure resulting from cancer therapy.

**Objectives**
The purpose of this study is to examine survival of fro-zen-thawed human ovarian tissue for the decision of possibility of fertility preservation by vitrification method.

**Methods**
We collected 154 samples of ovarian tissue from cancer patients from 18 to 26 years old prior to gonadotoxic treatment. A total samples were analyzed and frozen by vitrification method at our own cryobank, where they can be stored for years. Investigation included histological evaluation of fresh ovarian tissue and ovarian tissue after thawing.

**Results**
The comparative morphological analysis of safety ovarian tissue by several criteria is carried out: a condition of stromatic cells, the form of follicles or oocytes and a condition of their nuclei. Our preliminary results have shown that there are considerable distinctions in morphology cryopreserved ovarian tissue in comparison with fresh ovarian tissue.

**Conclusions**
Fertility preservation should be an integral part of improving the quality of life in cancer survivors. Fertility preservation options can be conducted in specialized hospitals under institutional review of oncologists.

22-50-P

**QUALITY OF LIFE WITH WOMEN WITH BREST CANCER IN THE STRUCTURAL EQUATION MODEL APPROACH**

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**Introduction**
Quality of life(QOL) is one the determinant of general well-being of individuals and societies. It is usually structured as a multidimensional concept and it is a highly important for clinical purposes. Patients with cancers are most likely to be associated with impaired QOL. There are many factors that are influencing this quality.

**Objectives**
The aim of study is to explore the association between pain (severity, interference with life), coping style and QOL. Our secondary aim is to explore whether the coping mechanism is an effect modifier for this association.

**Methods**
This cross-sectional study was conducted in Iranian breast Cancer center. 143 subjects were assessed by standard interviews. SEM was applied for modeling. The data were analyzed using SPSS, AMOS 22.

**Results**
Strongest association between severity of pain and QOL is the specific path coefficient =15.5. The next was WAWS,(Walk, Activity, work and sleep) (spc=-9.3). WAWS also had a direct and positive effect on emotional focus style, that mediates the QOL.

**Conclusions**
Patients with severe pain and negative coping style are more prone to low quality of life, slow relieving process and undesirable consequences. Thus, a standard treatment protocol, pain management plan and supportive therapy need to be present in a clinical setting.

22-51-P

**THE EFFECT OF REFLEXOLOGY ON QUALITY OF LIFE OF IRANIAN PATIENTS WITH BREAST CANCER**

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**Introduction**
Study on the quality of life as an important subject is raised in the chronic disease studies particularly the cancer. Use of complementary therapies for patients infected by pain and emotional distress arising out of cancer may result in, relaxation in breast cancer. One of the complementary therapies is reflexology.

**Objectives**
The extant paper has been provided with the objective of determining the effect of reflexology on quality of life of patients with breast cancer under chemotherapy in the breast disease center of University of Tehran, in Iran.

**Methods**
This study is a randomized clinical trial which has been applied on 60 patients suffering from breast cancer under chemotherapy in breast diseases center, in 2012. The patients were selected randomly in three test, control and placebo groups.
Results
Data were collected by standard questionnaires of EORTIC QLQ-C30.V3 and EORTQ-BR23.V.3. There was no significant difference in demographic characteristics or quality of life score of three groups, before intervention. Total score of quality of life was higher in interventional group compared to placebo group before and two weeks after intervention ($p<0.001$). Results also indicated a significant difference in total score of quality of life between three test, placebo and control groups after intervention ($p<0.001$).

Conclusions
Using reflexology in patients suffering from breast cancer may improve the quality of life, as an effective method and can be recommended to breast cancer if it is supervised by health system personals.

22-52-P
SUPPORTIVE CANCER CARE NETWORKERS – TRANS-SECTORAL NURSE-LED CARE IN PATIENTS AFTER RESECTION FOR COLORECTAL CANCER. A RANDOMIZED CONTROLLED MULTI-CENTER TRIAL.
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Introduction
Patients with colorectal cancer experience long-term impairments of functioning and psychosocial wellbeing even in early stages of the disease. Addressing their supportive needs properly is still hampered by missing continuous event history analysis of symptom severity and symptom interference with functioning and health-related quality of life (QoL).

Objectives
To increase the share of patients reaching a clinical significant improvement of their QoL until 8 weeks after discharge for R-0 resection.

Methods
Randomized controlled multicenter trial in 370 adults with colorectal cancer UICC I-III scheduled for adjuvant chemotherapy or guideline-based aftercare. Patients in the intervention group receive additional support by specialized nurses for eight weeks after discharge from hospital by telephone, consisting of symptom monitoring and counselling on self-assessment and self-management. The primary endpoint will be QoL at eight weeks after discharge from hospital.

Results
We expect the SCAN intervention to be effective in increasing the share of patients reaching an enhancement of their HrQoL by at least 12 pts. (range: 0–100 pts.) within eight weeks after discharge from hospital by 15% compared to standard care.

Conclusions
The SCAN trial provides information to advance our understanding of complex interdependencies between symptom severity, supportive care needs, functioning and the risk for diminished QoL potentially resulting in therapy cessations and lower chemotherapy treatment rates for colorectal cancer especially in elderly patients.

22-54-P
THE IMPACT OF ORAL REHABILITATION ON HEAD AND NECK CANCER PATIENTS.
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Introduction
Cancer therapy affects oral functions like mastication, speech, swallowing etc. Oral rehabilitation attempts to address such issues and is specifically aimed at improving and enhancing the quality of life of patients. LORQv3 and OHIP-14 are specific tools to assess the impact of disease and intervention on the QOL of patients.

Objectives
To assess the impact of oral rehabilitation on patients’ by using Liverpool Oral Rehabilitation Questionnaire (LORQv3) and Oral Health Impact Profile Questionnaire (OHIP-14).

Methods
Head and neck cancer patients were assessed for dental rehabilitation. Hundred patients were recruited. Their records were reviewed and demographic information, tumor sites, TNM classification in accordance with the UICC and treatment details were noted. Patients who were disease free after completion of treatment, with good general condition and in need of prosthetic rehabilitation were included in the study. Patients were asked to rate their experiences of dental problems before fabrication of prosthesis (baseline) and at the three months and one year follow-up visit after prosthetic rehabilitation by using LORQv3 along with OHIP-14. The statistical data will be analyzed using paired t-test or Wilcoxon signed rank sum test as per distribution of data. $p$-value $<0.05$ will be considered statistical significant.

22-53-P
QUALITY OF LIFE IN CHILDREN WITH CANCER
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Introduction
Cancer and its treatment affect a child’s and quality of life to varying degrees. Nurses should be know the factors affecting the quality of children with cancer are important for improving quality of life.

Objectives
The purpose of this descriptive study was to determine the quality of life and affecting factors of children with cancer.

Methods
The study was conducted on 34 children receiving treatment in a pediatric oncology clinic of a university hospital in Turkey. Data were collected with “KINDL Quality of Life Scale”.

Results
The mean age of the children was 12.94±3.56, the mean duration of disease was 22.3±19.1 months and sixteen of them were hospitalized. The mean KINDL score of the children was 70.93±12.61. There was a negative correlation between the scale scores and age of diagnosed, there was a positive correlation between the scale scores and the disease duration ($p<0.05$). There was a negative correlation mother and father’s ages and the KINDL scores ($p<0.05$). There was a statistically significant differences between the KINDL scores of the children who stage of disease and hospitalization and status of school attendance ($p<0.05$).

Conclusions
As age of diagnosed and age of the child, mother and father increased, quality of life decreased. As duration of the disease increased, quality of life increased too. Children who are remission period and who attended school were high quality of life and who hospitalized in clinic were worse quality of life.
Results
Quality of life improved after prosthetic intervention.

Conclusions
Prosthetic rehabilitation contributed to the betterment of the head and neck cancer patients in view of the decreased scores after prosthetic treatment.

22-55-P

QUALITY OF LIFE IN THE TREATMENT OF PROSTATE CANCER

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Introduction
A hormone-refractory status is still the most serious problem in hormonal treatment for patients with prostate cancer. Although hormone treatment is usually very successful, the effect does not last forever. Intermittent androgen deprivation alternates androgen blockade with treatment cessation to allow hormonal recovery between treatment cycles, thus potentially improving tolerability and quality of life.

Objectives
To evaluate available evidence regarding the efficacy and tolerability of intermittent androgen deprivation and assess its value in the treatment of prostate cancer.

Methods
From May 2001 to date 58 patients, median age of 66 (range 55–74 years) with locally advanced or metastatic prostate cancer have entered this study. Treatment was continued for at least 6 months. Medication was then stopped until the PSA increased to a 10–20 ng/ml. The cycle of treatment and no treatment than was repeated.

Results
The mean follow-up time was 20 months. No hormonal resistance was noticed. The mean off-therapy period after the first medication period was 6.3 months. The mean off-therapy length in the second cycle was 5.1 months. The off-treatment period in both cycles was associated with an improvement of patients' quality of life.

Conclusions
Intermittent androgen suppression has the advantages delaying the time to androgen independence, improving patients' quality of life. So, permanent androgen blockade may not be necessary in hormone treatment of prostate cancer.

22-56-P

THE EFFECT OF THE INTERACTION BETWEEN HUMAN BILATERAL SYMMETRICAL PARTS FOR HUMAN CANCER – A POTENTIAL MECHANISM FOR SPONTANEOUS CANCER REGRESSION

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Introduction
Ou MC decrescendo phenomenon (OuDP) based on the interaction between human bilateral figures shows to normalize tissue function (Proc Physiol Soc, 2014). Normalizing tumor cells and microenvironment may make cancer cells conform to the regulations for normal cells.

Objectives
This study is to approach the effect of OuDP on human oncologic diseases.

Methods
Ou MC handing remedy (HR) was availed to induce OuDP with hand to contralateral body part (AJEM, 2012; Proc Physiol Soc, 2014). Four female patients received HR for their oncologic diseases.

Results
The OuDP showed to ameliorate oncologic changes of the four patients. The uterine endometrioid cancer regressed from stage IIIb to IA with 5 months HR. The pancreatic isodense lesion of suspicious pancreatic cancer decreased from 1.6×1.7 to 1.0×1.0 cm in size with CA199 descending from 1090.0 to 136.5 (Unit/ml) associating with the main pancreatic duct diameter decreasing from 0.39 to 0.14 cm with tortuosity disappearance after 4 months treatment. The frequent profuse bleeding by uterine leiomyosarcoma prominently decreased immediately with HR and subsequent HR was also effective at minimizing heavy uterine bleeding in 3 weeks treatment. The gluteal macular lesion with chronic myelogenous leukemia eliminated after 2 weeks treatment with HR. (Proc Physiol Soc, 2014, NS, 2015).

Conclusions
A recent Swedish study shows that the breast cancer of many patients spontaneously regressed without treatments. The OuDP effect shows the capacity to bring about tumor regression, which is comparable with the spontaneous cancer regression. These findings warrant further investigation.
22-57-P

EVALUATION OF OUTCOMES OF BREAST CANCER WITH A SPECIAL FOCUS ON ECONOMIC, CLINICAL AND HUMANISTIC OUTCOMES - A PILOT STUDY

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Introduction
A Pilot study for Evaluation of outcomes of Breast cancer, with special focus on Economic, Clinical and Humanistic outcomes (ECHO) with different modalities of treatment is conducted in a tertiary care hospital setting at Udupi district India.

Objectives
To measure the ECHO and compare treatments of breast cancer

Methods
Patient interviews and chart review were held to study ECHO with EORTC QLQ C 30 and QLQ BR 23, for quality of life (QoL), at one time during treatment for 54 patient’s. Descriptive and inferential statistics was used to analyze data.

Results
The disease stage according to pathological grading of tumors was grade I (39.94 %), II (44.84 %), and IV (15.04 %). The QoL study revealed that there are differences in the functional scales as well as symptoms scales among patient groups.

Conclusions
This research revealed different approaches for breast cancer management, in a private hospital in south India and the outcomes of each.

22-58-P

VALIDATION OF THE LONG-TERM QUALITY OF LIFE BREAST CANCER SCALE (LTQOL-BC) BY HEALTH CARE PROFESSIONALS

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Introduction
Quality of life (QoL) has become an important measure of treatment success and is currently being explored not only for patients on active treatment, but also for long-term breast cancer survivors. The long-term quality of life breast cancer scale (LTQOL-BC) is a tool to assess QoL in breast cancer survivors.

Objectives
This study aimed to validate the tool with health care professionals (HCPs).

Methods
Six HCPs with extensive experience working with breast cancer survivors were selected. HCPs completed the LTQOL-BC and were asked to assess the relevance of each item to the disease-free breast cancer population. They were also instructed to identify items that could be upsetting for patients, irrelevant to this population, and to assess the tool’s breadth of coverage.

Results
Feedback indicated that some items such as the body image and sexual functioning questions were potentially upsetting to patients and should be rephrased or removed. The overall breadth of coverage of the tool was inadequate, with employment status, economic situation, ability to meet needs of family, health care insurance coverage, and overall sense of well-being not being addressed by the LTQOL-BC. HCPs also identified that certain items should be edited including those specifying pain in the lower body and the item containing the term “homemaker”.

Conclusions
The LTQOL-BC may need to be modified to take into consideration the recommendations provided by HCPs.

22-59-P

PROBING ANALYSIS FRAME TO DISCOVER THEMATIC-HOPE-SEEKING-STRUCTURE IN INDIVIDUAL HOPE EXPERIENCE TOLD DEPENDING ON THE “NARRATIVE-COMMUNICATION-MODEL OF HOPE-SEEKING-INTERVENTION”: A CASE REFERENCE OF TERMINAL-CANCER-PATIENT

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Introduction
No study found to probe analysis scheme to reveal thematic-hope-seeking-structure.

Objectives
The study’s purpose is to identify analysis scheme to reveal thematic-hope-seeking-structure in a hope experience told by the way of communication corresponding to the “Narrative-Communication-Model of Hope-Seeking-Intervention”, by examining applicability of narrative analysis methods informed by Riessman.

Methods
Tentatively, the narrative of a woman terminal cancer patient saying she sought her hope after interviewed, which constructed in the way of communication provided by the “Narrative-Communication-Model of Hope-Seeking-Intervention” (Kim, et al.), was analyzed. The model was building on the ideas of ‘hope is uniquely experienced’, ‘While sick people construct hope seeking narrative orally, recognize and capture hope’. The interview was started with “When you hear the word ‘hope,’ any word, feeling or sentence that comes to your mind”, continued using the ways of communication corresponding to the ideas(person-value-centered-attitude, open-ended-question such as how-when-what-why-et al., listening, continuing and confirming responses), and ended when being considered her experience told sufficiently.

Results
1. We found several hope seeking narratives with contents having themes and structures, separated by the time of experience but represented at the same nature of hope in characteristics (definition of hope- two past experiences-current experience-future hope seeking). 2. We found we can reconstruct the hope-seeking-structure-of-each-narrative using the Labov’s-six-elements-of-narrative-structure (abstract-orientation-completing action-evaluation-coda), with adding religion as a context. 3. Therefore we can reconstruct her experience in one thematic-hope-seeking-causal-structure, by getting and connecting themes and structures together.

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Conclusions
The frame showed in the result could guide analyzing thematic-hope-seeking-structure in patient’s-hope-experience told depending on the “Narrative-Communication-Model-of-Hope-Seeking-Intervention”

22-60-P
PATIENT EXPERIENCES PRIOR TO STEMCELL TRANSPLANTATION
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Methods
This study is done to identify patient experiences prior to transplantation.

Objectives
This study is done on patients in Marrow Transplantation Centre. We utilized qualitative and quantitative methods. Initially, we received official permission from the Ethic Council and our patients. In the qualitative part, focus group interviews and in-depth interviews are done recorded in paper and by voice recorders. A moderator, a reporter and two observers performed the study.

Results
The patients stated that their first chemotherapy sessions were forcing with nausea, vomiting, loss of appetite and high fever while other cures were much easier to stand as they have learned how to overcome these complaints. It is observed that patients who received the highest physical and psychological support from their families have competed better with the illness. It is determined that they were trying to be away from their relatives who always have negative statements about the disease. Our patients mentioned that they have been desperately waiting for the BMT as a soldier waits for his honourable discharge.

Conclusions
It is found that patients have had physical and psychological problems prior to chemotherapy before marrow transplantation, and when they get the news about their transplantation, they have become more hopeful for a better life at home.

22-61-P
A TOPICAL BOTANICAL PRODUCT IMPROVES RECOVERY FROM CHEMOTHERAPY ALOPECIA AND PERSISTENT HAIR ISSUES IN CANCER SURVIVORS
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Introduction
Chemotherapy induced alopecia (CIA), with 65 % incidence, is considered by sufferers as one of the most distressing side effects of cancer therapies. Most cancer survivors still complain about persistent hair issues long time after hair regrowth.

22-62-P
INTERNET USE BY CANCER PATIENTS IN JAPAN FOR MEDICAL INFORMATION
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Introduction
Using of the Internet can overcome this geographical problem and can become a way of finding cancer-related resources.
Objectives
To clarify how the Internet is used for accessing cancer information.

Methods
The survey was conducted using a questionnaire method with a Likert scale to confirm the frequency of Internet use for medical information gathering by cancer patients and their family members in Japan.

Results
104 responses were collected (included 88 patients and 15 family members). The most frequent age group was 60’s. Regarding the collection of cancer-related information by Internet, 47 respondents reported “never collected”. The survey revealed that the Internet use for this information differed by respondent age.

Conclusions
The Internet is widely used, but patients do not use the Internet much for cancer information.

Rehabilitation
23-01-O
PATIENT ACTIVATION THROUGH COUNSELING AND EXERCISE – ACUTE LEUKEMIA (PACE-AL) TRIAL – A RANDOMIZED CONTROLLED TRIAL

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Introduction
Patients with acute leukemia experience a substantial symptom burden and are at risk of developing infections throughout the course of repeated cycles of intensive chemotherapy. Physical activity and counseling in recent years has been a strategy for rehabilitation in cancer patients to remedy disease and treatment related symptoms and side effects.

Objectives
The objective of this study is to examine the effect of an exercise-based intervention among adults with acute leukemia undergoing chemotherapy

Methods
A two center, randomized controlled trial of 70 patients with acute leukemia following induction chemotherapy in the outpatient setting were allocated to usual care or a 12 week exercise and counseling program. Functional and physical fitness measures, quality of life, symptoms and emotional wellbeing were assessed using standardized measure at baseline (post induction), 6 and 12 weeks.

Results
Sixty two of seventy patients completed study requirements (89%). There were significant improvements in the functional and physical tests (p = 0.0000), physical activity level (p = 0.0138), health related quality of life (p = 0.0041) and significant reduction in symptoms of anxiety (0.0010), depression (p = 0.0186), fatigue (p = 0.0036) and nausea and vomiting (0.0081).

Conclusions
PACE-AL provides evidence of the effect of exercise and health promotion counseling on functional and physical capacity, quality of life and symptoms in patients with acute leukemia. To optimize the treatment and care pathway, appropriate exercise guidelines and rehabilitation programs for patients undergoing treatment for acute leukemia need to be established to ease the transition from illness to the resumption of everyday activities.

23-02-O
THE MEDIATING ROLE OF PERCEIVED DISABILITY IN THE LONG-TERM IMPACT OF ARM MORBIDITY ON BREAST CANCER SURVIVORS’ EMOTIONAL WELL-BEING

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Introduction
AM (limited range of motion (ROM), pain, and arm swelling (AS)) can significantly impact quality of life, often limiting ability to participate in valued activities. There is limited information on the developmental course of AM in the immediate years post-surgery.

Objectives
To explore a) the time course of AM, mood disturbance, and perceived disability in the years following treatment, and b) the mediating role of perceived disability on the relationship between AM and mood disturbance over time.

Methods
Breast cancer survivors (N = 429) completed annual clinic assessments over 5 years, where differences in ROM (shoulder abduction, external rotation) and arm volume between the affected and non-affected arm were measured. The Profile of Mood States, Disability of Arm, Shoulder, Hand (DASH), and McGill Pain Questionnaire-short form were completed.

Results
Results from general linear modelling showed that AM, total mood disturbance and perceived disability were greatest 1-year post-surgery, declined, and with the exception of AS, were significantly lower 5-years later [see Figures 1–3]. Mood disturbance was significantly associated with restrictions in abduction and external rotation (average r = −0.213, −0.138 respectively; p r = 0.284, p < 0.01) at most assessments. The mediating role of perceived disability on the relationship between AM (restriction in abduction, present pain) and mood disturbance was statistically significant in 4 of 5 assessments.

Conclusions
Perceived disability mediates the relationship between arm morbidity and mood disturbance across time. Rehabilitative therapy to improve survivors’ functional well-being might mitigate the negative impacts of arm morbidity on emotional health.

23-03-O
IMPACT AND FEASIBILITY OF AN EXERCISE PROGRAM DURING CHEMO-RADIO THERAPY IN HEAD AND NECK CANCER SURVIVORS: A RANDOMIZED CONTROLLED TRIAL

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Introduction
Head and Neck Cancer (HNC) survivors undergoing chemo-radiotherapy (CRT) have decreased functional capacity and quality of life (QoL). Limited research in exercise training in HNC survivors was the need for this study.
Objectives
To determine the effectiveness and feasibility of an aerobic exercise program on functional capacity and QoL, in Head and Neck Cancer survivors on Chemo-Radiotherapy.

Methods
A randomized controlled trial was conducted on 48 subjects with HNC undergoing CRT. The exercise group received a supervised aerobic exercise program for 6 weeks, while the control group received standard hospital care. Functional capacity and QoL were assessed at baseline and at the end of the intervention using the six minute walk distance (6MWD) and medical outcomes survey short form 36 (SF 36). A description of the flow of participants into the study has been shown in the figure 1.

Results
The 6MWD improved by 42 m (p=.039) in the exercise group while the control group showed a decrease by 96 m (p<0.001). There was improvement on the Mental Component Score (MCS) of SF36 for the exercise group (4.8; p<0.05) and the Physical Component Score (PCS) remained almost the same (−0.2; p=0.478), while a decrease in PCS and MCS was seen in the control group (−8.2; p=0.064 and −17.3; p<0.05). A between group comparison of 6MWD and SF36 showed a statistically significant difference after six weeks

Conclusions
Functional capacity and QoL decreases among those not receiving the exercise program, while exercise training is feasible and improves functional capacity and QoL in HNC patients undergoing CRT.

Introduction
Insulin-like growth factor 1 (IGF-1), (IGF-2) and IGF Binding Protein-3 (IGFBP-3) are associated with breast cancer risk, cell growing, apoptosis and other tumoral mechanisms.

Objectives
To determine the effects of exercise training in modulating insulin-like growth factors levels in breast cancer survivors.

Methods
This study was reported in accordance with the PRISMA statement and the Cochrane Handbook. Primary outcome measures were the serum levels of (IGF-1), (IGF-2) and (IGFBP-3), whilst waist circumference was evaluated as a measure of body composition. For pooled analysis, mean difference (MD) was calculated for differences between groups (p<0.05 with 95% Confidence interval). A fixed effect model was used in absence of statistical heterogeneity (I²<50 %). A meta-regression analysis was used to evaluate dose–response relationships between exercise characteristics and effect estimates.

Results
Seven studies (n=321) were included. Effect estimates showed that exercise training modulated (IGF-1) (MD=−12.9, 95%CI −16.73 to −9.14, P<0.001), IGF-2 (MD=−43.4, 95%CI −58.5 to −28.3, P<0.001), IGFBP-3 (MD=0.40, 95%CI 0.12 to 0.62, P<0.001) and waist circumference (MD=−1.133, 95%CI −2.20 to −0.05, P=0.03). Non-significant differences were found for Insulin Resistance (MD=0.64, 95%CI −0.006 to 1.296, P=0.05) and Insulin serum levels (MD=0.046, 95%CI −0.349 to 0.34, P=0.7). Reporting bias was not found.

Conclusions
Exercise training modulates insulin-like growth factors and other biomarkers related to prognosis, cellular proliferation and other carcinogenic mechanisms.

23-04-O
INSULIN-LIKE GROWTH FACTORS ARE MODULATED BY EXERCISE IN BREAST CANCER SURVIVORS: A META-ANALYSIS WITH META-REGRESSION

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Introduction
It has been demonstrated that exercise training reduces breast cancer risk and several biological mechanisms have been proposed to explain the positive modulation of inflammatory mediators associated with the tumor microenvironment and progression.

Objectives
To establish the effects of exercise training on mediators of tumour progression in women with breast cancer.

23-05-O
THE EFFECT OF EXERCISE TRAINING ON MEDIATORS OF TUMOUR PROGRESSION IN BREAST CANCER SURVIVORS: A META-ANALYSIS

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Methods

The MEDLINE, Embase, Scopus and CENTRAL databases were searched without language restrictions from January 1990 to March 2014. Biomarkers included were: interleukines (IL-2, IL-6, IL-8, IL-10), C-reactive protein (CRP) and tumor necrosis factor (TNF-α). Two blinded investigators screened and identified the studies that met the inclusion criteria. An inverse of variance model of meta-analysis was performed using a random effects model in the presence of heterogeneity (I²<50 %). Publication bias was evaluated using Egger’s test (p<0.05).

Results

Nine high-quality RCTs (n=349) were ultimately included. Exercise training improved the serum concentrations of IL-6 (mean difference (MD)=−0.37, 95%CI −0.61 to −0.12, p=0.003), IL-2 (MD=−1.03, 95%CI 0.39 to 1.66, p=0.001), IL-8 (MD=−0.49, 95%CI −0.89 to 0.08, p=0.01) and TNF-α (MD=−0.48, 95%CI −0.96 to −0.003, p=0.04). Conversely, no significant differences were found in the serum concentrations of C-reactive protein (CRP) (MD=−0.04, 95%CI −0.36 to 0.27, p=0.77) or IL-10 (MD=0.49, 95%CI −0.18 to 1.02, p=0.17). There was no evidence of publication bias (p=0.06).

Conclusions

Exercise training positively modulates chronic low-grade inflammation in women with breast cancer, impacting carcinogenic mechanisms and the tumor microenvironment. Additional RCTs are required to further elucidate the anti-inflammatory and immunoregulatory effects of exercise on breast cancer survivors.

23-06-O

SEXUALITY AND SEXUAL FUNCTION ONE YEAR AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL

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Introduction

Treatment with allogeneic hematopoietic stem cell transplantation (HSCT) is associated with short and long-term toxicities that can result in alterations in sexual functioning.

Objectives

The aims are to determine; (1) associations between HSCT and increased sexual dysfunction one year after treatment; (2) associations between sexual dysfunction, body image, anxiety and depression

Methods

A controlled prospective cohort study was conducted from October 2010 to November 2013. Patients completed assessment 2–3 weeks before HSCT (N=124, 77 %) and one year after treatment (N=63, 85 %). Assessment included descriptive data, Sexual Functioning Questionnaire (SFQ), Body Image Scale (BIS) and Hospital Anxiety and Depression Scale (HADS)

Results

The results showed a significant decline in overall sexual function in both men and women (p<0.001, p=0.010 respectively), although men generally scored higher than women. 47 % men and 60 % women reported at least one physical sexual problem one year after HSCT. Patients with chronic GVHD reported higher levels of sexual dysfunction however not significant. Women reported symptoms of genital GVHD including vaginal tightness (48 %), dryness (60 %) and pain (36 %). Lastly women with chronic GVHD scored lower on the sexual function problem subscale (p=0.008)

Conclusions

Sexual dysfunction remains a major problem for men and women one year after HSCT. Increased focus is needed on sexuality and sexual dysfunction in the clinical setting.

23-07-O

IMPROVING ADHERENCE TO CANCER TREATMENT BY ADDRESSING QUALITY OF LIFE IN PATIENTS WITH ADVANCED GASTROINTESTINAL CANCERS

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Introduction

Many patients with potentially curable cancer do not complete their prescribed treatment regimens due the toxicity. There is evidence that the common endpoints of many of these toxicities are amenable to quality of life (QOL) directed interventions.

Objectives

This study was conducted to determine the effect of a multidisciplinary QOL-directed intervention on patients’ adherence to planned chemoradiation (CR) regimens.

Methods

The results of two randomized controlled trials that utilized the same QOL intervention were pooled to form a cohort of 61 patients with advanced localized GI cancer. Of these 61 patients, 29 participated in 6–8 bi- to tri-weekly sessions that included exercise, education and relaxation, and 32 received usual medical care. The primary end point was compliance with their prescribed CR regimens. Secondary outcomes included hospitalization during CR, and rates of adverse postoperative events and complete pathological response in those undergoing neoadjuvant therapy.

Results

Significantly more members of the intervention than the control group completed their planned CR regimens (79.9 % vs 68.3 %, p=0.003). More participants in the control (n=14) than the intervention (n=5) group (p=0.063) required hospitalization. Among those undergoing neoadjuvant CR, those in the intervention group were significantly more likely to complete CR as planned (81.0 % vs 37.5 %, p=0.005) and less likely to be hospitalized (14.3 % versus 50.0 %, p=0.011).

Conclusions

A structured multidisciplinary QOL-directed intervention delivered to patients undergoing CR increases the proportion of patients who complete CR as planned and, reduces unplanned hospitalizations.

23-08-P

IMPACT OF SWALLOWING EXERCISE ADHERENCE ON DYSPHAGIA AND OUTCOME IN HEAD NECK CANCER

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Introduction

Dysphagia following Head/Neck cancer (HNC) is prevalent and introduces co-morbidity, cost and negative quality of life to survivors. Recently research suggests benefit from prophylactic swallowing exercise, however the degree of exercise support and adherence required is unknown.

Objectives

This controlled trial evaluated two levels preventative exercise on maintenance of muscle composition and function for swallowing in HNC patients undergoing chemo-radiotherapy (CRT).

Methods

130 patients were randomized into 3 treatment groups [usual care (n=28), therapist directed exercise (n=50), patient directed exercise (n=52)]. Subjects underwent clinical and instrumental swallowing evaluation, nutritional exam, and T2-weighted MRI at baseline and 3-months. Patients were treated for 6-weeks and followed for 3-months. Outcomes included T2MRI muscle change, functional swallowing ability, weight change, pain, fatigue, depression, quality of life and adherence to exercise.

Results

Sample included 101 male (mean age=57.5, SD:10). Randomization was stratified by CRT status, 99 received chemo-radiotherapy. Baseline values were equal between groups. Less muscle deterioration was identified in the therapist directed arm (P≤0.02) compared to patient directed intervention. Functional swallowing, oral intake and mouth opening deteriorated less in both intervention groups. Exercise adherence was lower in the patient directed arm (χ²=19.6, P<0.0001). Multivariate analysis identified predictors of favorable 3-month outcome as; amount of swallow exercise performed by feeding level (β=0.02, P<0.02), and level of treatment-related weight loss at 6 weeks (β=−0.76, p<.16).

Conclusions

Adherence (>90 cycles) to a program of preventative swallowing exercise and maintenance of oral intake level during HNC treatment impacts muscle maintenance at 6-weeks and functional swallowing ability by 3-months.

23-09-P

GOOD WALKERS TEND TO HAVE LONG DISABILITY FREE SURVIVAL AND SHORT LENGTH OF HOSPITAL STAY IN ELDERLY PATIENTS WITH ADVANCED NON-SMALL-CELL LUNG CANCER.

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Introduction

Walking capacity often decreases in elderly people living with advanced non-small-cell lung cancer (NSCLC). However, little is known about its impact on use of medical resources.

Objectives

To clarify the impact of baseline walking capacity on development of disability and length of hospital stay during the antineoplastic treatment of elderly NSCLC patients.

Methods

This is the prospective longitudinal observational study approved by the institutional review board. Patients aged≥70 years with advanced NSCLC (stage III-IV) scheduled to commence first-line chemotherapy (n=30) or radiotherapy with or without chemotherapy (n=30) were enrolled. Walking capacity was measured by incremental shuttle-walk distance (ISWD). Disability free survival (DFS) was defined as the time between the baseline and the date of 10 points decline of Barthel index. DFS was calculated by Kaplan-Meier method.

Results

Among 60 patients (17 women and 43 men) enrolled from Jan. 2013 to Nov. 2014, median age and ISWD were 76 (range, 70–89) years and 290 (80–640) m, respectively. The presence of cachexia and ISWD were not statistically associated. Good walkers (ISWD≥290 m) have longer median DFS (21.2 vs 9.2 months, log-rank test p=0.0039) and shorter length of hospital stay (64 vs 93 days per person-year, Wilcoxon test p=0.0125) than poor walkers (ISWD<290 m).

Conclusions

Decline in walking capacity is commonly seen in elderly patients with advanced NSCLC at baseline. Good walkers tend to live independently using fewer medical resources than poor walkers. (Clinical Trials Registry No. UMIN000009768)

23-10-P

INCLUSION OF EXERGAMING IN THE REHABILITATION OF CANCER PATIENTS: A PILOT STUDY

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Introduction

Advantages of exergaming (Exercises and Gaming) compared with conventional training are low-threshold activation, instant and diversified activations with intense flow experience. However the acceptability and usability in therapeutic settings are questioned, particularly in the rehabilitation of cancer patients.

Objectives

Therefore, this study aimed to evaluate the acceptability of a motion activating game console based training within the medical rehabilitation of cancer patients.

Methods

This pilot study was applied at the Paracelsus-Harz-Clinic. Cancer patients aged ≥18 were invited to participate in a game console based training (6 units a 30 min) in addition to their 3-weeks inpatient rehabilitation program. Heart rate and perceived exertion (Borg scale) were documented concomitantly. Acceptability was assessed at discharge from the clinic.

Results

62/95 (65 %) patients agreed to participate, mean age was 64.4 years (SD 8.3) and 47 % were women. The training program adherence was high (84 %=5–6 Units; 16 %=3–4 Units). Overall perceived exertion was “fairly light”(Mean 52 % of HRmax, SD 6 %) during gaming. At discharge participants rated the exergame program with
“much fun” (mean 6.4 pts; SD1.1 on a 1 (no fun) to 7 (very much fun) scale. Of the participants 95 % valued the intervention as a useful addition to a conventional training.

Conclusions
The results reveal a high degree of acceptance of a motion activating game console based training for cancer patients irrespective of gender, age or cancer type. Due to low intensity level of the training current exergames could be an activity promoting addition for mobile patients particularly with weak condition.

23-11-P

LONG TERM EFFECTS OF INTERVENTIONS FOCUSING ON VOLITIOINAL STRATEGIES IN AND AFTER REHABILITATION OF BREAST CANCER PATIENTS: RESULTS OF THE INOP-STUDY

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Introduction
Oncological rehabilitation programs are focusing on a healthier lifestyle including physical activity of breast cancer patients, but long term success is only modest. The INOP-study investigated the efficacy of 2 interventions focusing on volitional strategies to increase and stabilize physical activity (PA) also than health-related quality of life (QL), functional capability in work day (FCW) and in occupation (FCO).

Objectives
Physical exercise levels are not predicted alone by behavioural intentions of breast cancer patients. Also volitional strategies like action planning or self efficacy are necessary for bridging between motivation and physical activity adherence.

Methods
In the INOP-study breast cancer patients (n=767) in rehabilitation were randomly assigned to a control (CG) or intervention groups (IG) including 2 measurement points 6 and 12 months later to assess intentions, volitional strategies and exercise levels.

Results
After the 12 month follow-up, level of PA in IGs were on average 120 min/week higher than in CG (p<.05, d=.63). From the primarily inactive participants 92 % of IGs were exercising at t4, but only 60 % of CG (p=0.001, d=.37). IG patients were also considerably less limited in their FCW (p=.01, d=.44) and FCO (p=.05, d=.27) than CG patients at t4. Furthermore, the QL is noticeably more increased in IG than CG patients (p<.001, d=.53).

Conclusions
The study provides evidence that interventions focusing on volitional strategies are useful to improve physical exercise level adherence and quality of life of breast cancer patients at least 12 months after rehabilitation. The INOP-interventions are brief and can be implemented easily for a better post-rehabilitation support.

23-12-P

THE EFFECT OF A CLINICAL CANCER REHABILITATION PROGRAM ON ARM FUNCTION AND QUALITY OF LIFE IN BREAST CANCER SURVIVORS

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Introduction
Breast cancer treatment may result in long-term physical limitations including reductions in shoulder mobility and ability to perform activities of daily living (ADL), concurrent with increased pain and decreased quality of life (QoL). Exercise intervention studies have shown to improve these outcomes. However, it is unknown if this translates into the clinical setting of breast cancer care.

Objectives
To evaluate the changes in arm girth, shoulder mobility, pain, ability to undertake ADL, and quality of life (QoL) in 50 breast cancer survivors with completion of a clinically-based, supervised, individualized cancer rehabilitation program (“Strides to Strength”).

Methods
Participants (52±12 y, breast cancer survivors) enrolled in Strides to Strength during or after cancer treatment. The program consisted of bi-weekly exercise sessions consisting of aerobic, strength, and flexibility training, as well as, guided meditation for 12 weeks. Cancer exercise trainers administered arm assessments and questionnaires before and after program completion.

Results
Shoulder mobility on the affected side improved (4.3%; p=0.043). Participants with ≤150° baseline shoulder flexion (n=8) showed an improvement of 22.5° (p=0.003) at follow-up. No change in arm girth was shown, except a small increase of 0.28 cm at the metacarpal (p=0.006). At baseline, 29.3 % participants had difficulties in performing ADL, while this prevalence decreased to 19.5 % at follow-up (p=0.125). There was improvement in QoL (p=0.007).

Conclusions
Breast cancer survivors who participated in a clinically-based cancer rehabilitation program experienced improvements in arm function and QoL, and arm girth as a surrogate for indication of lymphedema did not change.

23-13-P

NEEDS FOR SUPPORTIVE AND REHABILITATIVE INTERVENTIONS AMONG PATIENTS WITH HIGH-GRADE GLIOMAS AND THEIR CAREGIVERS.

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Introduction
There is a lack of knowledge regarding the needs for rehabilitation and supportive care across the disease and treatment trajectory for patients with high-grade gliomas (HGG) and their caregivers.

Objectives
The aim of this study was to elucidate the experiences and needs for rehabilitation and supportive care in patients with HGG and their caregivers during a one-year trajectory.

Methods
Patients with malignant glioma (N=30) and their caregivers (N=33) were interviewed five times during the first year of the HGG trajectory. Thematic analyses of the interviews were carried out using NVivo software.

Results
Five main themes were identified: (1) Individual strategy for acquiring prognostic information, (2) Shared hope, (3) Engagement in health promotion activities, (4) Adjustment to symptom limitations and (5) Role transition from family member to caregiver.

Conclusions
The patients' and their caregivers' individual preferences for prognostic information is a strategy that supports managing the HGG trajectory. As solidarity develops between patients and caregivers, shared hope arises. As a unit, they seek to optimize the therapeutic effect of the oncological treatments by engaging in health promoting activities together. As symptoms progress, the need for information and guidance regarding symptoms, and supportive care interventions became evident. Caregivers play a significant supportive role for the patients, but need special support and practical assistance, especially when patients symptoms progress and functions declines.

23-14-P

PHYSICAL TESTING OF PATIENTS PARTICIPATING IN COMMUNITY-BASED CANCER REHABILITATION

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Introduction
Physical testing is time consuming and advanced testing equipment is rarely available in the rehabilitation of cancer patients in a community-based setting. The possibility to use a quick and functional test as a measure of more demanding physiological tests such as muscle strength and physical fitness would therefore be useful.

Objectives
To investigate if a quick functional test can be used instead of a physiological test when measuring muscle strength and physical fitness in patients treated for cancer.

Methods
A total of 52 participants with various cancer diagnoses were tested with 3 functional tests: 6-min walk test (6MWT), sit-to-stand (STS), timed up and go (TUG) and 4 physiological tests: one repetition maximum for the lower limbs (RMlegpress) and upper limbs (RMchestpress), grip strength (GS) and watt-max test (WM). Furthermore 27 participants were re-tested after a training period of 3 months.

Results
The highest correlation was between WM and 6MWT (r=0.684; p=0.01). RMlegpress and RMchestpress correlated moderately with 6MWT (r=0.435, r=0.427; p=0.01). GS was the strength test correlating strongest with TUG and 6MWT (r=−0.451, r=−0.467; p=0.01). Participants had significant improvement in all tests from pre- to post rehabilitation except in TUG.

Conclusions
6MWT is considered an appropriate measure and indicator of muscle strength and physical fitness in patients with various cancer diagnoses. Six out of seven selected tests managed to demonstrate significant improvements after 3 months of rehabilitation, which suggests that these tests are responsive to improvements in physical status.

23-15-P

RELATIONSHIP BETWEEN BALANCE FUNCTION AND DECLINES IN PHYSICAL FUNCTION AMONG ALLOGENEIC HEMATOPOIETIC STEM-CELL TRANSPLANTATION PATIENTS

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Introduction
A previous study reported that the incidence of falling among allogeneic hematopoietic stem cell transplantation (allo-HSCT) patients during hospitalisation is 50%. Allo-HSCT patients maybe have relationship between impaired balance function and declines in physical function.

Objectives
The purpose of this study was to investigate relationship between impaired balance function and declines in physical function in allo-HSCT patients.

Methods
Thirty patients (18 men and 12 women) who underwent allo-HSCT between February 2013 and September 2014 at the Hyogo College of Medicine Hospital were included in this study. The patients were evaluated for up to 3 weeks before and 7 weeks after the transplantation. Physical function was assessed using tests for hand-grip strength, knee-extensor strength, and the 6-min walk test (6MWT). Balance function was assessed using functional reach test (FRT), timed up-and-go (TUG) test.

Results
Hand-grip strength, knee-extensor strength, and 6MWT were significantly decreased after HSCT to before HSCT in allo-HSCT patients (P<0.01). Also, TUG was significantly increased after HSCT than before HSCT (P<0.01). However, FRT was not a significantly differences between before and after HSCT. Change of FRT was positively correlated with decrease of hand-grip, knee-extensor strength, and 6MWT (r=0.42~0.55, respectively, P<0.01). Furthermore, change of TUG was negatively correlated with decrease of hand-grip, knee-extensor strength, and 6MWT (r=−0.48~−0.88, respectively, P<0.01).

Conclusions
Allo-HSCT patients have often experienced impaired balance function. The balance function decline was associated with decreased of physical function. Physician, nurse, and rehabilitation staff should recognize this relationship in allo-HSCT patients.
23-16-P

FACTORS AND OUTCOMES ASSOCIATED WITH VENOUS THROMBOEMBOLISM IN AN ACUTE INPATIENT CANCER REHABILITATION UNIT

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Introduction
Patients with cancer associated VTE have significantly worse survival and suffer more complications. In cancer patients, there is a 4 to 7 fold increase in the frequency of VTE during chemotherapy treatment.

Objectives
To determine factors associated with Venous Thromboembolism (VTE) among patients presenting to our cancer center’s inpatient rehabilitation unit.

Methods
Retrospective analysis of 611 cancer patients admitted to an acute inpatient rehabilitation unit from September 2011 to June 2013. ICD-9 codes for deep vein thrombosis (DVT), pulmonary embolism (PE), and inferior vena cava filter (IVC) were used to identify VTE+ patients (n=34). A control group, consisting of 2 times the VTE+ group was selected randomly from the remaining sample (n=59).

Results
VTE occurred in 34/611 patients (6 %). Higher FIM transfer, toilet transfer and tub transfer scores were associated with decreased frequency of VTE. Presence of lower extremity edema increased frequency of VTE. VTE+ patients had increased LOS. Prophylactic anticoagulation was associated with lower risk of VTE.

Study Variable (OR, P value)
- Higher FIM transfer score (OR 0.436, P=0.0132)
- Higher FIM toilet transfer score (OR 0.439, P=0.0016)
- Higher FIM tub transfer score (OR 0.403, P=0.0019)
- Prophylactic anticoagulation (OR 0.159, P=0.0003)
- Presence Lower extremity edema at admit (OR 8.287, P<0.0001)

Conclusions
Cancer patients presenting to acute inpatient rehabilitation units with low transfer FIM scores and lower extremity edema are at higher risk for VTE. Clinicians may consider further VTE assessment and use of prophylactic anticoagulation. Mobilization in VTE+ group did not result in embolization. FIM changes were achieved in both groups, regardless of VTE.

23-17-P

EFFECTS OF A WALK-AND-EAT INTERVENTION FOR PATIENTS WITH ESOPHAGEAL CANCER UNDERGOING NEOADJUVANT CHEMORADIATION

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Introduction
Despite the importance of maintaining optimized nutritional status and functional capacity during the active treatment for patients with esophageal cancer, no effective intervention program is available.

Objectives
This stratified randomized controlled pilot trial tested the effects of a walk-and-eat intervention for patients with esophageal cancer undergoing neoadjuvant chemoradiation in a radiation oncology department.

Methods
Participants with locally advanced esophageal cancer, stage II or above (N=59) scheduled to undergo neoadjuvant chemoradiation were enrolled. Thirty participants were randomly assigned to receive the walk-and-eat intervention in addition to the usual care and another 29 participants received usual care and severed as controls. The walk-and-eat intervention included a three times per week nurse supervised walking protocol and an enhanced nutritional advice protocol provided during 4–5 weeks of chemoradiation. Changes on body weight, lean mass, hand-grip strength (all in kilogram), and walk distances (in meter) from the 6-min walk between initiation and completion of neoadjuvant chemoradiation were primary endpoints. Treatment tolerance was evaluated weekly during the chemoradiation as the secondary endpoint.

Results
Participants who received the walk-and-eat interventions declined significantly less on body weight, hand-grip strength, and walk distances (P<0.05) than controls. Furthermore, receiving intravenous nutritional support and using wheelchair during the chemoradiation treatment were significantly less for participants in the intervention group.

Conclusions
The walk-and-eat intervention is effective not only in maintaining patients’ weight, hand-grip strength, and walking capacity also beneficial to prevent intravenous nutritional support prescribed and wheelchair used for patients with esophageal cancer undergoing neoadjuvant chemoradiation.

23-18-P

AXILLARY WEB SYNDROME AMONG BREAST CANCER PATIENTS WHO UNDERWENT AXILLARY DISSECTION: INCIDENCE AND PREDICTIVE FACTORS.


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Introduction
Axillary Web Syndrome (AWS) is a commonly sequela after breast cancer treatment. Symptoms are disabling, causing pain and reduction of arm range of motion. In recent years, specialists in the field of breast cancer rehabilitation have taught both professionals and patients about its diagnosis, onset, evaluation over time, and treatment, but there is still a lack of information about this topic.

Objectives
The main objectives are to estimate the incidence of AWS and to investigate possible predictive factors, regarding onset, timing of resolution and response to the treatment.

Methods
Our physiotherapy staff developed a new validated questionnaire (ST-AWS) to provide information about the syndrome and help in self-diagnosis. Patients who underwent axillary dissection were enrolled and evaluated by telephone interview at 2, 4 and 8 weeks after surgery.

Results
From July 2013 to July 2014, 370 breast cancer patients were enrolled. Median age was 50 years. AWS incidence was 51 %, with 94 % onset in
the first 4 weeks after surgery. 42% of the patients did not recover in the first 8 weeks. Higher educational level (p < 0.001), lower body mass index (BMI) (p < 0.001) and younger age (p = 0.001) were found to be significantly associated with positive self-diagnosis.

Conclusions
The incidence of AWS is high in axillary dissection patients, particularly in the first month after surgery. Not all patients achieved recovery during our 8 weeks follow-up, suggesting that assessment and treatment should exceed that period. Moreover older patients, with high BMI and lower educational level should be accurately evaluated. Additional studies are warranted to confirm these results.

23-19-P
COMPARISON OF THE QUALITY OF LIFE OF WOMEN WITH BREAST CANCER AFTER MASTECTOMY AND AFTER BREAST-CONSERVING THERAPY: RESULTS OF OBSERVATION DURING ONE YEAR AFTER SURGERY

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Introduction
Breast cancer is the most common malignancy in women in developed countries. Treatment of this disease affects the quality of life of patients. Quality of life is an ambiguous concept, which refers to the state of health, severity of symptoms, and implemented treatment. It is also linked to meeting individual needs of each person. The aim of the study was to assess the quality of life of breast cancer patients according to the type of previous surgery.

Objectives
The aim of the study was to assess the quality of life of breast cancer patients according to the type of previous surgery.

Methods
A prospective study involving 101 women with breast cancer after surgical treatment in the period from October 2011 to October 2012 (51 cases after mastectomy, the remaining ones after breast-conserving therapy). Standard questionnaires EORTC QLQ-C30 and QLQ-BR23 were used to assess the quality of life (assessment on the day of admission to the department, two months and one year after surgery).

Results
The analysis of QLQ-C30 revealed no statistically significant differences between the compared groups of patients. Regarding the analysis of QLQ-BR23, statistically significant differences related to the assessment of the patient’s own body and life perspectives, evaluation of sexual feelings and social roles (they were not found in the evaluation of sexual functioning, undesirable effects of treatment or symptoms associated with the affected breast).

Conclusions
Regardless of the type of surgery performed, breast cancer patients require similar psychological actions supporting their possibility of adapting to the new situation and dealing with negative effects of surgical treatment.

23-20-P
CANCER REHABILITATION OF CHILDREN WITH SOLID MALIGNANT TUMOURS

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Introduction
Cancer rehabilitation is becoming more of a focus for the field of physiatry due to increased longevity and the side effects of treatment.

Objectives
In order to investigate the rehabilitation needs of patients, chart analysis was conducted on 53 children at the mean age of 12.02±4.6 years (aged 2–19 years), 30 (56.6%) males, 23 (43.4%) females treated for primary solid malignant tumors by chemotherapy, radiotherapy, oncologic surgery, included limb-sparing procedures. 23 patients had distant metastases.

Methods
21 patients underwent courses of preoperative inpatient physical therapy, at the neoadjuvant part of special treatment, 33 patients underwent courses of postoperative inpatient physical therapy at the adjuvant part of special treatment, 30 patients underwent courses of physical therapy during remission. This study evaluated the short and long-term changes in physical fitness of a child with a childhood malignancy; using an individual rehabilitation program, consist with combined physical exercise, kinesiotherapy, aquatic rehabilitation and orthopedic correction implemented during and shortly after treatment. Training is performed individually, under the supervision of an experienced pediatric physical therapist.

Results
The individual rehabilitation programs are well tolerated. We suggest that the usage an individual rehabilitation program can decrease pain, improve muscle strength and range of motion in joints, an increased supply of blood to the muscles, higher muscle metabolism, and more circulation in the limbs, improves tissue nutrition and helps the healing process.

Conclusions
Childhood cancer patients undergoing long-term cancer therapy may benefit from an individual rehabilitation program since it may maintain or enhance their physical fitness and increase their quality of life.

23-21-P
THE EFFECTS OF A SELF-MANAGEMENT PROGRAM ON ANTIEMETIC-INDUCED CONSTIPATION DURING CHEMOTHERAPY AMONG BREAST CANCER PATIENTS: A RANDOMIZED CONTROLLED CLINICAL TRIAL

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Introduction
Chemotherapy patients receiving 5-HT3 receptor antagonists to prevent emesis often suffer from constipation.
Objectives
To investigate the effects of a self-management program on antiemetic-induced constipation during chemotherapy.

Methods
We performed a randomized, waiting-list-controlled, parallel-group, open-label pilot clinical trial. Breast cancer patients prescribed 5-HT3 receptor antagonists for prevention of emesis during chemotherapy were randomly assigned to intervention group and control group. The intervention involved abdominal massage, abdominal exercises, and education on proper defecation position. The primary outcome measure was the Constipation Assessment Scale (CAS). Secondary outcome measures were mood state and health-related quality of life. Frequency of laxative use and defecation, food and water intake, rest/activity patterns, and adherence were also assessed. All participants anonymously answered a questionnaire to determine satisfaction with the program.

Results
Twenty-seven patients (12 intervention, 15 control) were included in the full analysis set. The intervention group started the program before chemotherapy. Changes in CAS scores from baseline were statistically and significantly lower in the intervention group than in the control group (mean difference = −2.83, 95% confidence interval [−0.17, −5.50], P = 0.038), and the intervention group was less likely to report “small volume of stool” (CAS, Figure) or “depression and dejection” (mood state) (P < 0.05). Nearly half of patients (43.6%) rated the program “excellent,” and another 26.4% rated it “good.”

Conclusions
Our self-management program is useful in mitigating antiemetic-induced constipation during chemotherapy.

23-22-P
THE EFFECTS OF MOUTH OPENING EXERCISE TRAINING WITH FOLLOW-UP TELEPHONE CALLS ON THE MAXIMUM MOUTH OPENING, ORAL FUNCTION AND LIFE QUALITY OF ORAL CANCER PATIENTS.

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Introduction
Trismus is a common symptom related to oral cancer and its treatments. Restricted mouth opening significantly influence individual ability to chew, swallow, and communicate.

Objectives
The purpose of the study was to test the effects of mouth opening exercise trainings with follow-up telephone calls on the maximum mouth opening, oral function and health related quality of life (HRQoL) of oral cancer patients.

Methods
The study was a randomized clinical trial using repeated measures. Sixty preoperative oral cancer patients in Taiwan were recruited and randomly assigned to the intervention or comparison group. The intervention group received two 30-min individual trainings and 6 follow-up phone calls to enhance mouth opening exercise. Subjects’ maximum interincisal opening (MIO) and oral function were measured before surgery, one month and three months post operation, using the TheraBite Range-of-Motion scale, Mandibular Function Impairment Questionnaire, Difficulty of Food Intake, and EORTC QLQ-H&N 35.

Results
Among the 60 subjects, 54 had buccal mucosa cancer, 5 had gingival cancer, and one had hard palate cancer. The demographics, disease profile, and outcome measures were equivalent between groups at baseline. Results of GEE showed significant group by time interactions in MIO, mandibular function impairment, difficulty of food intake, swallowing, speech, social eating, and problems opening mouth, indicating that study intervention improved maximum mouth opening, oral function, and HRQoL.

Conclusions
The study results support that individual training with follow-up telephone calls can enhance mouth opening exercise and improve maximum mouth opening, oral function, and HRQoL in postoperative oral cancer patients.

23-23-P
ORAL MORBIDITY SYMPTOM CLUSTERS IN HEAD/NECK CANCER: DEVELOPMENT VS. MAINTENANCE OF DYSPHAGIA

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Introduction
Following radiotherapy for head/neck cancer dysphagia commonly co-exists with other oral morbidities. Relationships among these impairments are not well understood. In this study we assessed sensory changes (pain, dryness, taste/smell) following radiotherapy as contributory to the development vs. maintenance of dysphagia in this population.

Objectives
Develop a preliminary model of oral morbidities influencing the development vs. maintenance of dysphagia in head/neck cancer patients treated with RT.

Methods
32 patients receiving radiotherapy for head/neck cancer completed swallow function, oral pain, oral dryness, and taste/smell evaluations in the initial week of RT, immediately following RT, and 3 months following RT. Correlation statistics were employed to evaluate relationships among swallowing and oral morbidities at each time point.

Results
All variables demonstrated a reduction in function following RT with incomplete recovery at 3 months. Oral pain (r = 0.49) and dryness (r = 0.75) were significantly related to swallow impairments following RT suggesting a role in the development of dysphagia. Patterns of taste/smell alterations suggested a maintenance role for these impairments. Taste confusion was prominent following RT (~70% of patients) suggesting the possibility of aversive taste stimuli impacting swallowing. Orthonasal smell intensity did not diminish post RT. Retronasal smell intensity diminished and was inversely related to swallow function (r = −0.54) but positively related to oral pain intensity (r = 0.50).

Conclusions
Different mechanisms may contribute to the development vs. maintenance of dysphagia in RT treated head/neck cancer patients. Swallow intervention strategies should consider sensory deviations and have different foci at different time points relative to medical treatment.

23-24-P
REHABILITATION AFTER CERVICAL CANCER – DIFFERENT GAINS IN DIFFERENT SETTINGS.

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Introduction

In Denmark in 2013, the incidence of women with cervical cancer was 370. Late effects from the lower body involve physical and psychosocial aspects of daily living. Rehabilitation may alleviate symptoms.

Objectives

Rehabilitation Centre Dallund (RcDallund) developed a multidisciplinary intervention targeting late effects. The purpose was to describe the participants' experiences with rehabilitation before and during RcDallund.

Methods

Women curatively treated from 2010–2013 at Odense University Hospital with moderate-severe problems within urine/bowel/sexual and body image domains were invited to a 5 days residential stay. The program consisted of physical, psychological, social and sexual issues, including massage therapy and pelvic floor exercises. Three focus group sessions were completed. The interviews were analyzed with meaning condensation.

Results

56/91 (62 %) with moderate-severe problems were invited to RcDallund. 21 (38 %) age 40–72 years accepted. Prior to RcDallund, several participants were involved in physical rehabilitation in municipal settings. None received sexual rehabilitation prior to RcDallund although they all had sexual problems. At RcDallund they enhanced a sense of connectedness and confidence with fellows with the same disease and living with the same problems. The time to reflect and anonymity gave them the opportunity to get answers of difficult questions regarding everyday life. Knowledge about late effects and tools to alleviate them made the participants feel prepared to regain command of their life.

Conclusions

The participants benefitted from rehabilitation in different settings. The intense psychosocial intervention at RcDallund released the participants to work with underlying problems.

23-25-P

INTERDISCIPLINARY PALLIATIVE REHABILITATION PROGRAM FOR PATIENTS LIVING WITH ADVANCED CANCER

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Introduction

Background: Patients with active cancer face a considerable burden from the effects of both the disease and its treatment. Palliative Rehabilitation Program (PRP) is an interdisciplinary program designed to ameliorate disease effects and to improve patient’s functioning.

Objectives

To evaluate changes in functioning, symptoms, and well-being after the completion of an eight week program.

Methods

308 patients referred to 8-week PRP; assessed by physician, nurse, dietician, physiotherapist, occupational therapist, social worker. Measures used: Edmonton Symptom Assessment Scale (ESAS), Patient Generated Subjective Global Assessment (PGSGA), Distress Thermometer, MD Anderson Symptom Inventory (MDASI), 6 min walk, Timed up and go, grip strength, forward reach test, General Self Efficacy scale, Berg balance scale and Multidimensional Fatigue Inventory (MFI).

Results

One hundred and sixty three participants completed the PRP. Eighty males and 83 females; m age 62 years (32–90); Diagnosis: Breast(19 %), HNC(16.5 %), Hematologic(13.4 %), Lung-NSCLC(9.8 %), Colorectal(7.3 %), Prostate(5.5 %), Other- Neuroendocrine, Gastric etc.(5.5 %), Gynecological(4.2 %), Urogenital(3.0 %), CNS(2.4 %), Pancreatic(2.4 %), multiple primaries(2.4 %), Liver bile duct(1.8 %), Esophageal(1.8 %), Lung-smalcell(1.8 %), Sarcoma(1.2 %), and Unknown primary(1.2 %). Significant improvements were noted in: PGSGA nutrition (p=0.001); ESAS tiredness (p=0.001), anxiety (p

Conclusions

Participation in the PRP is beneficial to the patients as it improves nutrition, reduce symptom burden, reduce interference by symptoms in daily life and improves physical, functional and overall well-being.
23-27-P

THE IMPACT OF HYPONATREMIA ON PHYSICAL FUNCTIONS IN CANCER PATIENTS

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Introduction
Hyponatremia is a common electrolyte abnormality in cancer patients, but its clinical impact on physical functions remains unknown.

Objectives
To determine if hyponatremia is associated with physical functions in cancer patients.

Methods
We performed a retrospective cohort study. The participants were 53 cancer in-patients with varying stages admitted to Shizuoka Cancer Center and Keio University Hospital from August 2010 to August 2011. We excluded patients with central or peripheral nerve lesions. The main outcome measure was the odds ratio of gait disability. Mann–Whitney U test was also used to identify the impact of hyponatremia on physical functions.

Results
Hyponatremia was detected in 17 patients (32.1%). Mean serum sodium level was 135.9±3.9 mEq/L. Hyponatremia was mild (130–134 mEq/L) in 13 patients (24.5%), moderate (125–129 mEq/L) in 4 patients (7.6%), and asymptomatic in all patients. With multiple logistic regression analysis with gait disability (ambulator or nonambulator) as the dependent variable and several independent variables, hyponatremia appeared to be a principal independent predictor with odds ratio of 7.22 (95% confidence interval, 1.27–40.89; P<0.05). ECOG performance status was significantly lower in patients with hyponatremia than those without. Cancer functional assessment set (cFAS) total score and the scores of the items related to the physical activities (sitting up, standing up, transfer, gait, stair climbing, and areas of daily activities) were lower in hyponatremic patients when compared with normonatremic patients.

Conclusions
Although mild hyponatremia in cancer patients is asymptomatic, it is associated with physical functions such as ambulation and basic activities.

23-28-P

THE ACTIVE PATIENT (TAP): A QUALITATIVE STUDY OF A MULTIMODAL REHABILITATION INTERVENTION DURING HEMATOPOIETIC STEM CELL TRANSPLANTATION

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Introduction
Substantial physical and functional deconditioning and diminished emotional wellbeing are all potential adverse effects of myeloablative hematopoietic stem cell transplantation (HSCT).

Objectives
A qualitative study nested within a randomized controlled trial (n=42) aimed to explore the patients' experience and appraisal of a multimodal rehabilitation intervention while undergoing HSCT.

Methods
Semi-structured interviews were conducted with participants assigned to the intervention group (n=15) at hospital discharge (post intervention). The intervention group received a supervised 6 week structured exercise program, progressive relaxation and psychoeducation while undergoing HSCT. This investigation applies a descriptive, explorative design by thematic analysis.

Results

Appraisal
The intervention was viewed as safe, acceptable and realistic - viewed as a beneficial adjunct to treatment with benefits (family members and supervision) and barriers (symptoms, busy care-schedules)

Meaning
"Teachable Moment" - the intervention was a catalyst to 'activity awareness', allowed 'personal engagement'

The active patient - active and meaningful role during HSCT and used diverse motivational strategies to meeting daily goals leading to feelings of success and hope

Conclusions
Patients reported a heightened sense of physical and emotional awareness used as a catalyst for motivation. The intervention succeeded in satisfying the patients’ need for active participation in own treatment and care. The patients’ accounts reflect the need to normalize a demanding treatment situation with the goal of health maintenance. There is a need for systematic implementation of evidence-based physical activity guidelines in clinical practice to reduce treatment related side effects during HSCT, late effects and complications.

23-29-P

TUESDAYS AT CERION. MEETINGS: IMPROVING INTEGRATED REHABILITATION PATH WITH A SUPPORTIVE, SCIENTIFIC-SOCIAL APPROACH

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Introduction
The Oncological Rehabilitation Centre CeRiOn, presented at MASCC 2012, aims to develop a personalized path for cancer patients using an integrated rehabilitation approach. Physical and Psycho-oncological interventions, including meetings and groups, have been improved with scientific social meetings, trying to answer the most frequently asked questions from patients and family members.

Objectives
The goal is to give scientific guidelines useful to orientate in the chaotic information circulating and to restore dignity to issues that are not normally considered in the rehabilitation path.

Methods
In order to soothe the wound to femininity caused by cancer, in 2011 aesthetic counseling sessions were offered. Over time the program has expanded and consolidated in monthly meetings of four hours: “Tuesdays at CeriOn”, with a scientific part (on physical activity, dermatology, stress, communication with children, sexuality, labor rights, pharmacovigilance, genetics) and a psycho-social part with a team of fashion and aesthetic consultants. One hour is reserved for the discussion.

Results
From September 2013 and December 2014 there were 10 meetings, with a total of 260 participants (average of 35 per meeting). About 25 per meeting
responded to the satisfaction questionnaire: 95% resulted “Very satisfied”. Suggestions for improvement were to increase this type of activity.

**Conclusions**
The “Tuesday at CeRiOn” program has become an important part of cancer rehabilitation path. It may promote a better and faster adaptation to the new psycho-physical condition and may facilitate the compliance and encourage positive attitude towards the rehabilitation staff.

**23-30-P**

**SYSTEMATIC LITERATURE REVIEW ABOUT SELF-MANAGEMENT INTERVENTIONS FOR WOMEN WITH BREAST CANCER AFTER PRIMARY TREATMENT**

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**Introduction**
With the increase in diagnosis and treatment, breast cancer has become a chronic disease requiring long-term follow-up. The self-management model could be an alternative to support women with this condition.

**Objectives**
To analyse the self-management interventions delivered to women with breast cancer after primary treatment

**Methods**
A systematic literature review was undertaken to identify the self-management interventions delivered to women with breast cancer after completed of primary treatment. Relevant studies were identified in the MEDLINE, CINAHL, Embase, PsycINFO, LILACS and Web of Science databases with no limit on the publication date. Data from 10 eligible papers from seven studies were extracted and summarized following a systematic scheme.

**Results**
Seven studies were appraised for methodological quality and content. The studies were classified as self-management interventions and the content of the interventions reviewed were varied with limited data available. Four studies used Bandura’s Theory and despite only two studies being randomized controlled trials, the results showed improvements in symptoms, quality of life, physical activities and changes in diet.

**Conclusions**
Women with breast cancer represent one of the largest groups of cancer survivors, however the number of studies on self-management interventions directed to this population is scarce and there is not enough robust evidence to say which interventions are effective and further studies are needed on this thematic.

**23-31-P**

**PERIOPERATIVE REHABILITATION IN OPERATIONS FOR LUNG CANCER – A FEASIBILITY STUDY (PROLUCIA)**

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**Introduction**
Surgical resection in patients with non small cell lung cancer (NSCLC) may be associated with significant morbidity, functional limitations and decreased Quality Of Life (QOL).

**Objectives**
The safety and the feasibility of a preoperative and early postoperative rehabilitation program in patients operated for NSCLC is determined in a non-hospital setting, with focus on high intensive exercise.

**Methods**
Forty patients with histologically or cytologically confirmed non-small cell lung cancer (NSCLC) in disease stage I-IIIA, referred for surgical resection at Department of Cardiothoracic Surgery RT, Rigshospitalet, were randomly assigned to one of four groups (three intervention groups and one control group). The preoperative intervention consisted of a home-based exercise program. The postoperative rehabilitation program consisted of a supervised group exercise program comprising resistance and cardiovascular training two hours weekly for 12 weeks combined with individual counseling. The study endpoints were inclusion rate and number of adverse events.

**Results**
Forty patients (of 124 screened; 32%) were included and randomized into the four groups. The postoperative exercise was completed by 53% of the patients randomized to this intervention. No adverse events were observed indicating that the early postoperative rehabilitation program is safe. The preoperative home-based exercise was not feasible due to interfering diagnostic procedures and fast-track surgery leaving only 1–2 weeks between diagnose to surgery.

**Conclusions**
Early postoperative rehabilitation program for patients with NSCLC is safe and feasible, but in a fast-track set up preoperative home-based exercise programs are not feasible in this population.

**23-32-P**

**DENTAL REHABILITATION OF IRRADIATED HEAD AND NECK CANCER PATIENTS WITH RESECTED JAWS**

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**Introduction**
Dental rehabilitation is an important part of head and neck cancer reconstruction and comes much more forward in resected jaws. The prosthodontic part is very much developed with the use of osseointegrated implants. Moreover the use of osseointegrated implants makes improvement in oral health related quality of life (OHRQOL) in head and neck cancer patients.

**Objectives**
The aim is to evaluate dental rehabilitation of 7 head and neck cancer patients who went under surgery and irradiation for therapy.

**Methods**
5 male, 2 female patients with 2 maxillary and 5 mandibular resections undergone oral examination. Two of the mandibular resections were re-constructed with free fibula graft. All had received irradiation over 50Gy to the resected jaws. Totally 30 osseointegrated dental implants were placed and either fixed or removable prosthesis were placed. 23 implants were in native bone whereas 5 placed in vascularized fibula flap and other two in free fibula flap.
Results
The surgical protocol was administration of antibiotics two days before surgery and 5 more days after. Two stage surgery protocol was performed. After successful soft tissue healing, the mean time before loading was 3.4 months. There were no failed implants and no cases of osteonecrosis in follow ups.

Conclusions
The importance of dental rehabilitation in head and neck cancer patients with resection is not only a functional repairment but more preciously regain of social life and disguise in public with the reconstruction of facial appearance. Osseointegrated dental implants gives the best support with reliable outcomes.

23-33-P
CAREGIVERS’ ATTITUDES TOWARD PROMOTING EXERCISE AMONG PATIENTS WITH LATE-STAGE LUNG CANCER

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Introduction
Exercise benefits patients with cancer and caregivers are often engaged to promote and reinforce patients’ exercise behaviors. However, caregivers’ attitudes and receptivity towards this expectation remain largely unexamined.

Objectives
To characterize attitudes among caregivers of patients with late-stage lung cancer regarding their role in promoting patients’ exercise behaviors.

Methods
Semi-structured qualitative interviews with 20 adult family caregivers of patients with Stage IIIIB or IV non-small cell lung cancer were analyzed. Caregivers were queried about their beliefs regarding the role of exercise in “fighting cancer,” their ability to encourage patients’ exercise, and their receptivity to instructions from patients’ health care providers to promote exercise.

Results
Family caregivers viewed exercise as an important part of fighting cancer. Past exercise patterns and lifestyle were important considerations, with family caregivers who had not previously exercised considering household activities to suffice for fitness promotion. Family caregivers emphasized the importance of knowing the boundaries of their established relationships. A majority felt that suggesting that patients exercise would be ineffective and perceived as critical or “nagging.” Respecting patients’ autonomy emerged as a consistent theme. Beliefs regarding the utility of direction from health care providers varied, however caregivers generally thought that such direction would more likely result in meaningful behavioral change for patients.

Conclusions
Family caregivers believe that exercise is important part of “fighting” cancer, but feel constrained in their willingness and ability to promote exercise behaviors due to the established boundaries of their relationships. They have mixed opinions regarding the utility of exercise promotion by healthcare providers.

23-34-P
OPTIMIZED PATIENT-TRAJECTORY FOR PATIENTS UNDERGOING TREATMENT WITH HIGH-DOSE CHEMOTHERAPY AND AUTOLOGOUS STEM-CELL TRANSPLANTATION

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Introduction
Before, during and after autologous hematopoietic stem-cell transplantation (HD-ASCT) patients suffer from significant loss of physical function, and experience multiple complications during and after hospitalization.

Objectives
Studies regarding safety and feasibility of physical exercise interventions for patients undergoing treatment with HD-ASCT are missing.

Methods
Forty patients referred to HD-ASCT treatment, suffering from multiple myeloma, lymphoma or amyloidosis aged 23–70 years were enrolled in a prospective longitudinal study. The study consisted of a home based exercise program for use in the ambulatory setting and supervised exercise sessions Monday to Friday for 30–40 min during admission. Safety of the exercise program and physical tests were assessed by using a weekly questionnaire and report of inadvertent incidences. Adherence to the home based exercise program was reported by using a patient diary, weekly questionnaire and count of daily attendance in supervised sessions during hospital stay. Data collection was scheduled shortly after diagnosis, admission, discharge and 8 weeks after discharge. Success criteria were: no severe adverse events in relation to exercise program and assessments; performance of 3 days of physical exercises during ambulatory period and hospital stay and 150 min of weekly physical activity.

Results
No severe adverse events in relation to the exercise program or assessments were reported.

Conclusions
Based on the enrolled number of patients the physical exercise intervention for patients undergoing HD-ASCT seems promising regarding feasibility and safety.
A DESCRIPTIVE EXPLORATORY STUDY ON THE USE OF DIAGNOSTIC ULTRASOUND FOR AXILLARY WEB SYNDROME

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Introduction
Axillary web syndrome (AWS) is a common occurrence following breast surgery involving axillary lymph node dissection. Unproven hypotheses regarding its aetiology include fascial scarring and lymphatic vessel thrombosis. Physiotherapists frequently treat this condition although there is little evidence underpinning its management.

Objectives
To explore whether ultrasound can identify or help diagnose AWS and provide additional information about its anatomical characteristics.

Methods
Between September 2010 and September 2011 breast cancer out-patients with AWS were recruited from one hospital site. Baseline assessments were completed by a physiotherapist and included measurements of shoulder movement plus shoulder pain and disability index (SPADI). Following assessment all patients were scheduled for an ultrasound scan to both axillae which was carried out and reported by, a senior radiologist.

Results
Ten patients received an ultrasound scan of both axillae. All scans demonstrated skin thickening on the ipsilateral side of surgery. Three patients demonstrated a linear hyperchoic or hypochoic cord like structure deep to the superficial fascia on ultrasound which correlated with the presence of a palpable cord in the axilla. In the remaining seven patients any visible and palpable cording had resolved at the time of the ultrasound scan.

Conclusions
This exploratory study indicated that diagnostic ultrasound may provide additional information about the anatomical features of AWS in the axilla. Future work could follow the whole length of the cord and not restrict fascial examination to the axilla.

PRE-HABILITATION OF DYSPHAGIA IN PATIENTS WITH HEAD AND NECK CANCER UNDERGOING RADIOThERAPY – A FEASIBILITY STUDY

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Introduction
Dysphagia is a known late-effect after treatment for head and neck cancer (HNC). Dysphagia causes malnutrition, aspiration-pneumonia and reduced life-quality. There is lacking evidence on the ideal HNC-specific rehabilitation of dysphagia, but several small-scale studies indicate that early rehabilitation is crucial.

Objectives
To investigate the feasibility of a 6-weeks swallowing therapy and progressive resistance training (PRT) program concurrent with radiotherapy among HNC-patients.
Methods
Six HNC-patients were allocated 6 weeks of supervised PRT and swallowing therapy during radiotherapy (Figure 1). Before the intervention evaluations of swallowing function, functional performance and mouth opening were performed, and questionnaires regarding life-quality, depression & anxiety and subjective evaluation of dysphagia were filled out. After completion participants were asked to give feedback on the intervention by answering a questionnaire.

Results
Six of nine patients approached were included (Table 1). Five patients completed the intervention. PRT adherence rate was 91% with completers participating in 10 sessions (range 8–11) and swallowing therapy adherence rate was 92% with completers participating in 25 sessions (range 20–27). All participants completed baseline testing and returned questionnaires. 1 participant missed filling out the anxiety questionnaire. Completers engaged in home-training programs with an average of 2 days (range 0–5) without performing exercises at all. All 5 completers returned the feedback questionnaires, which were generally positive in terms of waiting time, frequency and contents of intervention with home-based self-training being the most challenging to complete.

Conclusions
PRT and swallowing therapy is feasible in HNC-patients undergoing radiotherapy. Participants found it both necessary and useful to participate in the intervention.
involved cognitive behavioral therapy (CBT)-based interventions, while one study involved a yoga intervention. Two studies qualitatively described the coping strategies employed by cancer survivors with CRCD.

Conclusions
This scoping review revealed a dearth of evidence regarding non-pharmacological rehabilitation interventions for CRCD. Current research provides preliminary evidence that CBT-based treatments may be efficacious in ameliorating symptoms of CRCD. Qualitative studies also offer insight into effective coping strategies used by adults with CRCD. Further research is needed about the lived experience of cancer survivors with CRCD and about efficacious rehabilitation techniques for this population.

23-38-P

LIVING EXPERIENCES WITH LATE EFFECTS AFTER TREATMENT FOR CERVICAL CANCER

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Introduction
Late effects after treatment for Cervical Cancer involve physical and psychosocial aspects of daily living, but due to the tabooed body part, these aspects need more attention.

Objectives
To describe experiences of living with late effects after treatment for Cervical Cancer.

Methods
Twenty one women aged 40–72 years participated in three focus group interviews. The interviews were analyzed with meaning condensation inspired by Giorgi’s phenomenological approach.

Results
Physical problems:
Incontinence in relation to both urine and feces - outside home some patients have diapers in the bag and orient themselves where the nearest toilet is.

Pain in the pelvic, bladder, bowel and joints - pain in the hip joints are particularly described as highly restrictive in everyday life.

Tinnitus - some avoid large gatherings with much talk as this exacerbates the problem.

Sexual problems:
Low desire, decreased spontaneity, bleeding and dyspareunia – reflections on whether or not vaginal dilators with vibration could remedy these problems.

Psychosocial problems:
Reduced mood, Fatigue, Inability to concentrate.
Feeling lucky to survive but eternal fear that the cancer will come back is prominent.

Some patients tell family and friends how they feel. Some experience an expectation from relatives that they must move forward and that the disease should no longer be an issue.

Conclusions
Both physical, sexual and psychosocial problems involve everyday life in various ways. Patients may present great competence regarding some problems, while others raise great uncertainty in relevant coping strategies.

23-39-P

THE EXPERT IS THE PATIENT - TO IDENTIFY NEEDS FOR REHABILITATION AND PALLIATION

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Introduction
Systematic and coherent effort in identifying cancer patient needs for rehabilitation and palliation initially, during, and after treatment, based on the patient’s perspective and need of support, has been mandatory in Denmark since 2012 according to the National Cancer Disease Management Program.

Objectives
This presentation describes the development of a dialogue tool used in conversations with patients about needs for rehabilitation and palliation.

Methods
The composition of the tool was based on literature, clinical experiences from experts in palliative and rehabilitation care, the conceptual framework ICF, and with inspiration from Distress Thermometer and Guided Self Determination. The tool was tested and evaluated by using questionnaires, focus group interviews, user board meetings, observations and individual interviews with staff and patients.

Results
A new tool was developed; a tool where patients and relatives can get involved and prepare themselves for conversations about rehabilitation (and palliation). This provides efficient use of patients’ and nurses’ time at the hospital and give both a more targeted and qualified conversation. The dialogues with the staff became more focused on the patient’s actual concerns and more delicate matters like sexuality, anxiety, loneliness and physical experience were discussed. The dialogues often led the patient or the healthcare professional to take action.

Conclusions
The dialogue tool will be implemented across all hospitals (n=7), at municipalities (n=29), and by the patients general practitioner in spring of 2015, but as the tool seems relevant it is already used with success at several wards and municipalities before formal xof implementation.

23-40-P

QUALITY OF LIFE AMONG CANCER SURVIVORS – COMMUNITY BASED CARE MOVEMENT - A PILOT STUDY

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Introduction
In India, the total number of cancer survivors, are likely to grow further. Because of the increasing life span and other challenges associated with co-morbid conditions, it adds further to deteriorate their quality of life. Long period of hospitalization with episodes of bed confinement at home, makes their life miserable adding to the challenges posed among cancer survivors.

Objectives
There is a need for a system of rehabilitation care at home that can best be built by a community-based palliative care under the Rehab. Physician to improve their quality of life.

Methods
We conducted Pilot study on Community Based Palliative care movement in two years at Rehabilitation Department, Patna Medical College, The Dept. admitted 100 cancer patients diagnosed with Prostate, Breast, Cervix and Skeletal malignancy that were identified from the various clinical departments. Follow up studies were made on 6 and 12 months after pathology confirmation, measuring various factors relating to quality of life among cancer survivors and rehabilitation thereafter.

Results
The results were encouraging when we compared and evaluated the quality of life among cancer survivors who had a community based palliative care. This concept is relatively new to India.
Conclusions
Cancer control needs multidisciplinary approach and Community based palliative care appears an important component of this approach. Palpable changes have been seen in the recent past. The role of community as service providers and Rehab. Workers play a crucial role in overcoming the critical situation. It should be included in the total health care delivery system.

23-41-P

A CHANGE IN ATTITUDE TOWARDS EXERCISE IN SEDENTARY CANCER PATIENTS

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Introduction
Newly diagnosed patients might seek self-management strategies when facing their cancer diagnosis. We hypothesise that the onset period of adjuvant chemotherapy can be ‘the open window of opportunity’ to identify and motivate sedentary patients with breast or colon cancer to initiate exercise during treatment.

Objectives
To explore the feasibility, safeness and the experienced health benefits and barriers of participation in exercise in defined sedentary patients.

Methods
Following oncologist’s recommendation and exercise team’s education patients were allocated to two twelve weeks exercise interventions: a) hospital-based high-intensity, group exercise-intervention b) home-based low-intensity individual pedometer intervention c) control group. Thirty-three patients undergoing chemotherapy were interviewed individually pre- and post-intervention. Meaning condensation was used.

Results
Included patients experienced physical well-being. Post intervention the patients in the high intensity peer-based group experienced that ‘their strong bodies encouraged them to stay active’. The home-based pedometer intervention was experienced as ‘flexible, relevant and had positive impact on the patients’ family and friends’. Side effects from chemotherapy were experienced as a temporary barrier for exercising.

Conclusions
The onset period of adjuvant chemotherapy was perceived by most of the patients as a period characterized by anxiety and uncertainty toward the forthcoming treatment. Consequently the oncologist’s and exercise team’s recommendations were perceived as an unexpected and positive possibility to manage disease and side-effects and thereby mitigating anxiety. Former sedentary patients were motivated for participation in exercise interventions which were undertaken safely by the patients. In-hospital rehabilitation programs need to be tailored to the patients’ specific diagnosis and treatment protocol.

23-42-P

FAMILY CONVERSATIONS IN THE ONCOLOGICAL DEPARTMENT

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Introduction
When one member of the family becomes ill, it affects the entire family. The family will try to redefine itself as a family. Research indicates that both the individual member and the entire family needs support to re-establish the family.

Objectives
To develop and evaluate cancer patients and their families participation in systemic conversations.

Methods
Framework
The project is inspired by Wraith/Leahy’s works (2005) and Benzein/Savennann (2008) inspired by a systemic approach.

Research Design
The study has a phenomenological/hermeneutic approach and is a descriptive intervention study of conversations with families. Nine families are included consecutively based on the following criteria: Danish speaking families of cancer patients undergoing treatment. Patient and all family members aged 18 or older. The family is offered three conversations over nine weeks, focusing on the ability of the family to care for each other, on health promotion and rehabilitation. The conversations, conducted by a specially trained nurse, are planned to last one hour.

Evaluation of the conversations: qualitative interviews with selected members of the family. The analysis is inspired by Ricoeurs work on narrative and interpretation.

Results
The study is ongoing and there are yet limited results. Preliminary results shows that the families were satisfied with the conversations. Although the family had a mutual open relationship, family conversations opened up for new understanding of each other. The families experiences a strengthened family cohesion after the conversations.

Conclusions

23-43-P

A DANISH NATIONAL INTERVENTION WITH THE PURPOSE OF INCREASING ONCOLOGY AND HAEmatology Nurses’ Awareness, Knowledge and Skills about Sexuality in Patients Living with Cancer.

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Introduction
The incidence and prevalence of sexual problems and sexual dysfunction among people living with cancer is high. Evidence suggests that sexual dysfunction is a threat to the joy of life and marital relationships, and can lead to stress and impaired coping ability in chronic ill patients. Yet, sexuality is still a neglected topic among health professionals.

Objectives
To increase onco and haematology nurses awareness, knowledge and skills about patients with cancer’s specific and general sexual problems and how to approach an interview, where the theme is sexuality after cancer treatment.

Methods
Academic Society for Cancer Nurses (FSK) has taken the initiative to form a Danish national working group in 2015 to develop and implement a national intervention with the above objectives. The effect of the
intervention is evaluated by a national survey about nurses’ knowledge and skills in relation to sexuality in patients with cancer. The intervention is aimed at patients living with cancer regardless of sexual orientation or sexual partner.

**Results**

The details of the national intervention is expected to be finished by 1/5 2015.

**Conclusions**

The patient’s individual needs should be identified through initiation of conversations regarding sexual dysfunction in the medical setting. These conversations can help normalize concerns for patients, debunk myths, provide a basis for brief counselling or serve as an entree for a referral. Sexual function is an important aspect of life and should be placed on par with discussions of the disease, its treatment, and other symptoms or complications by health professionals.

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**23-44-P**

**ONLINE SUPPORT OF INDIVIDUALLY TAILORED REHABILITATION TO WOMEN WITH BREAST CANCER**

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**Introduction**

Copenhagen Centre for Cancer and Health provide diagnose specific group-based rehabilitation, instructed by specially trained physiotherapists, to women operated for breast cancer. Despite participation in the rehabilitation program, late side effects to surgery and irradiation have been reported with a high prevalence (lymphoedema 42 %, tightness in operation area 80 %). Only 56 % of the women participated in prophylactic exercises more than once a week, although daily usage is recommended.

**Objectives**

The aim of the present project is to develop and test, whether a digital platform with a supplemental online exercise program and other supporting functions designed for women operated for breast cancer is able to increase the motivation for training and increase the quality of the home based prophylactic exercises thereby reducing the frequency of late side effects.

**Methods**

Eleven municipalities are collaborating on designing the digital platform. An introduction film and 12 exercise films will be uploaded to the platform. Through several iterations a user panel of women treated for breast cancer is closely involved in the development of the concept planned to include a coach function/ Q&A, a push function (e.g., SMS), a reward function and by request of the user panel a photo gallery of scars and reconstructions 1, 3 and 6 months after surgery, and stories from other women treated for breast cancer. Parallel a feasibility study evaluating the concept will be prepared.

**Results**

The concept of the online support based on user involvement will be presented as well as the design of the feasibility study.

**Conclusions**

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**23-45-P**

**PROMOTION OF CANCER REHABILITATION IN JAPAN: THE CANCER REHABILITATION EDUCATIONAL PROGRAM FOR REHABILITATION TEAMS (CAREER) PLANNER WORKSHOP PROJECT**

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**Introduction**

The National Cancer Control Act was legislated during 2006 in Japan to address the issue of insufficient cancer rehabilitation resources. As part of its mandate, the cancer rehabilitation educational program for rehabilitation teams, CAREER, was commissioned by the Ministry of Health, Labour and Welfare in 2007. CAREER workshops target teams of 4 to 6 medical staff that include a doctor, a nurse and rehabilitation therapists. We delivered 28 CAREER workshops in central cities between 2010 and 2013 and reached 5,261 participants. However, those living in provincial areas found access to CARE ER workshops problematic. Therefore, the CAREER planner workshop, which is a training program for the CAREER planner, was launched in 2013.

**Objectives**

To determine the effect of the planner workshop.

**Methods**

Planner workshops comprising one day of lectures and demonstrations about CAREER targeted the medical professionals in designated cancer care hospitals who would be responsible for delivering regional CARE ER programs in Japan. We then analyzed the demographic data from these workshops.

**Results**

We presented seven planner workshops between 2013 and 2014 in which 241 medical staff from 41 (87.2 %) of 47 Japanese prefectures participated. After completing the workshops, they subsequently delivered 30 CAREER workshops in which around 3,000 medical personnel from all prefectures had participated by the end of 2014.

**Conclusions**

More CAREER workshops have been presented since the planner workshops were implemented. This project has effectively equalized cancer rehabilitation and improved the quality of life of cancer patients.
23-46-P

INITIAL REHABILITATION INTERVIEWS IN CANCER WARDS – A NURSING PERSPECTIVE

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Introduction
Hospitalization can be an accelerated process for both patient and nurse. In short time the nurse has to build a relationship with the patient and gain an overview of the patient’s problems and needs. In this perspective the initial rehabilitation interview is central.

Objectives
To investigate nurses experiences in connection with initial rehabilitation interviews.

Methods
In all thirty-nine nurses randomly selected employed in either Oncology or Hematology ward completed a self-administered questionnaire containing both quantitative and qualitative survey questions. The qualitative statements were thematically analysed; in this study only these results are presented.

Results
The included nurses experience:

1. The rehabilitation interview important and key elements are:
   - Prioritization of time
   - Nursing skills
   - Nursing intuition

2. Their communication skills as good and that good verbal communication can be viewed from three major perspectives:
   - A nurse perspective
   - An interaction perspective
   - A time and framework perspective

Conclusions
Skills and intuition are fundamental to all nursing. Likewise, for an oral communication to be good it requires inclusion of both the patient and the nursing perspective.

Time is a crucial factor both in the initial rehabilitation interview and in good communication.

23-47-P

ASSESSMENT OF SEVERITY OF THE ASSESSED BODY POSTURE IN THE SAGITTAL PLANE IN PATIENTS WITH BREAST CANCER TREATED CONSERVING OR MASTECTOMY

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Introduction
Breast cancer is the most common malignancy in women in Poland and in other developed countries. Local surgical treatment of this cancer can include amputation of the breast or breast-conserving surgery. An undesirable consequence of prior surgery may be changes in body posture of patients.

Objectives
The aim of this study was to evaluate changes in body posture in the sagittal plane evaluated in women with breast cancer after surgical treatment.

Methods
A prospective study involving 101 women with breast cancer after surgery during X 2011–October, 2012 (in 51 cases of breast amputation, in the other - breast-conserving surgery). Assessment of posture in the sagittal plane were performed using equipment Computer Attitudes Assessment Body, which uses the Moire phenomenon.

Results
Changes to the posture of the examined patients had both dates examinations (two months and one year after surgery). They were observed in both groups. Most expressed changes was to increase the patients lumbar lordosis and thoracic kyphosis, and the angle of the trunk (p<0.001).

Conclusions
Negative changes in body posture in the sagittal plane reported after surgery for breast cancer relate both to women undergoing breast amputation, as well as sparing surgical techniques. However, they are less pronounced in patients who have survived the treatment of breast cancer.

23-48-P

THE IMPORTANCE OF THE REHABILITATION PROCESS TO PREVENT DISTORTION OF BODY POSTURE IN WOMEN TREATED FOR BREAST CANCER

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Introduction
Breast cancer is the most common malignancy in women. According to statistics from the die of breast cancer each year approx. 5,000 women. Breast cancer treatment is combination therapy. In addition to surgery, which occupies the first place in the treatment of patients with this diagnosis, applied radiation therapy, chemotherapy, hormone therapy and rehabilitation. At each stage of treatment should be possible to take care of the maintenance of good posture.

Objectives
The aim of this paper is to present a selection of the need for rehabilitation after mastectomy resulting from changes in body shape.

Methods
The study included an assessment of body posture and quality of life. It therefore reviewed the available literature and foreign national in the years 2011–2012. The multicenter studies were analyzed, there was no reference to the analysis of a case study.

Results
As a result of mastectomy posture is changed. Analyzing the available literature confirmation of the importance of guiding comprehensive rehabilitation. In the process of rehabilitation should pay attention not only to the treatment of edema but also posture disorders, and other disorders resulting from structural.
Conclusions
As a result of mastectomy rehabilitation plays an important role, which affects both the change in body posture and the quality of life and psychological benefit. It should be borne in mind that physiotherapy is part of the whole process of mental and physical rehabilitation of women treated for breast cancer.

23-49-P

ASSESSMENT OF THE QUALITY OF LIFE (QOL) AND FUNCTION AFTER TREATMENT AND REHABILITATION OF THE LOWER JAW AFFECTED BY TUMORS WITH IMPLANT RETAINED DENTAL PROSTHESIS.

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Introduction
Treatment of head and neck cancers involve oral rehabilitation following resection and reconstruction of the jaw.

Objectives
To assess for the quality of life (QOL) and speech after treatment and rehabilitation of the lower jaw affected by tumors with implant retained dental prosthesis taking into consideration anatomical status of the mandible.

Methods
Patients with tumor of the mandible, were selected for rehabilitation with implant retained dental prosthesis following resection and reconstructive surgery. Patients were studied under the following groups;

1) Total edentulous patients with mandible intact.
2) Patients who underwent hemimandibulectomy.
3) Patients who underwent resection of the body of mandible with free fibular reconstruction and were totally edentulous.
4) Dentulous patients who underwent partial resection and reconstruction with free fibular graft.

All the patients were evaluated pre implant treatment and at one year follow-up after the fabrication of implant retained prosthesis. QOL was evaluated by EORTC QLQ-C30 and H-N35 questionnaires (version 3). Swallowing and speech were assessed by a indigenous questionnaire and Dr. Speech software (Version 4).

Statistical analysis:
Nonparametric Wilcoxon signed rank test and chi square will be used.

Results
Results of this study will be presented.

Conclusions
Reconstruction and rehabilitation of the jaws affected by tumor restores the patient anatomically, esthetically and functionally to optimum levels.

23-50-P

SUPPORTIVE CARE: REHABILITATION OF HAEMATOLOGICAL PATIENTS BY USE OF PATIENT SCHOOLS

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Introduction
The Department of Haematology, Roskilde hospital wants to create optimal rehabilitation solutions for both patients and their relatives. As a supplement to regular nurse-consultations we established a patient school project in 2014 which aimed to rehabilitate patients through a series of interdisciplinary education activities.

Objectives
The focus of the patient school is to 1) educate patients on how to take better care of themselves, including know how to handle side effects of their cancer treatment. Furthermore we want to 2) inspire our patients and their relatives to find a way to meet the challenge of living with cancer.

Methods
The project is inspired by action research, where continuous development in care and treatment occurs in collaboration with the patients and our interdisciplinary partnership. After each lesson, patients fill out a qualitative questionnaire to evaluate the received education.

Results
The evaluations of the patient school activities have been very positive. Both patients and their relatives find that they get useful information. They have however, provided suggestions for new themes and subjects in the patient school. We aim to implement these in future patient school programs.

Conclusions
We will continue the patient school and improve it by focusing on effects and conditions related to the cancer treatment they receive. As an example we want to provide education for patients in high dose chemotherapy, as well as making an outgoing team of nurses to educate patients who lives far away from the hospital and hence doesn’t participate in patient school.

Survivorship
24-01-O

COMPARING THE COSTS OF THREE PROSTATE CANCER FOLLOW-UP STRATEGIES: A COST-MINIMISATION ANALYSIS

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Introduction
Prostate cancer follow-up is traditionally provided by clinicians in a hospital setting. Growing numbers of prostate cancer survivors means this model of care may not be economically sustainable, and a number of alternative approaches have been suggested.

Objectives
The aim of this study was to develop an economic model to compare the costs of three alternative strategies for prostate cancer follow-up in Ireland – the European Association of Urology (EAU) guidelines, the National Institute of Health Care Excellence (NICE) guidelines and current practice.

Methods
A cost minimisation analysis was performed using a Markov model with three arms (EAU guidelines, NICE guidelines and current practice) comparing follow-up for men with prostate cancer treated with curative intent. The model took a healthcare payer’s perspective over a 10 year time horizon.

Results
Current practice was the least cost efficient arm of the model, the NICE guidelines were most cost efficient (74 % of current practice costs) and the EAU guidelines intermediate (92 % of current practice costs). For the 2562 new cases of prostate cancer diagnosed in 2009, the Irish healthcare system could have saved €760,000 over a 10 year period if the NICE guidelines were adopted.
Conclusions
This is the first study investigating costs of prostate cancer follow-up in the Irish setting. While economic models are designed as a simplification of complex real world situations, these results suggest potential for significant savings within the Irish healthcare system associated with implementation of alternative models of prostate cancer follow-up care.

24-02-O
QUALITY OF LIFE, HEALTH AND PERSONAL WELLBEING UP TO TWO YEARS FOLLOWING CURATIVE INTENT COLORECTAL CANCER SURGERY: RESULTS FROM THE UK COLORECTAL WELLBEING (CREW) STUDY
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Introduction
It is important to understand patterns of recovery after cancer treatment in order to tailor aftercare appropriately.

Objectives
To examine trajectories and predictors of quality of life (QoL), health status and personal wellbeing in the first two years following colorectal surgery.

Methods
Prospective cohort study of 1018 UK colorectal cancer patients. Questionnaires at baseline (pre-surgery), 3, 9, 15, 24 months. QoL (Quality of Life in Adult Cancer Survivors, QLACS), health status (EQ-5D), personal wellbeing (Personal Wellbeing Index), physical symptoms, anxiety, depression, self-efficacy, social support, socio-demographic and clinical/treatment characteristics were examined. Longitudinal analyses assessed change in QoL, health and wellbeing over time and predictors of distinct trajectories.

Results
QoL significantly improved, specifically from 15 months. Health status significantly improved, although 59% reported moderate/severe problems at 24 months. Personal wellbeing significantly declined; 35% reported reduced wellbeing at 24 months. Four distinct trajectories were found for QoL (QLACS Generic Summary Score), health status and personal wellbeing, with 5-7% in the poorest trajectories displaying consistent problems to 30-40% in the best trajectories. Significant risk factors for the poorest QoL trajectory (versus best) were: higher deprivation, more comorbidities, stoma, worse symptoms, worse anxiety and depression, lower self-efficacy and social support. Predictors for health status and wellbeing trajectories were similar.

Conclusions
It is possible to identify distinct recovery trajectories following surgery for colorectal cancer and predictors for these. Different approaches to follow-up care are needed and these results provide robust data regarding who is likely to need more intensive support.

Funding: Macmillan Cancer Support

24-03-O
PREOPERATIVE ANAEMIA AND BLOOD-TRANSFUSION AS PROGNOSTIC FACTORS FOR MORTALITY IN COLORECTAL CANCER - A SWEDISH COHORT STUDY
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Introduction
Colorectal cancer (CRC) is the fourth most common cancer worldwide. Approximately 50% of the patients have anaemia at the time of diagnosis. There are no clear guidelines for treatment of preoperative anaemia.

Objectives
To test the hypothesis that preoperative anaemia or red cell blood transfusion increase overall mortality after surgery for CRC.

Methods
Data on all consecutive surgically and microscopically radical resections of stage I-IV CRC in Karolinska University Hospital 2007–2010 was retrieved in January 2014 (n = 593). The dataset was linked with the registry for transfusions and the hospital’s database for laboratory test results. 517 patients were included in the analysis (Figure 1). Anaemia was classified according to the WHO classification for the diagnosis of anaemia. Transfusion was defined as allogenic transfused erythrocytes within 1 day of surgery. Effects of anaemia or transfusion on survival was assessed using Cox regression. Analyses were adjusted for age, sex, ASA grade, neoadjuvant treatment, type of surgery, pTNM-stage, pT-stage, and blood loss.

Results
Fifty-one percent of the patients suffered from anaemia before surgery (58.1% colon cancer, 42% rectal cancer). Forty-one percent received a transfusion (39.5% colon cancer, 42% rectal cancer). Forty-one percent received a transfusion (39.5% colon cancer, 42.5% rectal cancer) (Table 1). There was a significant increase in overall mortality (Table 2) for patients with preoperative anaemia. No association was seen between transfusion and mortality.

Conclusions
Preoperative anaemia might be an important prognostic factor for CRC patients. Perioperative transfusion was not associated with long-term survival.
OVERALL SURVIVAL AFTER PALLIATIVE THORACIC RADIOThERAPY FOR LOCALLY ADVANCED NON-SMALL CELL LUNG CANCER NOT SUITABLE FOR CURATIVE INTENDED TREATMENT

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Introduction

A number of patients with medical inoperable local/locally advanced NSCLC in PS0-2 are not suitable for curative intended radiotherapy (RT), but may be offered palliative RT towards the thoracic tumor (pall-TRT) to obtain tumor reduction to prolong overall survival (OS).

Objectives

To study OS in patients who had received pall-TRT 30 Gy/10 Fractions(F).

Methods

From 316 patients with lung cancer who received pall-TRT 30 Gy/10 F 2005–2010, a cohort was chosen of 71 patients who fulfilled the following inclusion criteria: Histologically/cytologically proven NSCLC, stage I-III, and WHO PS0-2.

Results

The median age was 70.7 years(y). 49 % had squamous cell carcinoma. Stages: I-II 15(21 %), IIIA32 (45 %), IIIB 29(41 %). PS0-1 35(41 %), PS2 36(51 %). 31(44 %) received chemotherapy. The reasons for not receiving curatively intend RT was given as: large radiation portals 44 (62 %), location of tumor 13 (18 %), poor condition of patient 19 (27 %), high age 8 (11 %), poor lung function 9 (13 %), unspecified reason 27 (38 %).

Survival for all patients: was median 9 months, 1y 36 %, 2y 17 %, 3y 11 %, 4y 10 %, and 5y 8 %. A trend for better survival was seen for PS 0–1. In Cox analysis neither histology, use of chemotherapy, PS, stage nor gender had a statistical significant impact on OS, while the exclusion criteria ‘large radiation portal’ and age ≥70 y were associated with better OS.

Conclusions

Patients with stage I-III NSCLC not suitable for curative intended treatment may achieve long time survival.
IMPLEMENTATION OF THE PROSTATE CANCER SUPPORTIVE CARE (PCSC) PROGRAM, A COMPREHENSIVE APPROACH FOR MEN WITH PROSTATE CANCER (PC) AND THEIR PARTNERS


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Introduction
PC is often not a highly aggressive disease. Even men who are not cured with surgery or radiation therapy can live for decades. However, the impact of initial or subsequent therapies can seriously impact quality of life for both the patient and his partner.

Objectives
PCSC is a clinical, educational, research-based approach to care, starting at the time of PC diagnosis. The program is tailored to educate men and their partners regarding PC related issues.

Methods
PCSC was initiated in January 2013 at the Vancouver Prostate Centre. It is organized in 5 educational modules to allow patients to attend sessions which are of importance to them including: Information about PC and primary treatment options; Sexual rehabilitation; Lifestyle management (diet and exercise); Managing the side effects of androgen deprivation therapy; Incontinence and pelvic floor strengthening. Sexual Health, Pelvic Floor Physiotherapy, and Exercise Clinics are also held for individual appointments.

Results
Over 2 years, a total of 425 patients participated in at least 1 module. 127 men enrolled in 2013 and 298 men in 2014 (figure 1). Feedback from couples, participating clinicians, and allied health personnel has been overwhelmingly positive.

Conclusions
The results demonstrate that a comprehensive PCSC that is organized in modules is feasible and well received by PC patients and their partners. In 2015, the PCSC Program intends to distribute modules to 4 further sites, including rural/remote locations in British Columbia, Canada. Outcomes research and intervention protocols are now in progress.

24-06-O

RISK OF CARDIOVASCULAR DISEASE AMONG CANCER SURVIVORS AND AGE- AND GENDER-MATCHED CONTROLS

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Introduction
Cardiovascular diseases (CVD) are one of the most common co-morbidities in cancer survivors.

Objectives
This study determines the risk of CVD in survivors of the seven most common malignancies compared to the risk of age- and gender-matched controls.

Methods
All adult survivors diagnosed with skin, breast, colon and rectum, Hodgkin, non-Hodgkin, lung, bronchus and trachea, or prostate cancer, between January 1st, 1999 and December 31st, 2010 were selected from the Dutch Eindhoven Cancer Registry and linked to drug dispensing data from the PHARMO database. CVD was assessed using algorithms based on medication use. Median follow-up was three to six years. We used Cox regression analyses to compare the risk for CVD in survivors to that of controls, while adjusting for demographics, CVD risk factors, depression, and anxiety. Analyses were repeated, stratified for age, gender, and time since diagnosis.

Results
Currently data is available for 8212 breast, 13847 skin, and 5392 colon and rectum cancer survivors, with 31414, 50885, and 19418 matched controls. Preliminary results show that skin cancer survivors have an increased risk for CVD (adjusted HR=1.13, 95%CI=1.03-1.25). This effect was limited to 65 old individuals, females, and the first five years after diagnosis. Breast cancer survivors had an increased risk for CVD (HR=1.49, 95%CI=1.06-2.10) during six to ten years after diagnosis. No differences were seen for colon and rectum cancer survivors.

Conclusions
Additional analyses for all malignancies will be presented at the MASCC/ISOO meeting. Our results will help identifying which cancer survivors are at the highest risk for CVD.

SECOND PRIMARY CANCER AFTER DIAGNOSIS AND TREATMENT OF CERVICAL CANCER

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Introduction
A second primary cancer may be related not only to a shared aetiology but also to a late effect of treatment.
24-08-P

INFLUENCING FACTORS OF HARDLY REGULAR EXERCISE IN HEAD AND NECK CANCER SURVIVORS IN TAIWAN

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Introduction
Regular exercise in cancer patients has physical and psychological benefi-

Objectives
The study was to explore which factors would influence head and neck
cancer survivors rarely to exercise.

Methods
This cross-sectional study was recruited 151 participants completed the
treatments form 3 months to 5 years in Northern medical center. We used
Godin Leisure-Time Exercise Questionnaire (GLTEQ) to separate exercise less and more than 3 times a week and assessed other health status by
Fatigue Symptom Inventory (FSI), Medical Outcome Study Sleep Scale
(MOS-sleep scale), Sleep Disturbance scale (SDQ), Hospital Anxiety and Depression Scale (HADS), and the Short Form 12 (SF12). Using Logistic Regression Model in SPSS v20 software and select the major factor.

Results
Most participants were in middle age (mean 56.8 years) have good KPS
(mean 84.7) male (82.8 %), diagnosis as oral cavity cancer (46.4 %), have
done the surgery and concurrent chemotherapy and radiotherapy
(55.6 %), and do exercise less than 3 times a week now (52.3 %). After
controlling the influence of age, gender, and employment status, the ex-

exercise barrier factors were fatigue inference (OR 1.90, p = .004) and anx-

iety (OR 1.31, p = .021). The mental health (MCS) was be included in the independent predictors of the model, but not significant to inference ex-

ercise status (OR 0.94, p = .064).

Conclusions
This study showed when fatigue inference the patients daily life and when they feel anxiety they would rarely to exercise. Further study could de-

velop interventions to reduce their fatigue and anxiety inference.

24-09-P

A CONTROLLED STUDY OF USE OF PATIENT-REPORTED OUTCOMES TO IMPROVE ASSESSMENT OF LATE EFFECTS AFTER TREATMENT FOR HEAD-AND-NECK CANCER: THE DANISH WEBCAN STUDY 2011–2014

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Introduction
The use of patient-reported outcomes (PROs) in routine clinical care has been tested mainly during treatment or in short-term follow-up.

Objectives
To test the effect of longitudinal feedback of PROs on assessment of late symptoms in regular follow-up (primary outcome) and health-related quality of life (QoL) (secondary outcome).

Methods
266 survivors of head-and-neck cancer (HNC) were sequentially assigned to either control or intervention group and filled in electronic versions of the EORTC QLQ C-30, H&N35 and HADS ques-

tionnaires and a study-specific list of symptoms at up to three consecu-
tive follow-up visits. A report of participants’ symptoms was provided to the clinician for the intervention group but not for the control group.

Analyses used were linear mixed-effects models and multivariate linear regression models. In addition, we analysed the congruence of symptoms reported by participants and assessed by clinicians.

Results
Significantly more symptoms were assessed by clinicians in the intervention group: visit 1 (p < 0.001), visit 2 (p = 0.001) and visit 3 (p = 0.04). No effect was observed on patient outcomes, except for dyspnoea (p = 0.02) and swallowing (p = 0.01). When prompted by PROs at consultations, clinicians and participant were in better agreement about the occurrence of severe symptoms than in con-


results without reports.

Conclusions
Feedback of PROs to clinicians in routine follow-up of HNC survivors enhanced rates of assessment of late symptoms, and participants and clinicians were in closer concordance about severe symptoms. Giving reports of PROs had little impact on participants’ QoL or symptom burden.
Intervention
Palliative Prognostic Score (PaP) and Palliative Prognostic Index (PPI) have been extensively used to estimate survival in far advanced cancer. Objective Prognostic Score (OPS) was newly developed to aim simple and easy scoring to prognosticate for palliative inpatients in Korea. It consists of performance status, symptoms and laboratory data, and has been validated successfully. However, there have been no prospective multicenter studies comparing the accuracy of three prognostic scores.

Objectives
The aim of this prospective multicenter study was to compare accuracy among OPS, PaP and PPI, in far advanced cancer inpatients.

Methods
We followed a total of 180 far advanced cancer inpatients in three palliative care units of hospitals in Korea until death or the end of the study. Log rank tests and C statistics were used to compare the accuracy of prognostic scores.

Results
Median survival of total population was 14 days (95% Confidence Interval (CI): 10.4–17.6). All three prognostic scores discriminated significantly groups of patients with different survival. The overall accuracy of the OPS, PaP and PPI for prediction of survival shorter than 2 weeks was 68.9%, 68.1% and 67.4%, respectively. The C statistics for OPS, PaP, and PPI were 0.753 (95% CI: 0.683–0.814), 0.776 (95% CI: 0.708–0.835) and 0.723 (95% CI: 0.651–0.787). There were not any statistically significant differences among them.

Conclusions
The OPS, PaP and PPI showed overall similar survival predictions for palliative inpatients in Korea. Palliative care physicians can choose any score according to their preferences or experiences. If there are available laboratory data, we recommend OPS because of its simplicity.

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**24-11-P**

**TRANSLATING EXERCISE ONCOLOGY RESEARCH INTO PRACTICE: EFFECTIVENESS OF A COMMUNITY-BASED EXERCISE PROGRAM FOR CANCER PATIENTS AND SURVIVORS**

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**Introduction**
The majority (50–90%) of cancer survivors do not participate in sufficient exercise and there is a paucity of research investigating the effectiveness of ‘real life’ exercise interventions.

**Objectives**
The aim of this trial was to determine if a supervised exercise program administered as it would be in a standard survivorship care setting improves patient outcomes.

**Methods**
600 patients/survivors (70% female, 30% male; age 61±12 years; BMI: 27±5 kg/m²; 2.1±3.2 years since diagnosis) within 2 years of active cancer treatment (36% receiving treatment during intervention) participated in this investigation. Participants had been diagnosed with one of 80 different types of cancer, predominantly breast (34%), prostate (13%) and bowel (9%). Between 2011–2014 participants self-enrolled in a 3-month community-based exercise program involving aerobic and resistance exercise supervised by exercise physiologists across 13 fitness centres. Assessments were conducted at baseline, post-intervention and 6 months follow-up.

**Results**
407 participants (68%) completed the program attending an average 19±4 out of a possible 24 sessions. Significant (p<0.05) improvements were observed post-intervention in physical function (~7–23%), fatigue (~8%), psychological distress (~17%) and quality of life (~3–11%); Table 1. 55% of eligible participants completed the 6-month follow-up (questionnaires only). Significant improvements in fatigue (~8%) and all domains of quality of life (~2–10%) remained. The estimated monthly medical expenditure for participants was reduced significantly at post-intervention (~13%) and follow-up (~11%).

**Conclusions**
A community-based exercise program of just 3 months in duration resulted in significant and sustained improvements in the physical, mental and social wellbeing of cancer patients and survivors.

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**24-12-P**

**THE IMPACT OF LIFESTYLE ON HEALTH-RELATED QUALITY OF LIFE AND MORTALITY AMONG COLORECTAL CANCER PATIENTS WITH AND WITHOUT DIABETES**

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**Introduction**
Colorectal cancer (CRC) and diabetes share several lifestyle-related risk factors, including low physical activity, high Body Mass Index (BMI), smoking, and alcohol use, which may contribute to worse patients’ outcomes.

**Objectives**
This study assess the impact of lifestyle on health-related quality of life (HRQoL) and mortality among CRC patients with (CRC + DM+) and without (CRC + DM-) diabetes.

**Methods**
We used data from a longitudinal survey initiated in 2010 among CRC patients diagnosed in 2000–2009. We included short-term patients (<5 years post-diagnosis) who completed at least 2 questionnaires. Diabetes status and lifestyle factors were self-reported. HRQoL was measured with the EORTC-QLQ-C30. Eindhoven Cancer Registry provided clinical data and overall mortality was obtained from the municipal personal records database.

**Results**
936 (65%) patients were eligible, of whom 789 (84%) reported no diabetes and 126 (13%) have diabetes at study start. 21 (3%) patients were excluded as they developed diabetes during the study or diabetes status was unknown. CRC + DM+ patients were older (70±8 vs. 68±10 years, p-value=0.02) but did not differ in sex, cancer stage or treatment status. CRC + DM+ patients were less often current drinkers (53% vs. 74%, p-value<0.0001) and had similar smoking rates (10% vs. 11%, p-value=0.07) to CRC + DM- patients. Longitudinal results,
CRC + DM+ patients had higher BMI (p-value=0.0001), were less physically active (p-value=0.03), had poorer physical functioning (p-value=0.0004) and HRQoL (p-value=0.004), and more fatigue (p-value=0.005) than CRC + DM- patients. No differences in mortality were found.

**Conclusions**

CRC + DM+ patients have a poorer lifestyle and HRQoL compared with CRC + DM- patients. There were no differences in mortality between the two groups.

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**24-13-P**

**IMPACT OF SYMPTOMS ON WORK STATUS OF COLORECTAL CANCER SURVIVORS**

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**Introduction**

Symptoms and toxicities related to colorectal cancer (CRC) treatment can reduce quality of life in personal and practical ways if they interfere with preferred work status.

**Objectives**

This research characterized the influence of symptoms on ability to work during and after CRC treatment.

**Methods**

We conducted a population-based survey of CRC survivors in Pennsylvania (USA) who were 3–5 years post-diagnosis. Surveys were mailed to 1534 individuals with 308 (20 %) responses.

**Results**

All participants worked at diagnosis. When treatment began, 112 (36 %) stopped working; 95 (31 %) stopped during treatment. Individuals with pain, neuropathy, and/or fatigue were less likely to continue working; those with bowel symptoms were more likely to continue working during part or all of treatment. In the context of current work status, fatigue, urinary or sleep problems and neuropathy were associated with not working. Anxiety was associated with longer time off work; fatigue predicted working fewer hours; both cognitive and emotional problems predicted lower work satisfaction.

**Conclusions**

Although some symptoms predicted not working during treatment, people with bowel symptoms were more likely to continue working. It is possible that people planned around expected bowel symptoms but were less able to accommodate other symptoms that they may not have expected. The findings suggest the need to provide more comprehensive information about what to expect regarding ability to work during and after CRC treatment and the importance of discussing work status when planning goals of care.

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**24-14-P**

**PSYCHOTROPIC AND STIMULANT MEDICATION (PSM) USE AMONG TESTICULAR CANCER SURVIVORS (TCS): A MULTI-INSTITUTIONAL CLINICAL STUDY OF 680 PATIENTS GIVEN CISPLATIN-BASED CHEMOTHERAPY (CHEM)**

(NCI 1R01 CA157823-02)


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**Introduction**

TCS are known to be at increased risk for acute and chronic medical conditions, but few studies have examined barometers of their psychological health.

**Objectives**

To characterize the prevalence of PSM use and associations with demographics, health behaviors, and treatment-associated toxicities among TCS.

**Methods**

TCS aged ≤49 years at first-line CHEM completed a questionnaire regarding co-morbidities and prescription drug use, including PSMs. For co-morbidities, peripheral neuropathy (PN) responses of ”a little”,”quite a bit”, or “very much” were scored ‘yes.’ Fisher’s exact test was used to examine the significance of various associations.

**Results**

Among the first 680 consecutively enrolled TCS, median age at TC diagnosis was 31y (range, 15-49y) and median time since CHEM completion was 52 months (range 12-360month). 85 TCS (12.5 %) reported PSM use, including antidepressants (N=65 [76.5 %]), anxiolytics (N=23 [27 %]), and stimulants (N=21 [25 %]) with 20 TCS on ≥2 PSMs (23 %). Compared to non-users, more PSM users were unemployed (11.8 % vs. 4.4 %; P<.01), self-rated their health as fair/poor (12.2 % vs 4 %; P<.01), and had gained >20 lb since CHEM (39.8 % vs 23.4 %; P<.01). PSM users were more likely to have tinnitus (49.4 % vs. 36.4 %; P<.04), both tinnitus and PN (43.5 % vs. 27.2 %; P<.01), cardiovascular disease (26.2 % vs. 15.6 %; P<.04), and greater use of prescription medications for pain control (20 % vs. 4.7 %; P<.01), hypertension (16.5 % vs. 7.1 %; P<.01), diabetes (8.3 % vs. 2.9 %; P<.02), and testosterone replacement (10.6 % vs. 5.0 %; P=.048).

**Conclusions**

Future studies should aim for identification of high-risk patients in need of intensified preventive and therapeutic interventions.

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**24-15-P**

**PERCEIVED BARRIERS AND FACILITATORS OF PARTICIPATION IN SELF-MANAGEMENT INTERVENTIONS FOR CANCER PATIENTS: A SYSTEMATIC REVIEW AND META-SYNTHESIS OF QUALITATIVE STUDIES**


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**Introduction**

Introduction
Self-management interventions have been found to improve health outcomes in a range of different chronic conditions, yet their impact is often limited by low participation and retention rates. Exploring the ways in which cancer patients engage with such interventions may help to improve our understanding of their experiences and identify barriers and facilitators of participation specific to this population.

Objectives
To conduct a systematic review and meta-synthesis of qualitative studies examining cancer patients’ perceived barriers and facilitators of participating in self-management interventions.

Methods
A systematic search of five electronic databases (Medline, CINAHL, PsycINFO, Scopus, Web of Science) was undertaken. Reference lists of articles selected for inclusion were also examined. Studies that used either interviews or focus groups to explore participants’ experiences and perceptions of participating in self-management interventions for cancer patients were included. A meta-ethnography approach was used to synthesise the findings of studies selected for inclusion.

Results
Nine studies met the inclusion criteria (see Figure 1). Synthesis of findings resulted in the development of five overarching themes: value of sharing experiences with similar others; importance of regaining control; learning new skills enhances self-efficacy; apprehension about group participation; and influence of group composition.

Conclusions
Self-management interventions are likely to have a greater impact if their design takes into account the preferences of its target audience. The findings of this meta-synthesis can be used to inform researchers and health professionals about how to educate cancer patients in self-management more effectively and maximize their participation.

Objectives
Our aim was to launch 15 choirs across Wales and recruit 750 cancer patients, their families and friends into a choir.

Methods
15 locations across Wales were chosen based on a range of criteria. The choirs were run in a distinctive way, with music chosen specifically for these choirs. Emphasis was given to creating fun, fulfilling and supportive rehearsals. We also evaluated impact through 2 large research studies with Cardiff University (CU) and the Royal College of Music (RCM), to evaluate whether choral singing had any positive effects on singers’ mental and physical wellbeing.

Results
Nearly 2,000 people joined a choir and over 1,000 continue membership. The CU research study showed the singers benefited from statistical improvements in many quality of life domains including anxiety and depression. We are awaiting results from the RCM study measuring biomarkers in singers’ saliva related to mood and immune function.

Conclusions
The act of singing and the community of the choirs has a beneficial impact on the lives of people affected by cancer. We believe the express purpose of the choirs (as a support service) and the unique Sing with Us method of running rehearsals is key to achieving this positive effect, and to the large numbers of people who have joined.

24-16-P
SING WITH US: THE TENOVS CANCER CARE COMMUNITY CHOIRS
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Introduction
In 2012, Tenovus Cancer Care embarked on a project to launch choirs for people affected by cancer in 15 communities of Wales. We wanted to find out if this was an appropriate and effective way to support people affected by cancer.

24-17-P
DECREASED OVERALL SURVIVAL IN SOLID TUMOR PATIENTS WITH ABNORMAL RENAL FUNCTION OR RENAL INSUFFICIENCY.

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Introduction
Data still remain scanty on the potential impact of renal insufficiency (RI) on the mortality of cancer patients (CP). The results of 3 clinical studies we conducted (IRMA-2, CANDY and MARS) were pooled. In all 3, methodology/investigators were the same regarding RI.

Objectives
To study the potential association between RI and overall survival (OS), and to stratify the risk, if any, depending on the glomerular filtration rate (GFR).

Methods
The KDIGO definition/classification of chronic kidney disease (CKD) was used. GFR was estimated with the MDRD formula. RI was defined as GFR.

Results
5908 solid tumor patients included (main tumors: 2181 breast, 854 colorectal, 556 lung, 366 ovarian, 293 prostate). Median age 59.2. 70.7 % of these patients were alive at the end of the follow-up period of one year. The results of 3 clinical studies with an increased risk of mortality at a GFR of 75.

Table. Multivariate Cox model

<table>
<thead>
<tr>
<th>GFR* cut-off</th>
<th>HR [95 % CI]; p-value</th>
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<tbody>
<tr>
<td>GFR&lt;90</td>
<td>HR=1.03 [0.93-1.14]; p&gt;0.05</td>
</tr>
<tr>
<td>GFR&lt;75</td>
<td>HR=1.13 [1.02-1.26]; p=0.01</td>
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</tbody>
</table>
GFR≤60 HR=1.15 [1.03-1.27]; p=0.01
GFR<30 HR=1.53 [1.23-1.86]; p=0.0001

*ml/min/1.73 m²; HR=Hazard-Ratio

Conclusions
The IRMA studies already reported the high prevalence of RI in CP. But our pooled analysis reported that the reduced OS began at an early stage of CKD (GFR

24-18-P

CLINICAL CHARACTERISTICS AND DISEASE RECURRENCES OF CURRENTLY SMOKING KOREAN CANCER SURVIVORS

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Introduction
Although smoking is a well-known risk factor for many kinds of cancer, some cancer survivors continue to smoke or start smoking again even after their primary cancer treatment.

Objectives
The objectives of this study were to find the characteristics of currently smoking cancer survivors, and to evaluate their relapse free survivals (RFS).

Methods
Among 437 gastrointestinal cancer survivors who visited our survivorship clinic, 192 patients had been smoking at the time of diagnosis of their primary cancer. While 164 patients quit smoking and kept quitting it on their visits, 28 patients (14.6 %) were current smokers.

We compared clinical features and RFS of the Korean gastrointestinal cancer survivors according to the smoking status after primary cancer treatment.

Results
Currently smoking cancer survivors tended to drink more alcohol than safe limit of WHO guideline (80.8 % vs. 50.3 %; p=0.004) and not to do regular exercise (64.3 % vs. 84.8 %; p=0.01) than ex-smokers. In addition, continuing to smoke was the only statistically significant risk factor for worse RFS (hazard ratio, 11.3; 95 % confidence interval, 1.9-68.9; p=0.006) in multivariate analysis.

Conclusions
Cancer survivors who continue to smoke have different lifestyle compared with those who quit smoking, and worse RFS than others. More comprehensive approach will be needed for currently smoking cancer survivors.

DENTAL ABNORMALITIES IN NORWEGIAN LONG TERM SURVIVORS OF CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA; 7–40 YEARS AFTER DIAGNOSIS

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Introduction
Increased risk of dental late effects such as stunted root development, microdontia, and enamel hypoplasia has been reported in long-term survivors of childhood malignancies.

Objectives
The primary aim of the study was to assess if age at treatment start and chemotherapy predicted severity of dental defects in survivors of acute lymphoblastic leukemia (ALL).

Methods
This cross-sectional study enrolled 130 Norwegian survivors of ALL diagnosed <16 years. All survivors completed a questionnaire and underwent an oral examination by a dentist. Dental defects were registered according to the individual defect index, expressed as a number between 0 (no defects) and 140 (anodontia).

Results
Mean age at examination was 30 years (19–47). Mean follow-up was 24 years (7–40). Treatment start ≤5 years of age (B=-9.2, p=0.001) and cumulative doses of anthracycline >120 mg/m² (B=6.2, p=0.005) were significant predictors of more dental defects such as stunted root development and microdontia in a regression model. A significantly higher proportion treated ≤5 had enamel hypoplasia relative to survivors who were older (73 % vs. 18 %, p<0.001). Survivors treated after the age of 5 had experienced more caries than younger ones (10.1 (SD 6.3) vs. 7.3 (SD 5.8); p=0.01).

Conclusions
Survivors of ALL who started treatment ≤5 years had more dental defects such as stunted root development, microdontia, and enamel hypoplasia compared to those treated at older age, while those who started treatment after the age of 5 had experienced more caries. The increased risk of dental late effects should be communicated to the survivors.

24-19-P

EXAMINING THE BENEFITS OF COGNITIVE BEHAVIORAL THERAPY FOR INSOMNIA (CBT-I) ON DEPRESSION IN CANCER SURVIVORS WITH INSOMNIA

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Introduction
Insomnia is significantly correlated with depression, allowing for the possibility that improvement of insomnia may reduce associated depression.

Conclusions
Although smoking is a well-known risk factor for many kinds of cancer, some cancer survivors continue to smoke or start smoking again even after their primary cancer treatment.

Objectives
The objectives of this study were to find the characteristics of currently smoking cancer survivors, and to evaluate their relapse free survivals (RFS).

Methods
Among 437 gastrointestinal cancer survivors who visited our survivorship clinic, 192 patients had been smoking at the time of diagnosis of their primary cancer. While 164 patients quit smoking and kept quitting it on their visits, 28 patients (14.6 %) were current smokers.

We compared clinical features and RFS of the Korean gastrointestinal cancer survivors according to the smoking status after primary cancer treatment.

Results
Currently smoking cancer survivors tended to drink more alcohol than safe limit of WHO guideline (80.8 % vs. 50.3 %; p=0.004) and not to do regular exercise (64.3 % vs. 84.8 %; p=0.01) than ex-smokers. In addition, continuing to smoke was the only statistically significant risk factor for worse RFS (hazard ratio, 11.3; 95 % confidence interval, 1.9-68.9; p=0.006) in multivariate analysis.

Conclusions
Cancer survivors who continue to smoke have different lifestyle compared with those who quit smoking, and worse RFS than others. More comprehensive approach will be needed for currently smoking cancer survivors.
Introduction

Rural breast cancer survivors are at risk for cancer survivorship disparities. Evidence-based survivorship interventions may be modified to reduce barriers.

Objectives

RBCS were identified from state Cancer Data Registry and were randomized to either the Early Education (EE) or Delayed Education (DE). EE received 3 education sessions and 9 support telephone calls; DE received 3 education sessions and 12 support calls over twelve months.

Methods

Primary outcome variables were: quality of life, physical and mental health, mood, depression, and social support. Data analyzed longitudinally using repeated measures models fitted with linear mixed methods.

Results

432 RBCS were enrolled; 332 retained with 23 % attrition. 48.8 % were at 65 years or older, 72.9 % were married or partnered, 5 % with high school or less education, 46 % retired, and 16 % had income ≤ $20,000. Levels of self-reported physical health were lower compared to general population. Qualit of life scores were at 70 % of the best possible score. CESD scores showed on average mild to moderate depressive symptomatology. Social support scores were on average at about 80 % of the best possible score. Mood disturbance scores were on average at about 22 % of the maximum possible disturbance scores. Differences were observed at month-nine with mental health composite scores and total mood disturbance score, with slightly better mean scores for the DE compared to the EE.

Conclusions

Telephone-based delivery of evidence-based interventions can be disseminated among RBCS to reduce disparities. Early support can improve mental health to mitigate rural cancer survivorship disparities.

24-22-P

AWARENESS AND UNDERSTANDING OF DISEASE AMONG HOSPITALIZED CANCER PATIENTS IN PAKISTAN

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Introduction

Information needs and understanding of hospitalized cancer patients have remained unexplored.

Objectives

The objective of this study was to assess the awareness of cancer patients regarding their disease and to evaluate their understanding of disease and information seeking behavior.

Methods

We enrolled 232 adult cancer patients for the study to collect data using semi-structured interview regarding their awareness and understanding of illness.

Results

A majority of patients (87.8 %) reported awareness of their diagnosis. Female patients, patients from urban areas, educated patients and those with longer duration of illness had significantly better knowledge of their disease as compared to the rest of the study group (p<0.05). Presence of metastatic disease did not significantly alter the patients' understanding of disease or their information seeking behavior. Age was found to significantly influence the understanding of current disease status and request for more information regarding disease. Most of the patients (82.2 %) wanted their family to know about their diagnosis while few (4.8 %) wished their friends to have knowledge about their illness. Although the patients were more satisfied with care than the information they had received, awareness was not related to satisfaction (p>0.05). Most of the patients (71.0 %) were not satisfied with the quantity and quality of the information they had received from their health care provider.

Conclusions

Our findings suggest that although cancer patients want and need to have adequate information regarding their disease, the amount and quality of information they receive is not optimal leading to adoption of passive information seeking strategy causing misconceptions about disease.

24-23-P

RACIAL AND AGE DISPARITIES IN THE USE OF THE PENILE PROSTHESIS FOR ERECTILE DYSFUNCTION IN THE PROSTATE CANCER SURVIVOR

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Introduce
Previous studies in men aged >65 suggest higher rates of inflatable penile prosthesis (IPP) placement in African–American (AA) men.

Objectives
We evaluated prostate cancer survivors undergoing IPP surgery at our institution to establish if this observation holds true for a younger cohort.

Methods
We conducted a retrospective review of patients undergoing treatment for prostate cancer at a single institution from 2004–2012. Demographics and surgical therapy for ED were reviewed. Patients of all ages and payer statuses were included.

Results
4693 men underwent radical prostatectomy (RP) and 1540 had primary radiotherapy (RT). Mean age at treatment was 61.7 years (±7.9), IPP utilization for the entire cohort was 1.5%. The RP cohort had a higher penile implantation rate compared to men who received RT (1.8% vs. 0.6%, p<0.01). In the RT cohort, higher implantation rates were seen in AA men vs. Caucasian men (1.1% vs. 0.2%, p<0.01), but this was not seen in the RP cohort (2.3% vs 1.7%, p=0.2). Men who received an IPP were younger at the time of primary therapy. For the RP cohort, average age was 60.2±7.3 years vs 61.8±7.9 years (p<0.01), and for RT the average age was 61.2±5.7 vs. 67.0±9.8 years (p<0.01). There was no difference in IPP utilization based on ethnicity, marital status, or religion.

Conclusions
IPP utilization in men after prostate cancer treatment happens more commonly after RP and in younger men. AA men have higher rates of IPP implantation after RT when compared to Caucasian men.

24-24-P
DEVELOPING A CANCER SURVIVORSHIP MODEL OF CARE THROUGH CONSUMER ENGAGEMENT

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Introduction
The Australian Capital Territory (ACT) has the best cancer survival rates in Australia (Australian Institute of Health and Welfare, 2012). Cancer survivors face a number of challenges during or after finishing cancer treatment, including late effects of treatment and the fear of cancer returning. Some elements of effective survivorship care include care after treatment, surveillance, prevention of recurrence, management of late effects and overall wellbeing.

Objectives
To define the term cancer survivorship within the ACT; to inquire about physical, emotional and practical support needs of cancer consumers; and to examine coordination of resources and support from a clinician perspective.

Methods
Survey tools devised based on current issues in cancer survivorship research were widely distributed in paper and electronic format to consumers and clinicians. Selection criteria reflected the unique population groups serviced in the ACT.

Results
108 patients, 31 carers and 72 clinicians completed the survey. Results demonstrate our cohort understands survivorship as living with cancer from diagnosis, through treatment and beyond. Other themes included managing the psychosocial impact, adjusting to altered roles and expectations, and living with an unknown future after treatment, with these needs able to be better met. Findings show that information on the disease, treatment and side effects is more helpful early in the cancer trajectory, whereas there is a continual need for psychosocial information and support throughout.

Conclusions
Development of a Model of Care enhancing the wellbeing approaches important in survivorship care provided to patients and carers has commenced, emphasising survivorship as living well with cancer, beyond diagnosis and treatment.

24-25-P
CHANGE OF EXERCISE BEHAVIOR AND ITS RELATED FACTORS IN 3 MONTHS OF PRE- AND POST-TEST AMONG COLORECTAL CANCER SURVIVORS

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Introduction
Although exercise has been recognized as an important factor associated with recurrence with colorectal cancer, maintaining regular exercise is a challenge during survivorship.

Objectives
To identify characteristics of patients in different change of exercise behaviors in 3 months of pre-and post-test in colorectal cancer survivors.

Methods
A longitudinal design with two surveys within 3 months was used. The eligible patients have completed cancer treatments at least 3 months. A set of structured questionnaires was used to assess participants’ demographic and disease factors, exercise behavior, planned exercise behavior, symptom distress, anxiety and depression. The descriptive statistics, paired-t test, repeated-measured ANOVA were used to examine their association.

Results
About 187 patients were included in this study and four groups were identified: group A (maintained regular exercise, n=118), group B (maintained irregular exercise, n=35), groups C (changed to regular exercise, n=24), and group D (stopped regular exercise, n=10). Compared with other groups, group D had poor functional status, and more patients had employment status at baseline. Group A had higher level of exercise intention, perceived exercise behavioral control and higher level of anxiety within 3 months later at Time 2; whereas, Group B had higher level of symptom distress, anxiety and depression.

Conclusions
Exercise intention and perceived exercise behavioral control were two significant factors to influence behavior of regular exercise. Education about the self-efficacy in exercise behavioral control is the key factor to maintain regular exercise. Larger sample size is suggested to confirm the results for the future studies.

24-26-P
SUPPORTIVE CARE NEEDS OF LYMPHOMA SURVIVORS AFTER TREATMENT

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Introduction
The number of lymphoma patients completing treatment and transitioning into survivorship has been increasing consistently.

Objectives
The purpose of this study was to investigate the level of supportive care needs of lymphoma survivors according to length of time after treatment, and the related factors influencing the supportive care needs.

Methods
This is a cross-sectional study using the Supportive Care Needs Survey-short form 34. Data were collected from 194 patients with lymphoma after treatment at the oncology outpatient clinic of ‘A’ hospital in Seoul. The data were collected from April to June, 2012.

Results
Lymphoma survivors had a low level of supportive care needs. The score of ‘health system & information(36.63±26.46)’ domain showed highest among all domains, followed by ‘patient care & support(25.77±25.00)’, ‘psychological(25.21±22.15)’.

The level of supportive care needs related to time since diagnosis significantly differed in sexuality domain. Lymphoma survivors over 5 years since diagnosis had significantly higher needs than the patients with a survival duration less than 2 years.

Levels of supportive care needs in each domain showed statistically significant differences according to the following factors: (a) time since diagnosis, religion, marital status, previous chemotherapy(sexuality domain), (b) gender, religion, occupation, change of occupation after diagnosis(physical & daily living domain), (c) religion, change of occupation after diagnosis, average monthly income(psychological domain).

Conclusions
Lymphoma patients after treatment had low level supportive care needs, especially lymphoma survivors over 5 years since diagnosis, who had significantly higher level of sexuality domain needs than patients with a survival duration less than 2 years.

24-27-P

FERTILITY PRESERVATION FOR WOMEN WITH BREAST CANCER: A QUALITATIVE STUDY

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Introduction
The number of women of reproductive age, who survive breast cancer (BC) following gonadotoxic therapy, coincides with the rise in childbearing age in the general population growing steadily. Fertility preservation (FP) thus became of greater relevance. In Israel ~300 women under age in the general population growing steadily. Fertility preservation (FP) irrespective of their clinical condition. The accounts revealed that most women wanted to preserve their fertility as a ‘security measure’, ‘just in case’.

24-28-P

USING SELF-MANAGEMENT STRATEGIES FOLLOWING PRIMARY TREATMENT: HEAD AND NECK CANCER SURVIVORS’ PERSPECTIVES

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Introduction
Following primary treatment, head and neck cancer (HNC) survivors face significant challenges to their well-being arising from HNC symptoms and the consequences of its treatment. These challenges include visible disfigurement, speech difficulties and eating problems, which may result in impaired quality of life, greater distress and self-identity threats for HNC survivors. However, little is currently known about how HNC survivors self-manage the challenges they face in this period.

Objectives
This research is part of an overarching project to develop a practical and acceptable self-management (SM) intervention to promote positive health outcomes among HNC survivors who have completed their primary treatment. This phase of research explores the specific SM strategies that HNC survivors adopt in order to better understand their SM of their symptoms and treatment consequences following primary treatment.

Methods
Semi-structured interviews were conducted with 26 HNC survivors who were finished their primary treatment. All interviews were audio recorded and fully transcribed in preparation for thematic analysis.

Results
HNC survivors use a variety of different SM strategies in the post-treatment period. These include listening to the body in relation to HNC-specific symptoms, cognitive (e.g., positive re-appraisal) and behavioural (e.g., avoidance) strategies and planning and goal-setting to overcome HNC-specific challenges (e.g., visible differences).

Conclusions
It is anticipated that the findings will enhance our understanding of survivors’ SM of HNC symptoms and treatment consequences. This information will inform the design and implementation of an intervention to assist in HNC survivors’ SM of the challenges they face in the post-treatment period.
24-29-P

INFORMATION REQUIREMENTS OF YOUNG WOMEN DIAGNOSED WITH EARLY STAGE BREAST CANCER: INFORMING THE DESIGN OF A WEB-BASED DECISION AID TO SUPPORT SURGICAL DECISIONS

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Introduction

Objectives

Methods

Thirty-two patients with a diagnosis of breast cancer ≤40 years old were recruited from three UK hospitals. Information required by women during the time of treatment decision-making was identified in twenty in-depth, semi-structured interviews and further explored in two focus groups.

Results

32 women participated in the study. 37% of the women had BCS and 63% MRM, 75% with reconstruction. Information that young women identified as important to support treatment decision-making were implications of the different types of breast cancer tumours, cosmetic outcomes of surgery, reconstruction and all aspects related to consequences of clinical and hormonal treatments. Areas identified where information is inadequate included timing and option for reconstructive surgery, effects of treatment on fertility and genetic predisposition.

Conclusions

Information resources considering age-related information to support surgical treatment decisions for breast cancer are required. A prototype decision aid has been developed, informed by a systematic literature review and these results. The resource requires testing in the clinical setting as a supplement to information provided by the clinical team to determine whether it can support decision making.

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24-31-P

THE EFFECTIVENESS OF A PHYSICAL ACTIVITY PROGRAM IN CANCER SURVIVORS: A SYSTEMATIC REVIEW

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Introduction

Several physical activity interventions in cancer survivors have been shown to decrease recurrence and side effects such as cancer-related fatigue. However, few studies provide detailed commentary regarding how effective a home-based physical activity program for cancer survivors is.

Objectives

To systematically evaluate the effects of a physical activity program in cancer survivors.

Methods

We identified 17 articles published from 2006 to 2014 through CINAHL and MEDLINE database searches related to physical activity programs in cancer survivors. A literature review was conducted to identify the activity intensities and forms, period, methods and effectiveness of a physical activity program for cancer survivors.

Results

Fifteen papers met the search criteria. Objectives of the physical activity program were reduction fatigue, and to determine the outcomes of the program. The physical activity program encompassed a variety of intensities and forms, including aerobic exercise, stretches and resistance training. The sample size ranged from 9 to 404 and the duration from 8 weeks to 12 months. Most of the physical activity program participants were breast cancer survivors. The interventions were either a group session or telephone counseling, and exercise intervention with diet. The physical activity program was effective in improving fatigue, quality of life and pain.

Conclusions

By participating in a physical activity program, cancer survivors attained positive outcomes with respect to fatigue, QoL and pain. It is necessary to make a home-based physical activity program which cancer survivors can continue physical activity.
24-32-P

A QUALITATIVE STUDY OF HEALTH PROFESSIONALS’ PERSPECTIVES ON THE SUPPORTIVE CARE NEEDS OF HEAD AND NECK CANCER SURVIVORS

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Introduction
Survivors of head and neck cancer (HNC) can experience a range of physical, social and psychological difficulties as a consequence of their illness and its treatment. Follow-up care is primarily focused on early detection of recurrence, however, and many of their needs are often unmet. Health professionals are key stakeholders in the provision of supportive care to this patient group, yet research examining their views on this topic is currently limited.

Objectives
To explore health professionals’ perspectives on the supportive care needs of HNC survivors in the post-treatment period, current practices in the provision of follow-up care, and suggestions for how it could be improved.

Methods
Semi-structured interviews were conducted with multidisciplinary health professionals who care for HNC patients. Interviews were audio-recorded and transcribed. Interview data were analysed using thematic analysis.

Results
Thirty-two health professionals from four recruitment sites completed interviews. HNC survivors were viewed as a neglected patient group, and the complex and enduring nature of their post-treatment needs was broadly recognised. Many participants felt overburdened and under-resourced, which limited their capacity to provide adequate follow-up care, particularly with regard to patients’ social and psychological needs. Suggestions for ways to improve supportive care for this patient group were put forward.

Conclusions
The findings of the present study reflect the growing recognition that current models of follow-up care for HNC survivors are limited and often result in unmet needs. Further research is needed to develop and evaluate effective psychosocial supports for this patient group in the post-treatment period.

24-33-P

NEUROCOGNITIVE AND NEUROBEHAVIORAL SYMPTOMS FOLLOWING LOCALIZED PROSTATE CANCER TREATMENT WITH ANDROGEN DEPRIVATION THERAPY OR WITHOUT - A MIXED METHODS STUDY

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Introduction
Androgen deprivation therapy (ADT) is an established treatment for prostate cancer. The neurological impact of ADT has been likened to that of aging and therefore theorized to impair neurocognitive functioning.

Objectives
A mixed methods approach was used to describe and compare patients’ experiences of neurocognitive and neurobehavioral changes after localized treatment (+ADT and -ADT), and examine associations with objective neurocognitive impairment (NCI).

Methods
Twenty prostate cancer patients who had received definitive localized treatment (−ADT) and 21 who had also received ADT (+ADT) were administered neuropsychological tests and semi-structured interviews. Content analyses of the interviews established themes pertaining to neurocognitive (e.g., memory problems) and neurobehavioral symptoms (e.g., emotional flooding), and their causes. The frequency of symptoms between groups was compared. Based on neuropsychological test results, neurocognitive impairment (NCI) status was determined and its association with neurocognitive symptoms examined.

Results
There was no between-group difference in the frequency of NCI, but 39% of all participants, regardless of group, exhibited NCI – a significantly higher frequency than expected (p<.01). Nevertheless, the + ADT group reported more neurocognitive symptoms than the -ADT group (p=.02). Of those who reported symptoms, most in the -ADT group attributed symptoms to aging and most in the + ADT group attributed symptoms to aging and ADT. No associations were found between NCI status and neurocognitive symptoms.

Conclusions
This study illustrates differences in neurocognitive and neurobehavioral symptoms experienced by patients, and their attributed causes, depending on treatment received. Interview anecdotes and implications for quality of life will be presented.

24-34-P

QUALITY OF LIFE AND SEXUALITY COMPARISON BETWEEN SEXUALLY ACTIVE OVARIAN CANCER SURVIVORS AND HEALTHY WOMEN

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Introduction
More than a half of ovarian cancer survivors frequently experience sexuality changes, including decreased sexual interest, activity, and enjoyment.

Objectives
To compare quality of life (QoL) and sexual functioning between sexually active ovarian cancer survivors and healthy women.

Methods
All women had engaged in sexual activity within the previous 3 months, and ovarian cancer survivors were under surveillance after primary treatment without evidence of disease. QoL and sexual functioning were assessed using three questionnaires; the European Organization for Research and Treatment of Cancer Core 30 (EORTC QLQ-C30), the ovarian cancer module (EORTC QLQ-OV24) and the female sexual function index (FSFI). Propensity score matching was used to adjust covariates between the ovarian cancer survivor and healthy women groups. In total, 73 ovarian cancer survivors and 73 healthy women were compared.

Results
Poorer social functioning (mean, 82.4 vs. 90.9; P=0.010) and more financial difficulties (mean, 16.4 vs. 7.8; P=0.019) were observed among ovarian cancer survivors than among healthy women. Sexuality, both in terms of desire, arousal, lubrication, orgasm, satisfaction, and pain (FSFI) and in terms of interest in sex, sexual activity, and enjoyment of sex (EORTC QLQ-OV28) were similar between the groups. However, vaginal dryness was more problematic in ovarian cancer survivors, with borderline statistical significance (P=0.081).

Conclusions
Sexuality was not impaired in ovarian cancer survivors who were without evidence of disease after primary treatment and having sexual activities, compared with healthy women, whereas social functioning and financial status did deteriorate.

24-35-P
EXTENDING SURVIVORSHIP THROUGH THE HOPE PEER-NURSE NAVIGATION IN GHANA
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Introduction
Breast cancer is the leading cause of death and the most common cause of hospital admissions among Ghanaian women. Although there is plausible evidence that early detection and treatment improves survival, for some reasons that are still unclear, 70% of Ghanaian women delay extensively before seeking any medical treatment. While breast cancer is known to be associated with significant long-term emotional and psychosocial consequences, significant progress in prolonging survival after breast cancer diagnosis has presented an important new challenge for health care professionals, patients, and their support networks. Addressing these complexities for newly diagnosed patients is relatively new and emerging phenomenon in Ghana where reasons for delayed presentation is similar to defaulting treatment.

Objectives
To present how Peace and Love Survivors Association (PALS) provide social, financial, and logistical, and counseling support for newly diagnosed patients through the Helping Others through Personal Experience (HOPE) program.

Methods
Using a combination of breast cancer survivors and nurses trained in oncology living in the same communities, newly diagnosed breast cancer patients are guided towards achieving quality health outcomes within a culturally appropriate context.

Results
Despite patient challenges including financial, husband deserting family, chemotherapy side effects, and fear of dying, between August 2013 and November 2014, none of the 80 patients registered into the program defaulted treatment.

Conclusions
As supportive care is increasingly been recognized as an integral part of quality cancer treatment, this project is contributing to decreasing the number of patients defaulting treatment and improving survivorship.

24-36-P
PROMOTING PHYSICAL ACTIVITY AND EXERCISE FOR MEN WITH PROSTATE CANCER
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Introduction
Evidence suggests physical activity and exercise following treatment for cancer can reduce cancer mortality and minimise adverse treatment effects. This is recognised as a key time-point to influence behaviour change, yet, little tailored advice is available for men with prostate cancer, which may limit its effect. Development of the evidence-based advice booklet incorporated peer review with experienced urology and physiotherapy clinicians.

Objectives
This study explored the feasibility and acceptability of the advice booklet specifically designed to encourage physical activity and exercise for men with prostate cancer.

Methods
Prostate cancer patients undergoing treatment with hormone therapy and/or radiotherapy were eligible for the study. Clinical staff provided patients with the booklet, incorporating advice and specific exercises. The adapted Consumer Information Rating Form (CIRF) was sent to patients one week later. Completion and return of the form implied consent.

The primary end points were acceptability targets for comprehensibility, utility and design quality. Data was analysed using descriptive statistics and content analysis.

Results
94 participants (mean 70 years) recruited between May 2011 and July 2013; response rate 66%.

Acceptability Scores
Component | Mean score | Target of acceptability
--- | --- | ---
Comprehensibility | 22.6 (range 5–25) | >20
Utility | 48.3 (range 14–56) | >47.1
Design quality | 31.5 (range 7–35) | >25

Content analysis indicated some categories within the utility measurement required more information.

Conclusions
The advice booklet had good acceptability for comprehensibility, utility and design for the prostate patient population.

Further studies are required to establish the booklet’s effectiveness to elicit behaviour change, participation and adherence to physical activity and exercise.
EVALUATING THE NEEDS OF OVARIAN CANCER PATIENTS SEEN IN A DEDICATED SURVIVORSHIP CLINIC: A YEAR’S EXPERIENCE AT HAMMERSMITH HOSPITAL.

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Introduction
Women treated for ovarian cancer experience a spectrum of adverse physical and psychological symptoms; many of which can be treated if identified early. In 2013, we launched a dedicated survivorship clinic at Imperial NHS Trust to assess the global quality of life of ovarian cancer patients immediately prior to and on completion of their treatment.

Objectives
To assess the needs of ovarian cancer patients before and after completion of treatment using the holistic needs assessment (HNA) tool.

Methods
Paired HNA questionnaires were prospectively collected between May 2013 and May 2014 from women with newly diagnosed or relapsed ovarian cancer. Each patient completed a questionnaire prior to cytoreductive surgery and after chemotherapy completion at the survivorship clinic.

Results
We collected paired questionnaires from 120 patients. The HNA is divided in five sections covering the following concerns: practical, family, emotional, spiritual and physical. Practical concerns including caring responsibilities, finances, work and information needs were reported by 77% preoperatively and 93% at the end of treatment. Similarly, emotional concerns such as depression, anxiety and fear of relapse were more frequent after treatment completion (59% vs 87%), whereas physical concerns were mainly reported prior to surgery (70% vs 58%).

Conclusions
This study demonstrates that the HNA questionnaire, while being a simple tool, is an effective method of screening patients for QoL concerns on treatment completion. Our patients reported higher psychological and practical concerns after completing ovarian cancer treatment. These issues should therefore be prioritised when designing survivorship support services. Prospective validation of HNA is ongoing.

JOB SATISFACTION OF CANCER SURVIVORS: A PILOT STUDY.

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Introduction
The studies of research on cancer and work life have shown that the increasing number of cancer survivors had able to return to work after their treatment. Many factors associated with employment and impaired work ability was defined. But these studies not evaluated the job satisfaction of the employees.

Objectives
The aim of the pilot study is to evaluate the job satisfaction levels and factors affecting of cancer survivors.

Methods
The study was designed as a cross-sectional survey and conducted in Ankara University Faculty of Medicine, Medical Oncology Department. The short-form Minnesota Satisfaction Questionnaire (MSQ) Turkish version was administered during face-to-face interviews to the cancer survivors in complete remission had returned to work after their treatment. The SPSS 15 for Windows was used for the analyses.

Results
Sixty patients completed the questionnaire. Patient characteristics are listed in Table 1. Cancer survivors’ mean score for job satisfaction was 69.78±15, 964 (22–95). The relationship between the patients’ primary school training had statistically significantly higher scores for job satisfaction (p=0.013). Any statistically
significant difference was not detected between other factors and the job satisfaction.

Table 1. Characteristics of patients.

<table>
<thead>
<tr>
<th>Variable</th>
<th>n (60 patients)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>33</td>
</tr>
<tr>
<td>Female</td>
<td>27</td>
</tr>
<tr>
<td>Male</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>&lt;=40</td>
<td>19</td>
</tr>
<tr>
<td>&gt;40</td>
<td>41</td>
</tr>
<tr>
<td>Education</td>
<td>14</td>
</tr>
<tr>
<td>Primary graduate</td>
<td>46</td>
</tr>
<tr>
<td>High School and university</td>
<td></td>
</tr>
<tr>
<td>Cancer Type</td>
<td>27</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>10</td>
</tr>
<tr>
<td>Colorectal cancer</td>
<td>4</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>19</td>
</tr>
<tr>
<td>Lymphoma</td>
<td></td>
</tr>
<tr>
<td>Working place</td>
<td>40</td>
</tr>
<tr>
<td>Public</td>
<td>20</td>
</tr>
<tr>
<td>Private</td>
<td></td>
</tr>
</tbody>
</table>

Conclusions
It was determined that the cancer survivors experienced moderate levels of job satisfaction.

24-39-P
BARRIERS AND FACILITATORS TO SELF-MANAGEMENT INTERVENTIONS FOLLOWING PRIMARY TREATMENT: HEAD AND NECK SURVIVORS’ PERSPECTIVES

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Introduction
Head and neck cancer (HNC) survivors face significant challenges arising from their condition and its treatment, including visible disfigurement, speech difficulties and eating problems. These challenges can lead to negative health consequences when HNC survivors have finished primary treatment. Self-management (SM) interventions provide skills needed to deal with such challenges and promote positive health outcomes.

Objectives
This research is part of an overarching project to develop a SM intervention to promote positive health outcomes among HNC survivors who have completed primary treatment. This phase of research investigates HNC survivors’ perspectives on SM interventions for HNC in order to identify barriers and facilitators to their uptake of, and adherence to, such interventions.

Methods
Twenty-six semi-structured interviews were conducted with HNC survivors who had finished primary treatment. All interviews were audio recorded and transcribed in preparation for thematic analysis.

Results
HNC survivors identified a number of barriers to using SM interventions, including the need to feel independent, prior negative experiences with group support and perceptions that support services can be patronising. Survivors also pointed towards several factors that might increase their participation in SM interventions, such as basing interventions in a hospital setting, organising social outings for intervention participants, or incorporating a practical component where HNC survivors perform hobbies or activities together.

Conclusions
The current findings underline key barriers and facilitators to HNC survivors’ engagement in SM interventions. This information will inform the design and implementation of a specific SM intervention for HNC survivors in the post-treatment period.

24-40-P
MEDICATION UTILIZATION IN EARLY-STAGE BREAST CANCER SURVIVORS: A ONE-YEAR LONGITUDINAL STUDY

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Introduction
There is a lack of data describing medication usage among early-stage breast cancer (ESBC) survivors.

Objectives
To characterize the patterns of medication utilization of this population from diagnosis till 1-year post-chemotherapy.

Methods
A single-center, longitudinal study was conducted in Singapore, involving ESBC patients diagnosed between December 2011 and June 2014. For each patient, medication information was retrieved from prescription databases, supplemented with records from the National Electronic Health Records, beginning from the date of diagnosis to 1-year post-chemotherapy. Medications were classified according to the WHO Anatomical Therapeutic Chemical Classification System, and the US Department of Human and Health Services medication list of 20 chronic diseases. Repeated measures ANOVA was used to assess the differences between the number of medication classes taken at various time points.

Results
A total of 107 patients were included (mean age 51.1±8.4 years old, 78.5 % Chinese). Calcium-channel blockers (12.1 %) and lipid-modifying agents (11.2 %) were the common chronic medications used before chemotherapy, and these persisted through chemotherapy (10.3 % and 11.2 %) and post-chemotherapy period (11.2 % and 13.1 %). The post-chemotherapy period was dominated by the use of endocrine therapy (77.6 %). There was a statistically significant increase in the mean number of medication classes for chronic diseases prescribed to patients from before chemotherapy (0.53±1.04), during chemotherapy (0.62±1.08) to post-chemotherapy (1.63±1.35) (p<0.0001).
Conclusions
The use of endocrine and cardiovascular medications is highly prevalent among ESBC survivors. This study is important because it provides insights for designing medication management programs catering to this population.

Introduction
A major priority of the French Cancer Plan 2014–2019 is to take more effective account of “health inequalities”. Several studies have shown the effectiveness of psychosocial intervention on quality of life after cancer but also on the cancer patient survival rates.

Objectives
The aim of the study is to understand the processes leading to disparities in the use of supportive care

Methods
A socio-anthropological study has been conducted in two comprehensive cancer centres among 36 women aged 50 years or less; treated for non-metastatic breast cancer and having completed the curative treatment for at least 6 months and within less than 2 years.

Two complementary methods of investigation were used: semi-structured individual interviews (70 %) and focus-group interviews (30 %). Both were audio recorded, transcribed verbatim and coded thematically using a grounded theory approach.

Results
Analysis of the interview data is presented into three thematic axes: How do women

− have access, understand and memorize the information about supportive care?
− understand the objectives and functioning of the service
− estimate that supportive care meets their needs during the treatment period and after-treatment.

Our study shows inequalities in knowledge and use of supportive care according to patient’s representations of their needs, their access to information and their socioeconomic and education levels.

Conclusions
The access to supportive care should take into account the issue of social inequalities. This study may lead to a review of the goals and tools which should be used in care centres to guide patients who require support.

S332

24-41-P

SURVIVORSHIP AND DISPARITIES IN USE OF SUPPORTIVE CARE TREATMENT FOR BREAST CANCER: A QUALITATIVE STUDY

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Introduction
Prostate cancer services face significant challenges in providing effective follow-up care after initial treatment. Evidence indicates high levels of unmet need in this population. Traditional follow-up care encourages men to delay symptom-reporting until their next specialist review.

Objectives
We aimed to develop and pilot a 4-h workshop to transition men with prostate cancer, after treatment, onto a supported self-management pathway.

Methods
Based on principles of andragogy, Bandura’s social learning theory and Adair’s model, the workshop’s purpose was to provide information, develop skills and confidence to monitor symptoms, check for recurrence, promote healthy lifestyles and set personal goals. Development was through intervention mapping with user representatives, psychologists, public health consultant and clinical teams. Thirteen group-based workshops were piloted in 2 hospitals. Thirty-five men from 4 workshops completed an acceptability questionnaire. Interviews were conducted with 10 men purposively sampled to represent different ages, types of treatment and computer use; and 4 staff.

Results
Men rated 7 different aspects of the workshop (e.g., content, relevance) on 5-point scales. Average scores exceeded 4 suggesting very high levels of acceptability. The interview data revealed clear benefits for the men: validation of their experiences in the group and increased confidence to self-manage. Recommendations were made, at each stage, about improving the workshop.

Conclusions
The workshop was highly acceptable to men and their clinical teams. A prospective cohort study is underway to evaluate the pathway’s impact on unmet need, emotional distress and quality of life.

24-43-P

DEVELOPING A SELF-MANAGEMENT INTERVENTION FOR HEAD AND NECK CANCER SURVIVORS: A QUALITATIVE STUDY OF HEALTH PROFESSIONALS’ VIEWS AND PREFERENCES

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Introduction
Self-management interventions provide skills to deal with health-related problems, maintain life roles and manage negative emotions, and have
been found to improve patient outcomes across a range of chronic conditions. Developing a self-management intervention for head and neck cancer (HNC) survivors may help them in dealing with the unique physical, social and psychological challenges associated with this illness and its treatment. Evidence suggests that engagement of health professionals is critical for successful application of self-management programmes.

**Objectives**
To explore health professionals’ views regarding the role of self-management in HNC survivorship and preferences for the content and delivery of a self-management intervention targeting this patient group.

**Methods**
Semi-structured interviews were conducted with multidisciplinary health professionals who care for HNC patients. Interviews were audio-recorded and transcribed. Interview data were analysed using thematic and content analysis.

**Results**
Thirty-two health professionals from four recruitment sites completed interviews. Health professionals recognized the importance of self-management in dealing with the consequences of HNC and were broadly supportive of developing a self-management intervention for this patient group. Participants indicated their preferences regarding the content, mode of delivery, location and duration of such an intervention. A number of potential patient-related and organisational barriers to its implementation were identified.

**Conclusions**
The findings of this research provide a valuable insight into the views of health professionals regarding self-management in HNC survivorship, and will be used to determine the content and delivery of a practical and feasible self-management intervention for this patient group.

**24-44-P**

**PSYCHOSOCIAL PROBLEMS AND COUNTERMEASURES IN PATIENTS WITH ADVANCED/RECURRENT COLORECTAL CANCER ON LONG-TERM CHEMOTHERAPY**

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2School of Medicine, Keio University, Tokyo, Japan

**Introduction**
Progress in treating advance/recurrent colorectal cancer has prolonged survival. However, it is unclear what support patients need.

**Objectives**
We studied psychosocial problems and countermeasures in advanced/recurrent colorectal cancer patients receiving long-term chemotherapy.

**Methods**
Qualitative descriptive study based on interviews. The subjects were 6 Japanese patients. Data were collected from each participant during a 60-min semi-structured interview and analyzed. Approval of Institutional Ethical Committee was obtained.

**Results**
The patients were surprised and regretful that they had advanced/recurrent cancer and had not achieved early detection and treatment. Since they could only stay alive by receiving treatment, they suffered from anxiety about disease progression and mentioned that it was easy to become depressed. The patients tried not to verbalize their feelings to their families and others. Daily life was influenced by the adverse effects of anticancer drugs. Treatment forced some patients to quit work. Nevertheless, they tried to overcome their problems. They coped with anxiety by saying “It’s no use thinking about it” or “I try not to care about it”. They selected therapy and received it positively, saying “I want to live longer” or “I will live as long as I can”. They considered some symptoms of anticancer therapy inevitable and acted as if these symptoms were minor. They felt grateful for surviving and for family support.

**Conclusions**
Patients with progressive disease who continue treatment are fighting a war by themselves and must try to overcome various problems.

**24-45-P**

**THE LIVED EXPERIENCE OF SURVIVING AT LEAST FIVE YEARS AFTER A DIAGNOSIS OF PROSTATE CANCER RECEIVED AT OR AFTER THE AGE OF 65.**

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2Health and Social Care / Adult Nursing and Midwifery, London South Bank University, London, United Kingdom

**Introduction**
Prostate cancer is the most common cancer in older men. Its commonly localised and indolent nature in conjunction with treatment has resulted in significant long term survival rates. There is limited research into what the experience means to men who have survived more than five years after diagnosis.

**Objectives**
To explore and interpret the lived experience of men who have survived at least five years after a diagnosis of prostate cancer received at or after the age of sixty-five years.

**Methods**
Hermeneutic phenomenology based on Heideggerian principles was used to explore the experiences of ten purposefully selected men. Individual, unstructured interviews were audio-recorded and transcribed. Data were analysed applying the hermeneutic circle to uncover themes, guided by van Manen’s approach.

**Results**
A phenomenological interpretation is offered in the form of an antecedent and ten themes presented within four fundamental human existentials. This demonstrated that each man had unique motivation for undergoing treatment for prostate cancer and this was placed within a fluctuating hierarchy of concerns. Any treatment consequences were balanced within a personal context and a multi-faceted post cancer treatment persona evolved to suit each individual’s life.

**Conclusions**
To allow each man to evolve into his post cancer treatment persona healthcare professionals should respect his unique understanding and motivation. Consideration should be given during the planning and delivery of care to the position that prostate cancer and its consequences occupy within the hierarchy of concerns of each individual’s life.

**24-46-P**

**A 52 YEAR OLD FEMALE FIGHTING INOPERABLE CHOLANGIOCARCINOMA FOR MORE THAN 3 YEARS**

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\( \ddagger \) Springer
Introduction
Advanced cholangiocarcinoma accounts for about 3% of all gastrointestinal malignancies, with a median overall survival of 3.6 – 11.5 months. When inoperable, the treatment options are limited. We present a female patient born 1959 still fighting advanced, inoperable cholangiocarcinoma more than three years after diagnosis.

Objectives
Admitted to hospital in December 2011 with upper abdominal pain, our patient went through laparoscopic cholecystectomy. The further procedures revealed cholangiocarcinoma with peritoneal carcinomatosis, confirmed by histopathology. CT and MRI-scan revealed no signs of further metastases, but the patient was considered inoperable.

In February 2012, after ERCP with implantation of a stent in the common biliary duct, the patient received chemotherapy from March 2012 until July 2014. The chosen regime, GemCap, consists of capecitabine given orally twice daily for two weeks, with intravenously administered gemcitabine on the 1st and 8th day of the 3 week cycle. The patient remained in good condition during this period.

Because of abdominal pain and vomiting, investigations revealed increasing peritoneal carcinomatosis with bowel strictures and duodenal stenosis. Three stents were implanted in the affected sections of the duodenum, and the oncological regimen was evaluated. From January 2013 until April 2014 she received 8 treatments of FLOX (5-Fluorouracil, Oxaliplatin, Leucovorin).

CT and MRI indicated progression of the disease with ascites and increased tumor masses diffusely spread in the abdomen, leading to surgery for subileus in January 2015 with ileostomy.

Methods
Case report

Results
Case report

Conclusions
Even when the situation might seem extremely difficult in selected patients the prognosis might be better than expected.

24-47-P
CANCER SURVIVORSHIP: THE EXPERIENCE OF PATIENTS AND HOW THE SERVICES OUGHT TO RESPOND

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Introduction
The population of cancer survivors is increasing. Cancer and cancer treatments impact on quality of life at a physical, psychological, social and functional level. Research suggests that there are a proportion of survivors with unmet needs who could benefit from the targeted application of resources.

Objectives
To measure the overall quality of life of a sample of cancer survivors and describe the experience of cancer survivorship supportive care.

Methods
Using a cross sectional survey design a sample of individuals with mixed cancer diagnosis (n=206) were surveyed; 70% of whom had completed treatment.

Results
Data from the FACT-G quality of life scale revealed that patients had compromised functional and emotional wellbeing. A comparison of data to statistics from individuals in the general population revealed substantial differences in terms of learning, concentrating, and ability to engage in basic physical activities. Issues that individuals required assistance with included symptom management and interestingly for a minority fertility issues and substance misuse. The experience of survivorship care was summarized as suboptimal with less than 10% having written discharge plans or survivorship care plans.

Conclusions
The survivorship experience is multifaceted thus having a clearer insight into the patient experience of the long term effects of cancer will mean that the health and social services can be better prepared to assist individuals during cancer survivorship. In the paper the authors will also detail proposed changes to survivorship services.

24-48-P
THE HIPEC PROCEDURE -WHAT WE KNOW ABOUT SURVIVORSHIP IN DIFFERENT GROUP OF PATIENT’S QUALIFIED FOR THIS SPECIFIC TYPE OF TREATMENT? A SYSTEMIC REVIEW.

M. Nowacki1, K. Pietkun2, I. Glowacka1, J. Simińska2, K. Ogurkowski2, K. Nowacka2

Introduction
The hyperthermic intraperitoneal chemotherapy (HIPEC) belong to the novel form of therapy methods which has given the hope for the future development of curative forms of chemo-oncological type of treatment in patient suffered from Peritoneal Carcinomatosis (PC).

Objectives
The aim of the study was pointed onto the systemic search and analysis of scientific data published in last two years in which the assessment of survivorship of patient’s after implemented HIPEC procedure due to the PC was the main aspect of each study.

Methods
In our analysis we have assessed and analyzed the publications related to the performed clinical studies in which the survivorship of patients was the main and key point of each clinical study. We have divided the material into different sections. Each section was related with the survivorship data obtained in each homogeneity group of patients suffered from PC of different origin.

Results
Due our study we have obtained the statistic data and detailed analysis of survivorship of patients included to the analyzed clinical data. We have found that the survivorship median was different in each of controlled and assessed group of patient’s. There are also some important differences in survivorship in patient’s due the time of the HIPEC method implementation.

Conclusions
The HIPEC method belongs to the promising type of treatment. The survivorship could be prospectively elongated due to the used of still developed method’s and technique’s correlated with the HIPEC treatment. It is very important to analyze the survivorship individually in the specific group of patient’s.

24-49-P
APPLYING THE KNOWLEDGE TO ACTION FRAMEWORK TO DEVELOP AN INTERVENTION TO SUPPORT WORK-RELATED GOALS OF BREAST CANCER SURVIVORS
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Introduction
Several studies have emphasized the complex challenges involved in supporting work-related goals (WRG) after breast cancer. Most recent data suggests that more than half of breast cancer patients in developed countries are of working age, and 88 % of them survive longer than 5 years. Late side effects of cancer treatment (eg., severe fatigue, pain, cognitive impairment) often impair the ability of these women to complete job tasks, resulting in termination. Evidence already exists on ways to better accompany the WRG but data has shown that these interventions are only moderately effective. More studies are needed to develop interventions to supporting the achievement of survivors’ WRG. Also, patients and health professionals’ involvement is essential to better understand the complex contextual issues during the implementation of a new intervention.

Objectives
The aim of this poster is to describe the process of an integrated knowledge translation (IKT) strategy that will be used to develop and evaluate an intervention supporting WRG of breast cancer patients in Quebec (Canada).

Methods
IKT involves participatory research where the development, evaluation, and dissemination of interventions occur through active collaboration between researchers, professionals and patients. The Knowledge to Action Framework will be used to guide the development of the intervention. Seven action phases will be involved to create sustainable knowledge (table 1).

Results
Results of some processes (e.g., identify problem, assess barriers) will be showed.

Conclusions
Development of an intervention using an IKT strategy is innovative and will ensure that appropriate, acceptable and effective health interventions are being developed for breast cancer survivors.

Table 1: Action phases of the Knowledge to Action Framework
1. Identify a problem; identify, review, and select knowledge*
2. Adapt knowledge to the local context*
3. Assess barriers to knowledge use*
4. Select, tailor, and implement interventions*
5. Monitor knowledge use*
6. Evaluate outcomes*
7. Sustain knowledge use*

*Back and forth

24-50-P
SURVIVAL ANALYSIS OF PATIENTS WITH COLORECTAL CANCER IN A BRAZILIAN UNIVERSITY HOSPITAL
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Support Care Cancer
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Introduction
The colorectal cancer (CRC) is considered a disease with good prognosis and survival when the diagnosis is made in the early stages. However, in Brazil, about 55 to 70% of patients are diagnosed in advanced stages (III and IV), which compromises survival.

Objectives
To evaluate the survival rates of a patients’ cohort diagnosed with CRC at a university hospital in São Paulo State -Brazil.

Methods
Retrospective study, based on secondary data. Were included men and women, aged over 18 years, who were diagnosed with CRC, from January 2000 to December 2010. The analysis of survival rates were built the Kaplan Meier curves and compared via log-rank test. Was considered 0.05 significance level

Results
Were included 926 patients, 51.3% were male, with a mean age of 61.8 years (SD=14.5), 54.2% in stages III and IV. The mean survival from the start of treatment and death was 20 months and 26 days with a median of 12 months and nine days. Also noted that the median survival from the start of treatment and the last follow-up in December 2012, had mean 59 months and 16 days and the median of 48 months and 26 days. The overall survival of patients varied from 11 to 13 years and there were no differences between sex (p-value=0.06).

Conclusions
The results showed the need for investment in primary prevention of CRC, with actions that minimize known risk factors, and secondary prevention with effective tests for early diagnosis.

24-51-P
A WEB-BASED DECISION AID FOR GENETIC TESTING FOR YOUNG WOMEN DIAGNOSED WITH EARLY STAGE BREAST CANCER; DEVELOPMENT AND PILOT TESTING PROTOCOL


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4 Manchester Academic Health Science Centre, University of Manchester, Manchester, United Kingdom
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6. Patient representative, Manchester, United Kingdom
7 Wessex Clinical Genetics Service, University of Southampton, Manchester, United Kingdom
8 Clinical Trial Unit, University of Southampton, Manchester, United Kingdom

Introduction
Younger women diagnosed with breast cancer are more likely to have inherited a mutation in a breast cancer susceptibility gene. Younger women are more likely to die from breast cancer than older women. Treatment directed genetic testing at the time of diagnosis is not standard practice but is becoming more common in the UK. Genetic testing has far reaching implications for women identified as gene carriers, however, information about genetic testing aimed specifically at these women is often unavailable outside of specialist genetics services. Information to support treatment decisions has been identified as a priority for research in familial breast cancer.

Objectives
To design a decision aid (DA) for women choosing whether or not to have genetic at the time of diagnosis

Methods
Informed by the MRC guidance for developing and evaluating complex interventions we will conduct a meta-synthesis to systematically collate information about genetic testing at the time of diagnosis. In-depth semi-structured interviews with 30 young women with early stage breast cancer and an online survey of health professionals will help inform the content of the DA. A prototype will be developed in collaboration with patients, health professionals and academics. Focus groups and think-aloud interviews with patients will refine the tool.

Results
A DA to support decision making about genetic testing at breast cancer diagnosis will be developed.

Conclusions
Development of a web-based DA will provide additional support required when making a choice about whether or not to have genetic testing at the time of diagnosis.

Funding: This study is funded by Breast Cancer Campaign

24-52-P
EFFECT OF SMOKING TO ADVANCED STAGE CERVICAL CANCER PATIENT SURVIVAL IN CIPTOMANGUNKUSUMO GENERAL HOSPITAL, JAKARTA, INDONESIA

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3 Department of Community Medicine, Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia

Introduction
Cervical cancer is still one of the leading causes of mortality in cancer patient. Its prognosis are determined by multiple factors. Smoking is identified as a risk factor of cervical cancer, however its relationship with cervical cancer prognostic has not been established. Therefore, researcher want to investigate the relationship between smoking habit and others factor as prognostic factors of cervical cancer.

Objectives
To determine the effect of smoking on the survival rate of advanced cervical cancer patients at the General Hospital Ciptomangunkusumo
Methods
A retrospective cohort study comparing stage IIB-IVB cervical cancer in CiptoMangunkusumo Hospital from August 2009 was performed. Medical record was reviewed and patient was interviewed about her current condition, and both the patient and her spouse smoking habit.

Results
Out of 390 cervical cancer patients stage IIB-IVB in 2009, there were 270 patients (69.2 %) that included in the inclusion criteria. Most of the patient are 40–59 years old (82.2 %), not smoking (91.8 %). The most frequent characteristic clinicoopathologist are IIB (63.3 %) and squamous carcinoma (71.9 %). The 5 Year Survival rate are 22.6 %. There are no statistical significance between advanced stage cervical cancer survival with the patient and her husband smoking habit.

Conclusions
In our study, smoking habit do not aggravate survival rate of advanced stage cervical cancer patients but further research must be done with more sample. Stage and tumor size both by physical examination and ultrasound can be used as the prognostic factor. Smoking habit must be stopped by patient or their spouse.

24-53-P

SIGNIFICANCE OF BREAST CANCER SURVIVORS’ ENROLMENT IN REACH TO RECOVERY ACTIVITIES

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Introduction
In order to be supportive as it is required by Reach to Recovery Program regulations breast cancer survivors must be selected, educated and trained very carefully. Our experience demonstrates that apart from natural difficulties there are some particular details in this aspect.

Objectives
To study effectiveness of Reach to Recovery volunteers in supportive care for breast cancer patients.

Methods
Traditionally cancer patients in our country stay out of real activities and correct information about their illness. This creates stress and distrust. It is not easy for such people appear among others and disclose themselves as being treated of cancer. It leads to isolated life for the most of them despite their internal possibilities to assist others. Therefore enrolment of volunteers here demands a considerable attention and patience in helping former affected women to overcome their own problems.

Results
Performing this very special work and aiming at the quality of supportive care we now have 12 qualified volunteers who provide physical and emotional support to today’s breast cancer sufferers and give them a clear hope to survive their own troubles with the least losses.

Conclusions
Enrolment of new volunteers in Reach to Recovery activities is an extremely responsible action which follows big advantage for breast cancer patients’ daily life.

Treatment of Specific Toxicities

META-ANALYSIS: HYPERTENSION RISK IN SELECTED TARGETED AGENTS

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³Head and Neck Medical Oncology, Fondazione IRCCS Istituto Nazionale dei Tumori, Milan, Italy

Introduction
Hypertension (HTN) is a cardiovascular risk. Targeted agents (TA), especially anti-angiogenesis agents, have a class effect of escalating blood pressure. However, the magnitude varies widely among currently published clinical trials.

Objectives
This study estimates risk and severity of HTN due to selected TA using meta-analytic techniques to combine results from multiple studies.

Methods
We identified 110 English language randomized trials of 26 TA approved by the Food and Drug Administration as of November 2013 via MEDLINE. Using meta-analytic methods, we calculated the relative risks of HTN and determined the number needed to harm.

Results
Bevacizumab, sorafenib, and sunitinib had significantly increased risks of all-grade (1–5) HTN. Another case of TA-related HTN was observed for 11 patients treated with TA. No study of cetuximab, erlotinib, gefitinib, imatinib or lapatinib reported a HTN case; a single study reported a non-significant increase in HTN with trastuzumab.

### Table

<table>
<thead>
<tr>
<th>Drug</th>
<th># Studies</th>
<th># Patients</th>
<th>Adjusted Risk Difference (%)</th>
<th>Relative Risk (95 % CI)</th>
<th># Needed to Harm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bevacizumab</td>
<td>18</td>
<td>9,062</td>
<td>18.4</td>
<td>5.3** (3.6, 7.7)</td>
<td>5</td>
</tr>
<tr>
<td>Sorafenib--all studies</td>
<td>8</td>
<td>2,648</td>
<td>12.0</td>
<td>3.9** (2.0, 7.9)</td>
<td>8</td>
</tr>
<tr>
<td>Sorafenib--parallel analysis*</td>
<td>6</td>
<td>2,363</td>
<td>10.8</td>
<td>3.6** (1.5, 8.4)</td>
<td>9</td>
</tr>
<tr>
<td>Sunitinib--all studies</td>
<td>2</td>
<td>1,177</td>
<td>22.1</td>
<td>7.0** (4.4, 11.1)</td>
<td>5</td>
</tr>
<tr>
<td>Sunitinib--parallel analysis*</td>
<td>1</td>
<td>442</td>
<td>9.5</td>
<td>5.1** (2.0, 12.9)</td>
<td>11</td>
</tr>
</tbody>
</table>

*Parallel analyses excluded studies comparing single-agent TA with chemotherapy. **p<0.05
Conclusions
Some TA posed significant risks of HTN. Early detection and treatment of HTN may prevent serious complications and allow maintenance of cancer treatment.

25-02-O

PROACTIVE APPROACH: DEVELOPING AND IMPLEMENTING GUIDELINES FOR TREATING PATIENTS WITH ORALLY-ADMINISTERED ANTI-CANCER DRUGS (OAACD) IN THE HOME-CARE SETTING: EXPERIENCE OF A COMPREHENSIVE CANCER CENTER

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Introduction
The ongoing trend of using orally-administered instead of intravenously-administered anti-cancer drugs improves patients’ quality-of-life and reduces costs. However, as this trend facilitates transition of patients to the home-care setting, issues such as adherence, patient monitoring, and addressing adverse events (AEs), become more challenging. Thus, this trend requires remodeling patient care and the communication between the ambulatory care staff and the patients.

Objectives
To describe the development and implementation of guidelines related to the treatment of cancer patients with OAACD in a Comprehensive cancer center.

Methods
Guideline development included several steps such as performing a literature review identifying safety issues, evaluating the number of patients treated with OAACD, developing patient capabilities assessment tool, and creating relevant documents (information and contacts orders for each treatment and checklists/follow up sheets for the staff).

Results
Guidelines were developed and implemented among 2013–2014. At present, the ambulatory care nurses proactively monitor the treatment of approximately 180 patients (per week), who are being treated at home. The monitoring is performed by phone/email or face to face meetings, and includes confirming appropriate drug handling and administration (eg, issues related to storage, dosage, drug-drug-food interactions), follow-up on blood tests, symptoms assessment, and hospitalization, if needed. Guidelines adoption by staff members improved patients’ adherence and decreased the rates of AEs (eg, renal failure) and hospitalizations (will be presented).

Conclusions
Proactive approach by developing and implementing guidelines for managing patients treated with OOACD was associated with improved patient care and represents the commitment of the oncology staff to patients’ quality-of-life and safety.

25-03-O

COMPARISON OF BENEFITS, SAFETY OF 8 % VERSUS 4 % FORMalin FOR TREATMENT OF CHRONIC HEMORRHAGIC RADIATION PROCTITIS IN PATIENTS OF CERVICAL CARCINOMA: A RANDOMIZED CONTROLLED TRIAL

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Introduction
Chronic hemorrhagic radiation proctitis is a not so uncommon complication after radiotherapy for cervical carcinoma. Topical treatment with 4 % formalin is an effective and safe procedure for the treatment of this distressing complication. We aimed to compare the benefits and safety of using 8 % formalin versus 4 % formalin.

Objectives
We aimed to compare the benefits and safety of using 8 % formalin versus 4 % formalin.

Methods
From January 2012 to December 2014, 236 patients with chronic hemorrhagic radiation proctitis subsequent to radiotherapy for cervical carcinoma were randomized to receive 4 or 10 % formalin. Standard protocol was uniformly followed for formalin application. The symptoms and rectoscopy scores were evaluated and compared before and at 12 weeks after treatment.

Results
In the 4 % formalin group (n=116), 84 (72.41 %) and 97 (83.62 %) patients showed an improvement in symptom score and rectoscopy score, respectively. In the 8 % formalin group (n=120), 97 (80.83 %) and 104 (86.67 %) patients showed an improvement in symptom score and rectoscopy score, respectively (P=0.507 and 0.814, respectively). Symptom score correlated quite well with the rectoscopy score (P<0.001). However, 22.4 % patients in the 8 % group and 10.83 % patients (P=0.044) suffered severe anococcygeal pain requiring opioid analgesics. Worsening of incontinence was observed in 20.68 % and 13.33 % patients in 8 and 4 % group, respectively (P=0.207).

Conclusions
4 % formalin remains the standard treatment for chronic hemorrhagic radiation proctitis. Using higher concentrations is not advisable on account of increased complications and non-significant improvement in efficacy.

25-04-O

INCIDENCE OF DIABETES INDUCED BY HIGH-DOSE GLUCOCORTICOID TREATMENT IN CANCER PATIENTS

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Introduction
Prolonged hyperglycaemia due to glucocorticoid therapy is a well-known - but less well-described - clinical condition. The magnitude of the risk of developing diabetes during high-dose glucocorticoid treatment is not known and monitoring for development of diabetes during treatment is random.

Objectives
We aim to assess the incidence of glucocorticoid therapy-induced diabetes and to identify risk factors for development of diabetes in non-diabetic patients with metastatic spinal cord compression (MSCC) receiving high-dose glucocorticoid therapy during radiation therapy in order to provide guidelines for rational screening.

Methods
The study is a prospective, observational study of outpatients and hospitalized patients with MSCC treated with ≥100 mg prednisolone per day. Primary endpoint is development of diabetes defined by two independent measurements of capillary plasma glucose levels ≥11.1 mmol/l (WHO criteria). Secondary endpoint is diabetes needing glucose-lowering therapy - according to local guidelines - to control plasma glucose levels.

Results
127 patients have been included; 41 % women, age 68 (46–88) years, BMI=25 (14–44) kg/m2, daily dose of prednisolone 258 (100–563) mg. 12 % (95% CI7-16 %) developed diabetes that was treated with insulin and 30 % (95% CI20-37 %) developed diabetes that was left untreated. In the logistic regression analysis only HbA1c made a significant contribution to prediction.

Conclusions
Almost half of patients with MSCC undergoing radiation therapy and high-dose glucocorticoid therapy developed diabetes and one fourth of the diabetic patients needed insulin therapy. Only baseline HbA1c was positively associated with risk of needing antidiabetic treatment. These results underline the importance of systematic screening for glucocorticoid-induced diabetes.

Methods
We have collected the data describing pts (age, gender, BMI, albumin, baseline ASAT/ALAT) and tumors characteristics (histology, leptomeningeal met.), ifosfamide administration modalities (dose/day, cumulative dose/ cycle, fractionation, duration and volume of infusion), co-medications (cisplatin, doxorubicin, etoposide, opioids, benzodiazepine, aprepitant) and outcome.

Results
From 09/2008 to 11/2013, 187 pts have been treated with Ifosfamide. The median age was 27 (0–78). Histologies were Soft Tissue Sarcomas (78), Osteos (48), Ewing S (41) and RMS (26). We have identified 8 IRE (4.2 % [1.8-8.2]). Renal function was normal in all cases. Only 8 pts have received apreparant, none of them experienced IRE. Under univariate analysis, the risk factors for IRE were: PS≥2 (OR=9.5 [2.4-38.8]), Albumin≤36 g/L (9.8 [1.2-80.2]), leptomeningeal met (OR=13.2 [2.7-63.2]), ≥4 successive days of ifosfamide administration (OR=6.0 [1.4-25.6]). 3 factors remained statistically significant in logistic regression analysis: Albumin≤36 g/L (OR=11.2 [1.7-67.4]), leptomeningeal met (16.0 [3.3-45.6]) and 4 or 5 successive days of ifosfamide administration (8.1 [2.1-20.7]).

Conclusions
Ifosfamide must given with caution in pts with hypalbuminemia or with known leptomeningeal met. A 4 to 5 days fractioned ifosfamide seems associated with increased risk for IRE; this figures contrasts with published PK studies demonstrating that fractionation induces auto induction ifosfamide metabolism and increases ifosfamide clearance.

25-06-P
PELVIC BONE OSTEO MYELITIS IN THE PROSTATE CANCER SURVIVOR: A DEVASTATING LATE SEQUELA OF RADIOTHERAPY ANDABLATIVE THERAPIES FOR PROSTATE CANCER

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Introduction
Osteomyelitis of the pubic symphsis (PS) and pelvic bones is an underreported and poorly recognized entity in prostate cancer survivors. We have recently recognized this clinical scenario that has devastating consequences for the survivor.

Objectives
To highlight the clinical presentation and management of prostate cancer survivors with pelvic bone osteomyelitis and present a treatment algorithm.

Methods
We conducted a retrospective review from January 2011 to June 2014 in a tertiary academic medical center with emphasis on genitourinary cancer survivorship.

Results
14 survivors with a mean age of 74.5 years were diagnosed with osteomyelitis of the PS with or without extension to pubic rami. All patients had a fistula from the prostate bed to the PS joint, and three had a rectal fistula. Prostate cancer treatment
modalities were: 1 patient underwent primary external beam radiotherapy (EBRT), 5 had radical prostatectomy followed by EBRT, 5 had brachytherapy and EBRT, 2 had EBRT then salvage cryotherapy, and 1 received high-intensity focused ultrasound. Median time to presentation was 7 years (range 1.5–16). All 14 patients presented with pelvic pain. Other symptoms included difficulty walking, recurrent urinary infections, sepsis, and cellulitis. 12 of the 14 patients underwent pubic bone debridement with urinary and fecal diversion when needed, and 2 were managed conservatively with antibiotics. Resolution of symptoms was noted in patients undergoing operative intervention.

Conclusions
The combination of pelvic pain, painful ambulation, and recurrent urinary infections in a prostate cancer survivor should prompt investigation for pubic bone osteomyelitis - a poorly recognized entity that requires multidisciplinary management.

25-07-P

INCREASED PREVALENCE OF SMALL INTESTINAL BACTERIAL OVERGROWTH IN PATIENTS WITH BREAST CANCER AND CHRONIC LOOSE STOOLS

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Introduction
Small intestinal bacterial overgrowth (SIBO) is has been increasingly recognized as a cause of chronic loose stools/diarrhoea, and forms part of differential diagnosis of new-onset diarrhoea after pelvic radiotherapy. Its prevalence in patients with erratic bowel function after treatment for breast cancer has not been studied.

Objectives
Establish the proportion of breast cancer patients with chronic loose stools secondary to small intestinal bacterial overgrowth.

Methods
Between January 2006 and September 2014, 108 patients with breast cancer were referred to our clinic due to gastrointestinal symptoms. Of those, 66 had chronic diarrhoea and/or other symptoms. 48 of them were included in the study and were either given antibiotics empirically or underwent gastroscopy with duodenal aspirate and/or glucose hydrogen (methane) breath test (Figure 1). The baseline characteristics, most frequent gastrointestinal symptoms and types and doses of cancer treatment received were recorded.

Results
SIBO was diagnosed in 25/48 patients (52.08%). Their baseline characteristics and most frequently reported symptoms are resumed in Table 1. There were no statistically significant differences between patients with and without SIBO in types of treatment administered, dose of chemotherapy or total radiation dose and both groups of patients had similar baseline characteristics. SIBO was treated with antibiotics either empirically or according to the sensitivity.

Conclusions
The prevalence of SIBO in breast cancer patients treated with multiple therapy modalities and erratic bowel function is higher than expected. Further studies are necessary to establish possible aetiological associations for its development.
RADIONUCLIDE INDUCED XEROSTOMIA (RIX) – PRECLINICAL PROMISE OF LMS-611

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6Robertson Centre for Biostatistics, University of Glasgow, Glasgow, United Kingdom
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Introduction
RIX is the most common permanent side effect of RT to the H&N with no effective treatment.
LMS-611 is a mimetic of a natural lamellar body which prevents thick secretions like saliva from congesting organs.

Objectives
Assess saliva properties before and during RT to the H&N, measure interpatient variability; re-assess saliva properties with addition of LMS-611, correlate patient reported symptoms with laboratory measurements of RIX.

Methods
Patients with H&N cancer receiving RT as primary treatment were recruited.
Patients completed the Groningen RIX (GRIX) questionnaire and provided saliva samples at baseline, weeks 2, 4 and 6 of RT. Saliva adhesiveness and viscosity was tested in the laboratory, by timing how long it takes to run 5 cm down an inclined plane (IP test). LMS-611 was added to saliva samples and tests repeated.

Results
30 patients with oropharyngeal cancer were enrolled.
Saliva adhesiveness and viscosity increases as RT progresses, figure 1.
GRIX scores increased as RT progressed, figure 2.
No direct correlation was seen between objective and subjective measures of RIX.
The addition of saline, LMS-611 2.5 mg/ml or 5 mg/ml to the saliva samples does not reduce saliva adhesiveness and viscosity. However, when LMS-611 in concentrations of 10 mg/ml and 20 mg/ml are added a statistically significant reduction is seen in these properties, see table 1 (HR indicates likelihood of saliva travelling 5 cm).

Conclusions
Saliva becomes more visco-adhesive and patient reported xerostomia worsens as RT progresses. The addition of LMS-611 to RIX saliva restores its fluidity ex-vivo at concentrations of 10 mg/ml and 20 mg/ml and these concentrations will be tested clinically.
PRE-CLINICAL RESEARCH TO UNDERSTAND ALOPECIA AND IMPROVE SCALP COOLING RESULTS


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8Ward 1, Western General Hospital, Edinburgh, United Kingdom

Introduction
The pathobiology of chemotherapy-induced alopecia (CIA) is still not fully understood. Currently the only treatment option to prevent CIA is scalp cooling, which is effective in about 50 % of the patients.

Objectives
Aiming on improving the efficacy of scalp cooling, a group to study CIA by combining pre-clinical and clinical research has been established.

Methods
The mechanism of CIA and the preventative role of cooling is studied by a combination of 1. In vitro, cell toxicity models. 2. Clinical investigation into the role of post-infusion cooling times (PICT) and scalp skin temperature on the efficacy of scalp cooling. 3. Investigation into the intracellular pathways which mediate damage to human hair follicle-associated cell populations.

Results
1. The use of cultured keratinocytes established that cooling reduced cell death when exposed to a range of chemotherapeutic drugs and this model reflected the clinical outcome. 2. Dose is a determining factor, but half-life times of cytotoxics do not seem to be the most important factor for the optimal PICT. 3. A feasible method to determine P55 in hair follicle-associated cell populations has been developed.

Conclusions
Combining pre-clinical and clinical research in a multi-disciplinary group will allow better understanding of the mechanisms of CIA and scalp cooling. This approach will allow us to develop a patient tailored approach with the ultimate goal to prevent CIA for our patients and thereby improve their quality of life.

PROPHYLAXIS OF DERMATOLOGIC AND GI TOXICITY FROM DACOMITINIB (D): CTCAE AND PRO (PT REPORTED OUTCOMES) FOR DOXYCYCLINE (DOXY), ALCLOMETASONE AND PROBIOTIC IN PLACEBO CONTROLLED TRIAL


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6Medical Oncology, Pfizer Oncology, New York, USA
7Medical Oncology, Mayo Clinic, Rochester, USA

Introduction
Treatment guidelines for dermatologic and gastrointestinal effects of EGFR-directed tyrosine kinase inhibitor include reactive anti-biotics and topical steroids. Minimal data support prophylactic use.

Objectives
ARCHER 1042 (NCT01465802) explored prophylactic interventions to minimize select dermatologic AEs of interest (SDAEI) and diarrhea toxicities associated with D, an irreversible small molecule PanHER inhibitor.

Methods
In Cohorts I (CI) and II (CII), pts with advanced NSCLC, ≥1 prior chemotherapy, ECOG 0–2, were randomized (pt blinded) in CI to (a) D 45 mg daily (QD) plus placebo (D + pbo) or (b) D 45 mg QD plus doxy 100 mg twice daily x 4 weeks (D + doxy); and in CII to D 45 mg QD plus probiotic (prob) and topical alclometasone (alclo) (D + prob + alclo). Primary endpoints assessed in first 8 weeks included: all-grade (G) and G≥2 SDAEs I and PRO (Skindex-16) (CI, CII) and CII G and G≥2 diarrhea and PRO (modified Mucositis Daily Questionnaire).

Results
112 pts randomized to Cohort I D + pbo vs. D + doxy (median age 66 years, 53 % male) and 59 pts enrolled in CII D + prob + alclo, (median age 66 years, 66 % male), were evaluable without discontinuation from treatment <6 weeks after D dosing. PRO Skindex scores were improved with prophylactic doxy, but not alclometasone; probiotic was not associated with improvement in diarrhea. D exposure was not altered by doxy.

Conclusions
In this ongoing blinded placebo controlled trial, preliminary data suggests prophylactic doxy improves dermatologic symptoms (assessed by CTCAE and PRO), compared to reactive treatment. Prophylactic topical steroid effect was minimal; probiotic did not impact diarrhea.

Table 1: Incidence of All Causality All G and G≥2 SDAEI, Diarrhea Burden Index and AE Discontinuations (Evaluable Population, First 8 Wks)

<table>
<thead>
<tr>
<th></th>
<th>Incidence of ≥G2 SDAEI&lt;br&gt;first 8 weeks, % (95% CI)</th>
<th>Incidence of All Grade SDAEI first 8 weeks, % (95% CI)</th>
<th>Diarrhea Burden Index&lt;br&gt;mean</th>
<th>Diarrhea&lt;br&gt;Discontinuations due to diarrhea related AE</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pbo N=56</td>
<td>48.2 (34.7, 62.0)</td>
<td>82.1 (69.6, 91.1)</td>
<td>2.4</td>
<td>8.9</td>
<td></td>
</tr>
<tr>
<td>Doxy N=56</td>
<td>25.0* (14.4, 38.4)</td>
<td>76.6 (63.8, 87.0)</td>
<td>1.8</td>
<td>5.4</td>
<td></td>
</tr>
<tr>
<td>Alclometasone +Prob N=59</td>
<td>35.6 (23.6, 49.1)</td>
<td>79.7 (67.2, 89.0)</td>
<td>2.4</td>
<td>3.4</td>
<td></td>
</tr>
</tbody>
</table>

*Diarrhea burden index factors in both duration and grade for all episodes in the first 8 weeks
Introduction
Chemotherapy induced peripheral neuropathy (CIPN) is a major problem for patients who receive chemotherapy, and it sometimes deteriorate patients’ QOL. Many CIPN prevention trials have been conducted, but no one succeeded to date.

Objectives
To investigate if frozen glove (FG) prevents peripheral neuropathy induced by nanoparticle albumin-bound paclitaxel (nab-PTX).

Methods
We conducted CIPN prevention study using FG, as part of multi-institutional phase II study which analyze efficacy and safety of nab-PTX (260 mg/m² q3w) followed by FEC(500/100/500 mg/m², q3w) in pre-operative setting. Each patient wore an FG for a total of 60 min (15mins before and after nab-PTX treatment) on both hands. CIPN were assessed during treatment period with nab-PTX by the Patient Neurotoxicity Questionnaire (PNQ) and the FACT/GOG (Gynecologic Oncology Group) Neurotoxicity (Ntx) subscale. Patients were asked to access PNQ and FACT/GOG Ntx on a daily basis.

Results
Forty three patients were registered for this trial. Forty two out of 43 pts were analyzed. Median age and median body mass index (BMI) was 48 years old and 21.6 kg/m², respectively. We analyzed following 6 categories, 1) symptoms of hands and arms, 2) of foots, 3) of general, 4) of ears and 5) muscle weakness of hands and arms, 6) of foots. Median time to each event was 1) 25.5 days, 2) 5 days, 3) 3 days, 4) not available, 5) 46.5 days, 6) 4 days. Time to event of hands and arms was much longer compared with that of foots.

Conclusions
CIPN could be prevented or lessen by FG. Randomized phase II CIPN prevention study has just been launched.

TOWARD THE MOLECULAR AND CELLULAR MECHANISMS OF SYSTEMIC DOXYCYCLINE IN THE PREVENTION AND MANAGEMENT OF EPIDERMAL GROWTH FACTOR RECEPTOR (EGFR) INHIBITOR-ASSOCIATED RASHES

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Introduction
Inhibitors directed against the epidermal growth factor receptor (EGFR), such as erlotinib, cetuximab or panitumumab, have gained increasing importance in the targeted therapy of cancer. Strikingly, patients treated with EGFR inhibitors (EGFRI) frequently develop characteristic inflammatory rashes and bacterial superinfections that may critically affect both patients’ quality of life and treatment adherence. Established protocols for the prevention or management of EGFRI-associated rashes include topical glucocorticosteroids and systemic doxycycline at antimicrobial (100 to 200 mg/day) and retarded, sub-antimicrobial doses (Oraycea® 40 mg/day). Despite its efficacy, up to date the molecular and cellular mechanisms of doxycycline in the context of rash-management have remained largely elusive. Recently, we have unraveled important aspects of the pathophysiology of EGFRI-associated rashes and have shown that in epidermal keratinocytes EGFRI induce the expression of proinflammatory chemokines (CCL2, CCL5, CCL27, and CXCL14) and impair the production of antimicrobial peptides (HBD3, RNase 7, and LL37).

Objectives
To analyze the effect of doxycycline on EGFRI-induced gene regulation in primary human keratinocytes in vitro.

Methods
In vitro gene expression analysis in primary human keratinocytes treated with the EGFRI erlotinib and/or doxycycline (Oraycea®, 40 mg/day). Despite its efficacy, up to date the molecular and cellular mechanisms of doxycycline in the context of rash-management have remained largely elusive. Recently, we have unraveled important aspects of the pathophysiology of EGFRI-associated rashes and have shown that in epidermal keratinocytes EGFRI induce the expression of proinflammatory chemokines (CCL2, CCL5, CCL27, and CXCL14) and impair the production of antimicrobial peptides (HBD3, RNase 7, and LL37).
25-13-P

MANAGEMENT OF MOLECULAR TARGETED THERAPIES (MTT) ADVERSE EVENTS (AES): A DYADIC ASSESSMENT BY PATIENTS (PT) AND THEIR GENERAL PRACTITIONERS (GP)

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Introduction
Most of MTT are taken by mouth, at home; as a consequence AEs can occur at home, managed with the help of GP.

Objectives
Describe pt and GP point of view on MTT-related AEs.

Methods
We have interviewed 20 couples of Pt/GP using a structured questionnaire. Interviews have been conducted by an independent searcher.

Results
The primaries were: GIST (8), renal cell (6) & lung cancers (6). MTT were sunitinib (8), imatinib (5), erlotinib (3), sorafenib (2) & gefitinib (2). The most common reason for GP consultation was MTT AEs (13/20 according to pts, 12/20 according to GP), supportive care (11/20 & 12/20) and co-morbidities management (11/20 & 12/20). MTT AEs occurred in 12/20 according to pts and 13/20 according to GPs. In case of AEs, pts firstly contacted: GP (7), their nurse (1) and the medical oncologist (3). Seven pt do not contact any Health care professional and wait for the next planned consultation with their medical oncologist. Excluding skin toxicities, the nature of managed AEs completely differed according to pt and GP point of views. During the interview, GP require the following pieces of information (i) some guidelines for the management of MTT AEs (18/20) and (ii) knowledge of common drug-drug interactions (16/20).

Conclusions
Guidelines for management of MTT and knowledge of drug-drug interactions are the most important pieces of information that GP required. GP and pt have a completely different view of MTT tolerance; standardized check-list could be useful to better assess the tolerance.

25-14-P

CHEMOTHERAPY EFFECTS ON HAMSTER SUBMANDIBULAR SALIVARY GLAND MODULATED BY LASER PHOTOTHERAPY

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Introduction
Although the xerostomia symptom is common in patients receiving anti-neoplastic chemotherapy, it is not totally clear how chemotherapy affects the salivary glands. On the other hand, laser phototherapy (LPT) has been shown to attenuate the xerostomia symptom.

Objectives
This study aimed to investigate the function and morphology of submandibular (SM) glands, responsible for secreting 70 % of unstimulated salivary flow rate, in hamsters receiving 5-Fluorouracil (5-FU), and the effect of LPT on the salivary gland hypofunction (SGH) induced by 5-FU.

Methods
Forty-two hamsters were divided into three groups: control (C), chemotherapy (Ch) and chemotherapy/laser (ChL). SGH was induced by two injections of 5-FU in the Ch and ChL groups. The irradiation was performed using a diode (780 nm) continuous laser, 0.2 J of total energy. On the euthanasia day (days 5, 7 and 10), SM of all groups were removed for biochemical analysis and processed for light microscopy, transmission electron microscopy and immunocytochemistry.

Results
The 5-FU induced severe structural changes, including acinar atrophy, an increase of glandular stroma, and alterations of epidermal growth factor, neural growth factor and prolactin inducible protein expression. In addition, the lactate dehydrogenase activity was increased on group CT when compared with group C; the peroxidase and catalase activities were also increased and superoxide dismutase was decreased by 5-FU. However, LPT appears to be a protective mechanism against oxidative stress, structure and morphology, maintaining similarity between C and ChL groups.

Conclusions
In conclusion, the 5-FU causes structural and functional changes in SM gland and the LPT could offer a promising treatment.

25-15-P

THE PROSPECTIVE ESTIMATION OF CA125 MONITORING IN INTRAPERITONEAL FLUID AS PROGNOSTIC FACTOR IN PRETREATED OVARIAN CANCER PATIENTS WITH REFRATORY MALIGNANT ASCITES.

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Introduction
The serum Ca125 antigen concentration has been well documented as a useful marker for evaluating intravenous chemotherapy response in epithelial ovarian cancer patients.

Objectives
The main goal of this study was estimation of decline Ca125 concentration in intraperitoneal fluid rate as a prognostic factor for intraperitoneal chemotherapy response and patients survival.

Methods
Patients included to this analysis attained chemorefractory malignant ascites. An intraperitoneal chemotherapy was cisplatin based. Ca125 concentration was measured twice in intraperitoneal fluid: before intraperitoneal chemotherapy infusion and 24 h after.

Results
Patients with Ca125 intraperitoneal concentration decrease more than 3 times lived longer than patients with lower Ca126 concentration reduction (78,5 vs 33,1 months), p=0.07.

Conclusions
Intrapertioneal fluid Ca125 concentration decrease rate after intraperitoneal chemotherapy seems to be prognostic factor for overall survival in ovarian cancer patients with refractory malignant ascites. This analysis is scheduled to be performed later in the project.

25-16-P

EFFICACY OF TRANSTYMMPANIC INJECTIONS OF A SODIUM THIOSULFATE GEL TO PREVENT CISPLATIN-INDUCED OTOTOXICITY: A RANDOMIZED CONTROLLED TRIAL IN HEAD AND NECK CANCER PATIENTS

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Conclusions
In conclusion, the 5-FU causes structural and functional changes in SM gland and the LPT could offer a promising treatment.
Introduction
The hearing loss resulting from cisplatin cochlear damage is frequent, permanent and often severe. Antioxidant agents, such as sodium thiosulfate (STS), can neutralize the effects of cisplatin. However, when administered systemically, these agents decrease cisplatin efficacy. Experimental data suggest that STS deposited in the middle ear before cisplatin treatment can reach the cochlea and reduce cisplatin ototoxicity without affecting its therapeutic efficacy.

Objectives
The main objective of this randomized controlled trial is to test the efficacy of transtympanic injections of a STS-containing gel before cisplatin therapies to prevent cisplatin-induced ototoxicity.

Methods
Eligible participants are patients with a locally advanced head and neck cancer treated with concomitant chemoradiation including three cisplatin cycles (100 mg/m^2). Thirty consenting patients with symmetrical hearing and normal otoscopic findings will be recruited. For each participant, one randomly selected ear will receive the transtympanic injections, while the other ear will not. On the day of each cisplatin treatment, a transtympanic injection will deposit 0.1 ml of an immediately prepared STS-hyaluronate gel (0.5 M) in the middle ear of the selected side. Blinded efficacy assessment will rely on the audiologic measures taken before and one month after chemoradiation. Before-after changes observed in the treated and control ears will be compared by paired t-tests. The evaluation will be based on pure tone high frequencies (main outcome), pure tone at speech perception frequencies, otoacoustic emissions measurements and adverse effects.

Results
Recruitment started in January 2015.

Conclusions
This innovative approach could bring major improvements for patients treated with cisplatin.
Conclusions
First results of U-COR highlight the importance of the registry in cardio-
oncology. Long-term data collection helps understanding of the mechanism of cardiotoxicity. Further analysis may allow early detection of cardiotoxicity, proper disease management and to estimate the effect of prevention.

25-19-P

PERIRENAL HEMATOMA IN A PATIENT TREATED WITH BEVACIZUMAB FOR METASTATIC COLON CANCER
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Introduction
Bevacizumab is a recombinant humanized monoclonal antibody that inhibits tumor angiogenesis by inhibiting vascular endothelial growth factor (VEGF). The side-effect profile of bevacizumab is different from that of traditional cytotoxic chemotherapy.

Objectives
Bevacizumab is associated with other serious side effects such as hemorrhage. However, Spontaneous perirenal hematoma associated with Bevacizumab is not known.

Methods
We experienced the case of a patient who developed spontaneous perirenal hematoma during the course of bevacizumab-containing chemotherapy.

Results
A 44 years old woman with metastatic sigmoid colon cancer treated with bevacizumab was admitted complaining of sudden onset of dyspnea and oliguria. Emergency hemodialysis was started. Huge perirenal hematoma on right side was diagnosed by computed tomography. The patient was immediately instructed to discontinue chemotherapy including bevacizumab. However, after 3 weeks, right perirenal hematoma was more increased and left perirenal hematoma was newly developed. Both perirenal hematoma became stable at 4th week after stopping bevacizumab.

Conclusions
This is the little known event of spontaneous perirenal hematoma secondary to bevacizumab treatment. Physicians should be aware of this potential bevacizumab-associated bleeding complication.

Other Supportive Care
26-001-O

CARE COORDINATION EXPERIENCE OF PATIENTS WITH COLORECTAL CANCER: A POPULATION BASED STUDY
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Introduction
The need for better coordinated cancer care is internationally recognized as a priority for health service improvement. Good care coordination contributes to patient-centered, high-quality care. Understanding which patients are at risk of poor care coordination is crucial to underpin service improvement.

Objectives
To investigate patient- and system-related predictors of poorly coordinated care among population-based sample of colorectal cancer patients in New South Wales (NSW), Australia.

Methods
Cross-sectional survey of consecutive patients notified to NSW Central Cancer Registry between November 2012 and May 2013. Patients completed the Patient Experience of Cancer Care Coordination questionnaire 6 months post diagnosis. Multivariate regression models constructed to identify predictors of poor care coordination.

Results
Of 1027 patients contacted, 560(55 %) participated. Respondents had mean age of 68 years, 60 % male and 24 % rectal cancer. Care coordination scores (range 20–100) were normally distributed (mean 76.1, SD10.9). Patients who experienced poor cancer care coordination were more likely to have little or no understanding of the health system (β=-4.34,95 % CI:-6.18,-2.49, p=0.001), more than 2 comorbid conditions (β=-4.57,95 % CI:-7.44,-1.69, p=0.04) and no regular GP (β=-4.1,95 % CI:-8.16,-0.02, p<0.001). Furthermore, those who didn’t receive a written plan prior to treatment (β=-4.15,95 % CI:-6.02,-2.28, p<0.001) and those who didn’t see a cancer care coordinator or specialist cancer nurse (β=-3.29,95 % CI:-5.31,-1.27, p=0.001) experienced poorer care coordination. There were no significant associations with age, sex or cancer site.

Conclusions
Strategies that increase the use of pre-treatment plans and access to care coordinators or specialist nurses may improve patients’ experience. These strategies should be rigorously tested, particularly for patients with other risk factors for poor care coordination.

26-002-O

INTRAVENOUS IRON ISOMALTOSIDE 1000 (MONOFER®) AS MONO THERAPY IN COMPARISON WITH ORAL IRON SULPHATE IN PATIENTS WITH NON-MYELOID MALIGNANCIES ASSOCIATED WITH CHEMOTHERAPY INDUCED ANAEMIA (CIA)
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3Clinical and Non-clinical Research, Pharmacosmos A/S, Holbaek, Denmark
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Introduction
Chemotherapy induced anaemia (CIA) is common in cancer patients.

Objectives
The present study compared iron isomaltoside 1000 and oral iron sulphate monotherapy (i.e., without erythropoiesis-stimulating-agents (ESA)) in cancer patients with CIA and a ferritin <800 μg/L and a transferrin saturation (TSAT) up to 50 %.

Methods
Open-label, comparative, multi-centre, 24-weeks, non-inferiority trial. 351 patients with CIA were randomized 2:1 to iron isomaltoside 1000 or oral iron. Calculation of intravenous (IV) iron need was according to a modified Ganzoni formulae administered by single infusions up to 1000 mg weekly or repeated weekly bolus injections up to 500 mg. Primary endpoint was change in haemoglobin (Hb) from baseline to week 4.

Results
The mean cumulative iron exposure was 849 mg (range 500–2000 mg) in the IV group and 13.539 mg (range: 800–
20,000 mg) in the oral group. The study met the primary endpoint and showed non-inferiority in increases in Hb from baseline at week 4 (mean (± standard deviation) change: IV iron 0.48 (1.2) g/dL; oral 0.44 (1.2) g/dL, non-inferiority test \( p = 0.0002 \)). A faster onset of the Hb response in the IV infusion group compared to oral iron (superiority test \( p = 0.03 \) at week 1) and a sustained effect on Hb in both groups until week 24 was shown. More patients experienced an adverse drug reaction (ADR) in the oral iron group (7 % versus 19 %; \( p = 0.0003 \)). No clinical significant hypophosphatemia was reported.

Conclusions

The trial demonstrated comparable sustained increases in Hb over time with both iron isomaltoside 1000 and oral iron. More ADRs of oral iron were found.

### 26-003-O

**RACIAL DIFFERENCES IN EARLY SYMPTOM MANAGEMENT, HOSPICE USE, AND INTENSITY OF END-OF-LIFE CARE AMONG ELDERLY WOMEN WITH BREAST CANCER**

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\(^2\)Pharmaceutical Outcomes and Policy, University of North Carolina at Chapel Hill, Chapel Hill, USA
\(^3\)Psychiatry, University of North Carolina at Chapel Hill, Chapel Hill, USA

**Introduction**

Black cancer patients may be more likely than White patients to receive aggressive end-of-life (EOL) care and less likely to use hospice. Early symptom management has been shown to improve quality of life and EOL care among cancer patients. Research is lacking on the relationships between race, early symptom management, and EOL care among breast cancer patients.

**Objectives**

We assessed racial differences in early use of medications for common breast cancer symptoms, and evaluated whether these differences help explain possible disparities in EOL care among older breast cancer patients.

**Methods**

A secondary analysis of SEER-Medicare data. The sample consisted of White and Black women \( \geq 65 \) who were diagnosed with breast cancer and died between 2007–2009. We used modified Poisson regression to assess the relationship between race, early symptom management, and EOL care.

**Results**

Black women were less likely to use most supportive treatments. However, they had similar use of pain medications (Table 1). When controlling for patient demographic and clinical characteristics (including mental health history), Black women were less likely than white women to use anti-depressants and any supportive treatments (Table 2) (aRR 0.75, 95%CI 0.63-0.90; and aRR 0.86, 95%CI 0.76-0.96, respectively). There were no differences in EOL care.

**Conclusions**

We observed racial differences in early symptom management among clinically similar breast cancer patients, suggesting greater attention should be paid to addressing early symptom management needs of Black patients. Our lack of observation of EOL care disparities is contrary to findings from previous studies of patients with diverse cancers.

### Table 1. Use of supportive medications in the 90 days post-diagnosis and aggressive end-of-life care, by race (unadjusted comparisons)

<table>
<thead>
<tr>
<th></th>
<th>White women (N=2457)</th>
<th>Black women (N=369)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Supportive Medications Use</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anti-depressants/Anti-anxiety</td>
<td>28.08</td>
<td>14.91</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Non-benzodiazepine anxiolytics and sleep aids</td>
<td>12.38</td>
<td>8.94</td>
<td>0.05</td>
</tr>
<tr>
<td>Pain medications</td>
<td>32.07</td>
<td>29.27</td>
<td>0.28</td>
</tr>
<tr>
<td>Any supportive medication use</td>
<td>56.70</td>
<td>44.72</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

**End-of-life Care**

<table>
<thead>
<tr>
<th></th>
<th>White women (N=2457)</th>
<th>Black women (N=369)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospice</td>
<td>43.10</td>
<td>41.73</td>
<td>0.62</td>
</tr>
<tr>
<td>Hospice ≤ 3 days before death</td>
<td>63.61</td>
<td>61.79</td>
<td>0.50</td>
</tr>
<tr>
<td>Hospice ≤ 7 days before death</td>
<td>69.60</td>
<td>70.19</td>
<td>0.82</td>
</tr>
<tr>
<td>ICU admission in last 30 days</td>
<td>15.47</td>
<td>7.89</td>
<td></td>
</tr>
<tr>
<td>ED visit in last 30 days</td>
<td>6.51</td>
<td>7.05</td>
<td>0.70</td>
</tr>
<tr>
<td>Hospitalization in last 30 days</td>
<td>12.29</td>
<td>12.47</td>
<td>0.92</td>
</tr>
<tr>
<td>Chemotherapy in last 14 days</td>
<td>2.24</td>
<td>1.90</td>
<td>0.67</td>
</tr>
<tr>
<td>Died in hospital</td>
<td>20.84</td>
<td>22.22</td>
<td>0.54</td>
</tr>
</tbody>
</table>

**Notes:** Risk ratios obtained from modified Poisson regression models adjusting for patient sociodemographic and clinical characteristics. Bold values are statistically significant.

### 26-004-O

**LEANING UPON INTERNATIONAL DIRECTIVES FOR OPTIMIZATION: ANEMIA. RESULTS OF THE FRENCH LIDOANEMIA SURVEY.**

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**Introduction**

Anemia in cancer patients is common and may present with multiple etiologies. Its treatments include iron supplementation (IS), erythropoiesis-stimulating agents (ESAs), and red blood cell (RBC) transfusion. National/international recommendations are available, but not always followed in the clinical practice setting.

**Objectives**

To assess the clinical practice of oncologists/hematologists regarding the management of anemia in cancer.

**Methods**

Declarative survey conducted in France. Answers were collected/registered into a web-based server.
Results
977 physicians were contacted among which 13.6 % answered the survey. 50 % defined anemia as an hemoglobinemia (Hb)<12 g/dL. The characterization of anemia included Hb + serum ferritin + transferrin saturation for 34 %. Only 26.8 % considered initiation of ESAs for a Hb value<11 g/dL. RBC transfusion was considered for Hb<8 for 80.6 %. Target Hb value was 12 g/dL for 49.1 %.

Table. Main results of the LIDO survey.

<table>
<thead>
<tr>
<th>Hb cut-off values (g/dL)</th>
<th>ESA Initiation</th>
<th>Transfusion initiation</th>
<th>Target Hb</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;12</td>
<td>5.2 %</td>
<td>–</td>
<td>49.1 %</td>
</tr>
<tr>
<td>&lt;11</td>
<td>26.8 %*</td>
<td>1.0 %</td>
<td>24.1 %</td>
</tr>
<tr>
<td>&lt;10</td>
<td>42.3 %</td>
<td>1.0 %</td>
<td>15.5 %</td>
</tr>
<tr>
<td>&lt;9</td>
<td>6.2 %</td>
<td>10.2 %*</td>
<td>–</td>
</tr>
<tr>
<td>&lt;8</td>
<td>16.5 %</td>
<td>80.6 %</td>
<td>–</td>
</tr>
<tr>
<td>&lt;7</td>
<td>3.1 %</td>
<td>7.1 %</td>
<td>–</td>
</tr>
</tbody>
</table>

*EORTC guidelines

Conclusions
This survey shows that the management of cancer anemia in France diverges from EORTC guidelines for the initiation of ESA/transfusion therapy. ESA and RBC transfusions are initiated for lower Hb values as compared to EORTC guidelines. This is probably one of the reasons why still today, approximately half of cancer patients still present with uncontrolled/untreated anemia [Launay-Vacher MASCC 2014]. Furthermore, only half of the physicians considered the recommended Hb target (12 g/dL), others targeting lower values.

26-005-O

PRIMARY VERSUS SECONDARY CARDIOTOXICITY OF ANTI-CANCER TREATMENT: A DISTINCTION WITH BROAD IMPLICATIONS

M.S. Ewer

Introduction
Cancer treatment-related cardiac dysfunction raises confusion with regard to adverse cardiac events and the initiation of interventions to protect the heart or delay the long-term treatment sequelae. The confusion stems in part due to the very different mechanisms that cause dysfunction attributable to different agents.

Objectives
To compare the well-known anthracyclines myocyte damage that may progress to cell death with events related to newer agents and to explore the relationship between hypertension and fluid retention as contributing factors that may trigger cardiac events.

Methods
We reviewed the mechanisms by which targeted agents cause cardiac dysfunction and endeavor to explain why these agents may be given for long periods of time without cardiac events, and why troponin release and cardiac dysfunction are reported occasionally. We scrutinized emerging evidence suggesting that targeted agents are not directly toxic to the myocyte.

Results
Results: Hypertension and fluid retention and interference with cell repair are factors in secondary cardiotoxicity. Increased oxidative stress related to increased afterload is seen with some agents.

Conclusions
Conclusions: Newer anti-cancer agents exert their injurious cardiotoxic effect through various indirect or secondary mechanisms. Secondary effects that have been identified include impaired cell repair, increased oxidative stress related to increased afterload, and fluid retention. Surveillance and intervention thresholds for cardiac dysfunction may be different for patients with secondary effects, and further research will be required to optimize treatment strategies. Agents under study may exhibit either primary or secondary effects; the distinction is highly relevant for both cardiologists and oncologists.

26-006-O

PATIENT SATISFACTION WITH CANCER-RELATED CARE: LANGUAGE-BASED DIFFERENTIAL ITEM FUNCTIONING.


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Introduction
Reliable assessment of satisfaction is an important dimension of quality of cancer-related care.

Objectives
To assess the impact of language-based (English vs. Spanish) differential item functioning (DIF) on rating of the 29 Patient Satisfaction with Cancer-related Care (PSCC) items.

Methods
Using language in which the PSCC was administered (English/Spanish) as grouping variable, we applied ordinal logistic regression analysis to determine DIF for the PSCC items in 1,067 English and 229 Spanish speakers, age 18 to 86 years. We used total scale score (TSS) and latent satisfaction estimate (LSE) as matching variable to test uniform, non-uniform, and total DIF for the PSCC items.

Results
Our analysis using TSS revealed uniform DIF for items 1, 3, 7, 13, 14, 15, 16, 17, 18, 19 of the PSCC. Overall, $\chi^2$ ranged between 3.957 and 29.546, $p$-values $<0.05$. Positive and significant regression coefficient suggested that English speakers reported higher satisfaction level on these items even at the same total score level. TSS-based non-uniform and total DIF were not evaluated because of missing data. Using LSE, treating missing data with mean substitution, we found significant uniform DIF for the same items, and non-uniform and total DIF for items 7 (regression coefficient of interaction (RCI) between latent satisfaction and language=0.518, SE=0.188, Wald=7.547, $p=0.006$; $\chi^2=25.594$, df=2, $p=0.000$) and 14 (RCI between latent satisfaction and language=0.392, SE=0.198, Wald=3.908, $p=0.048$; $\chi^2=14.856$, df=2, $p=0.001$). The interaction effect (latent satisfaction*language) was non-significant for other items ($p>0.05$).

Conclusions
Traditional methods of cross-cultural psychometric validation may not fully account for group differences.
ANTIANGIOGENIC-SPECIFIC ADVERSE EVENTS (AES) IN PATIENTS WITH NON-SMALL CELL LUNG CANCER (NSCLC) TREATED WITH NINTEDANIB (N) AND DOCETAXEL (D)


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7. Lung Cancer Unit, Meir Medical Center, Kfar Saba, Israel
8. Clinical Facility, Dnepropetrovsk City Hospital Medical Academy, Dnepropetrovsk, Ukraine
9. Shanghai Chest Hospital, Shanghai, China
10. Global Clinical Development, Boehringer Ingelheim Pharmaceuticals Inc., Ridgefield CT, USA
11. Global Pharmacovigilance, Boehringer Ingelheim Pharmaceuticals Inc., Ridgefield CT, USA
12. Biometrics and Data Management, Boehringer Ingelheim Pharma GmbH & Co. KG, Biberach, Germany
13. Oncology, Boehringer Ingelheim Pharma GmbH & Co. KG, Biberach, Germany
14. Department of Oncology, University of Turin, Turin, Italy
15. Department of Medical Oncology, Centre René Gauducheau, Nantes, France

Introduction

Antiangiogenic treatments, including mAbs and TKIs, have antitumour activity; however, use is partly limited by characteristic AEs (eg, bleeding, thrombosis, perforation, serious skin reactions, hypertension). N (Vargatef®), a triple angiokinase inhibitor, is approved in the EU in combination with D for treatment of patients with NSCLC of adenocarcinoma histology after first-line chemotherapy.

Objectives

To extend investigation of LUME-Lung 1 (NCT00805194) and evaluate whether adding N to standard second-line D increases the frequency of antiangiogenic-associated AEs and whether these AEs restrict N use.

Methods

LUME-Lung 1, a randomised, placebo-controlled Phase III trial investigating second-line N + D in advanced NSCLC, demonstrated significant PFS improvement regardless of histology and significant survival improvement for patients with adenocarcinoma histology. Incidence and intensity of antiangiogenic-associated AEs according to CTCAE v3.0 were evaluated in patients who received ≥1 dose of N, D, or Placebo (Pl).

Results

AES linked to VEGF inhibition more common (≥2 % difference) in the N vs Pl arm were bleeding and hypertension (Table). Nominal differences were observed when comparing histologic differences in antiangiogenic-associated AEs. More bleeding events were reported for N-treated squamous cell carcinoma (SCC) patients than for those with adenocarcinoma. Fatal bleeding events, serious skin reactions, thrombosis, and perforations occurred at low frequency and were balanced between arms regardless of histology.

Conclusions

Adding N to standard second-line D for NSCLC therapy did not increase the frequency of antiangiogenic-associated AEs to a relevant extent, except for grade 1–2 bleeding events in SCC patients. AEs were balanced regardless of histology in LUME-Lung 1.
Introduction
Adjuvant radiotherapy reduces the risk of recurrence and death for early-stage breast cancer. However, dose to the heart should be considered since recent data suggest an increasing risk of ischemic heart disease with increasing dose to the heart. Conduction abnormalities have been reported after mediastinal radiation for Hodgkin’s disease, but the risk of conduction disorders and arrhythmias does not appear to be increased subsequent to breast cancer radiotherapy. Such conduction abnormalities constitute a quite heterogeneous group covering mild as well as severe disorders.

Objectives
The aim of this study was to examine the risk of severe conduction abnormalities evaluated by implantation of a pacemaker, subsequent to breast cancer radiotherapy.

Methods
From the database of the Danish Breast Cancer Collaborative Group, we identified women treated with radiotherapy for early-stage breast cancer in Denmark from 1982 to 2005. By record linkage to the Danish Pacemaker and ICD Registry information was retrieved on pacemaker implants subsequent to radiotherapy. Rate ratios (RR) of pacemaker implantation for left versus right sided breast cancer were calculated.

Results
Among 18,308 women treated with radiotherapy for early-stage breast cancer, 179 women had a pacemaker implanted subsequent to radiotherapy, 90 in 9,315 left sided and 89 in 8,993 right sided breast cancers. The unadjusted RR was 1.02 (0.76-1.36 95 % CI, p=0.71) and the RR adjusted for year, age and time since diagnosis was 1.06 (0.79-1.42 95 % CI, p=0.71).

Conclusions
Adjuvant radiotherapy as practiced in Denmark for early-stage breast cancer does not increase the risk of severe conduction abnormalities in the heart.

ERRARE HUMANUM EST, NOT ONLY… A REVIEW OF ERRORS DUE TO COMPUTERIZED PHYSICIAN ORDER ENTRY (CPOE)

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2Supportive Care Department, Centre Oscar Lambret, Lille, France

Introduction
Prescription computerization is an undeniable step forward in terms of security. It can significantly reduce the errors associated with handwritten prescriptions. However these new practices are the source of new risks associated with interactions between humans and computers.

Objectives
The aim of our study was to identify and quantify these risks in our institution.

Methods
We analyzed the pharmaceutical interventions performed in DxCare® software (MEDASYS) over a period of 15 months. We then ranked the interventions according to error types.

Results
Over the study period, 48,551 prescription lines were analyzed. 3,139 pharmaceutical interventions were performed (6.5 % of prescription lines). Among these interventions, 971 (31 %) were identified as related to computerization. The main errors were identified: prescription unit errors (n=561), wrong administration procedures (n=147), duplicate prescriptions (n=143), wrong medication prescriptions (n=37), incomplete doses (n=31), inappropriate use of software features (n=29) and at last, inadequate dosage at the prescribed dose (n=23). The root causes of these errors can be related to a defect in software design, a lack of user training or a reluctance to use computers.

Conclusions
Our analysis has highlighted that computer-related errors could not and should not be overlooked. Optimizing software parameters and layout...
Introduction

Palliation of symptomatic pleural effusions in outpatients with metastatic breast or ovarian carcinoma with intra-pleural instillation of the trifunctional antibiotic catumaxomab

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1Gynecologic Oncology, Gynecologic Center Bonn-Friedensplatz, Bonn, Germany
2Molecular Pathology, Institute of Pathology Bonn-Duisdorf, Bonn, Germany
3General Gynecology and Obstetrics, Gynecologic Center Bonn-Friedensplatz, Bonn, Germany

Introduction

Pleural effusion (PE) is a frequent complication of various advanced epithelial malignancies.

Objectives

This report compiles our single-institution experience with intra-pleural (IPL) CATU instillation in outpatients suffering from PE due to metastatic breast (MBC) or recurrent ovarian cancer (ROC).

Methods

12 patients (pts) were included (MBC, 7; ROC, 5). In 11 pts, CATU was given as a 50 µg IPL single-shot. In 1 pt, CATU was administered over 2 weeks via an IPL catheter according at 4 increasing doses (10, 20, 50, 150 µg). Toxicities were scored according to the CTCAE 4.0 scale. Puncture-free survival (PuFS) was calculated from start of IPL CATU until the next puncture due to PE, death or loss to follow-up whatever occurred first. Overall survival (OS) was calculated from start of CATU until death from any reason or loss to follow-up.

Results

IPL CATU was well tolerated. Toxicities (fever, dyspnea, hypotension, fatigue) did not exceed CTCAE G2 except in 1 pt. In 3 only pts (25 %), re-puncture due to PE was necessary, one of them requiring a second 50 µg CATU instillation. In 10 pts, PE was completely controlled by IPL CATU for a maximum of 601 days. Median PuFS was 112 and median OS was 134 days. 8 pts (66.7 %) were able to undergo subsequent systemic treatments. 4 pts are still alive and free from puncture for a maximum of 601+ days.

Conclusions

IPL CATU is a low-toxic and highly effective PE treatment in outpatients with pretreated MBC and ROC.

26-013-P

Totally implantable central venous access device for patients with hematological malignancy

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2Hematology, Fujita Health University Hospital, Toyoake, Japan
3Radiology, Fujita Health University Hospital, Toyoake, Japan

Introduction

Recently, totally implantable central venous access devices (ports) have been widely used in patients with cancer. However, there are no reports focusing on their clinical relevance in hematological malignancy.

Objectives

To assess the safety and efficacy of ports implanted in patients with hematological malignancy.

Methods

We retrospectively reviewed 182 patients with hematological malignancies who had undergone port implantation at our institution between August 2007 and December 2013.

Results

The median age at the time of port implantation was 64 years (range, 19–91 years). The median duration of port use was 354 days. Types of underlying hematological malignancies included malignant lymphoma (44 %), acute leukemia (34 %) and other hematological disease (22 %). Perioperative complications occurred in 20 patients (10 %): subcutaneous hematoma (5 %), pneumothorax (3 %) and others (2 %). Complications during the use of ports included port-related skin infection (9 %) and persistent pain (2 %). Eight ports were removed due to complications (4 %) including infection (5 patients), port occlusion (2 patients) and persistent pain (1 patient). Low neutrophil count (<500/µl) at the time of port implantation was significantly correlated with a higher incidence of port-related infection (p=0.02) in patients who did not receive prophylactic antibiotics, but it did not correlate with patients who received those antibiotics (p=0.40).

Conclusions

Port use for patients with hematological malignancies is safe and effective with low complication rates, but infections remain the leading cause of port loss. Prophylactic antibiotic use is likely to prevent catheter-related infection in patients with low neutrophil counts.

26-014-P

In-patient supportive care unit in oncology: a four year assessment (2011–2014)

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6Ethics Department, Paris Descartes University, Paris, France

Introduction

An 8 beds in-patient unit for supportive care in oncology (USSO) was created in 2011 at the Georges Pompidou European University Hospital to improve patient care management during their cancer treatment.

Objectives

A yearly evaluation was conducted to monitor the unit’s activity.
Methods
An observational study was performed in the unit from January 1, 2011 - December 31, 2014

Results
A total of 923 patients were included in the study. A majority of patients (65 %) came directly from home. The predominant diseases observed were head and neck cancer 40.2 % and lung cancer 23.7 %. The main reasons for hospitalization were bad performance status 29.8 %, pain 13 %, invasive procedures 13.9 %. In USSO, an Multidisciplinary approach remains the cornerstone of treatment with a daily collaboration of dieticians, psychologists, physiotherapists, and the palliative care team. Based on this policy, the patient’s average length of stay was reduced to 8.3 days for an occupancy rate of 100 %. Finally, 60 % of the patients were discharged home. A total of 11.1 % patients were transferred to a recovery unit and 12.4 % to a palliative care unit.

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of stays</td>
<td>158</td>
<td>192</td>
<td>244</td>
<td>329</td>
<td>923</td>
</tr>
<tr>
<td>Home admissions (%)</td>
<td>59.4</td>
<td>64</td>
<td>67.6</td>
<td>69.3</td>
<td></td>
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<tr>
<td>Emergency admissions (%)</td>
<td>17.7</td>
<td>8.3</td>
<td>6.5</td>
<td>6.4</td>
<td></td>
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<tr>
<td>Home discharge (%)</td>
<td>51.8</td>
<td>60</td>
<td>61</td>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

Conclusions
With the development of an interdisciplinary strategy and by anticipating admissions at an early stage of the disease or treatment complications, we greatly amended patient management. These positive results improve the supportive care organization but also the patient’s quality of life.

26-015-P

TRAJECTORY OF SYMPTOMS IN HEAD AND NECK CANCER (HNC) PATIENTS TREATED WITH MULTI-MODALITY THERAPY: SECONDARY ANALYSIS OF A LONGITUDINAL, PROSPECTIVE STUDY ON LYMPHEDEMA/FIBROSIS (R01 CA149113-01A1)

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Introduction
Assessment of acute and late effects from HNC therapy has not been directed by a clear understanding of symptom frequency and trajectory.

Objectives
1) Describe the trajectory of symptoms across time; 2) Identify symptoms that remain problematic in long-term survivors; and 3) Explore more sensitive methods of reporting late-effect.

Methods
96 patients with locally advanced HNC planned for chemoradiation were enrolled. Symptoms were assessed at baseline, end-of-treatment, every six week during the first year of follow-up, and two times during the second year, using the Vanderbilt Head and Neck Symptom Survey subscales (50-item tool with 10 subscales and 3 single items).

Results
Symptoms could be categorized based on recovery trajectories. Type 1 symptoms (eg: mouth pain) resolved at a moderate pace to near normal levels. Type 2 symptoms resolved at a moderate pace to near normal levels. High residual symptom burden is noted for a small cohort. Type 3 symptoms (eg: xerostomia) recover slowly and to an incomplete degree. Type 2 and 3 symptoms may need to be evaluated long term. Average subscale score was less sensitive than maximum item scores for identifying clinically meaningful late symptom burden.

Conclusions
Symptoms screening is critical for optimal supportive care. To be effective, screening content should be based on the frequency and severity of target symptoms along the trajectory. Our results: 1) highlight symptoms that should be followed closely as part of long term follow-up; and 2) propose methods that optimize capture and reporting of late symptoms.

26-016-P

ATTITUDES AND BELIEFS TOWARD SUPPORTIVE AND PALLIATIVE CARE REFERRAL AMONG HEMATOLOGIC AND SOLID TUMOR ONCOLOGY SPECIALISTS

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Introduction
Palliative care referrals are often delayed, particularly in patients with hematologic malignancies.

Objectives
We conducted a survey to examine the differences in attitudes and beliefs toward supportive/palliative care referral between hematologic and solid tumor specialists.

Methods
We randomly surveyed 120 hematologic and 120 solid tumor oncology specialists at MD Anderson Cancer Center. Respondents completed a survey examining their attitudes and beliefs toward referral to “Palliative Care” and “supportive care”.

Results
182/240 (76 %) specialists responded. Compared to solid tumor specialists, hematologic specialists were less likely to report that they would refer symptomatic patients with newly diagnosed cancer to “Palliative Care” (21 % vs. 43 %, P=0.002). Both groups of specialists reported that they were more likely to refer patients to the service name “Supportive Care” instead of “Palliative Care” (hematology specialists: 66 % vs 21 %, P)

Introduction
We developed a web-based tool to help oncologists estimate and explain best-case, typical, and worst-case scenarios for survival time in patients with advanced cancer.

Objectives
We sought the attitudes of patients, their family members (FM), and health professionals (HP) to receiving prognostic information in this format.

Methods
Whenever a patient with advanced cancer sought quantitative prognostic information, the oncologist estimated the ‘median survival of a group of similar patients’ and used the tool to calculate ranges for the 3 scenarios.
PATIENTS? XELODA FOR HER2 NEGATIVE BREAST CANCER PHASE 2 XENA TRIAL COMBINING Navelbine Oral AND IS METRONOMIC CHEMOTHERAPY LESS TOXIC THAN

Conclusions
Over 80 % of patients, FM and HP found it helpful to receive personalized information about life expectancy formatted as 3 scenarios for survival time.

Results
121 patients of 21 oncologists completed questionnaires. Responses to the attitudes questionnaires are tabulated. Most patients agreed that being told each scenario was helpful: best-case (92 %), typical (86 %) and worst-case (82 %). The prognosis was considered “about the same as expected” by 46 % of patients, “better than expected” by 30 % and “worse than expected” by 25 %. Most HP (83 %) agreed it would be helpful to receive similar prognostic information for their other advanced cancer patients.

Number of completed questionnaires

<table>
<thead>
<tr>
<th>Patient</th>
<th>FM</th>
<th>HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>121</td>
<td>84</td>
<td>113</td>
</tr>
</tbody>
</table>

Having life expectancy explained this way:

- was helpful %
- made sense
- improved my understanding
- was reassuring
- gave hope
- was upsetting
- helps with management decisions

71

Conclusions
Frequency of all grades of adverse events is reduced in the metronomic treatment arm. Especially important is a reduction in grade 3 and 4 toxicities, but also a reduced frequency of the grade 1–2 is seen. The combined treatment in both treatment arms are tolerated with acceptable side effects. Response and the prognostic value of circulating tumor cells will be evaluated later.

26-018-P

USE OF CANNABIS AND OTHER COMPLEMENTARY/ALTERNATIVE TREATMENTS AMONG DANISH CANCER PATIENTS

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Introduction
The use of alternative treatment among cancer patients is common. Cannabis is sometimes used for treatment of cancer-related symptoms, but its use is still illegal in many countries, including Denmark.

Objectives
To determine the use of and attitudes towards alternative treatment with a focus on cannabis use among Danish cancer patients.

Methods
An anonymous questionnaire was developed. A pilot study (n=20) was performed and the results were used to improve the final questionnaire that was offered to 500 cancer patients attending the outpatient clinic over a 2-week period in January 2015.

Results
Of the 520 questionnaires handed out 480 (92 %) were answered and returned. Median age was 64 years (range 26–86), 59 % were female, and 72 % were currently receiving treatment. Seventy-seven (16 %) were currently using alternative treatment and 31 (6.5 %) had used cannabis after their cancer diagnosis. Patients using cannabis were younger than non-users (median 60 vs. 65 years, p<0.01) and most used cannabis in an oral form. The majority of the cannabis-users used the substance to treat survival time based on this estimate. Oncologists explained the information to patients and their FM using standardized oral and printed formats, and a printed summary was sent to other HP involved in the patient’s care. Patients, FM and HP completed questionnaires about their attitudes to receiving this information.

Results
121 patients of 21 oncologists completed questionnaires. Responses to the attitudes questionnaires are tabulated. Most patients agreed that being told each scenario was helpful: best-case (92 %), typical (86 %) and worst-case (82 %). The prognosis was considered “about the same as expected” by 46 % of patients, “better than expected” by 30 % and “worse than expected” by 25 %. Most HP (83 %) agreed it would be helpful to receive similar prognostic information for their other advanced cancer patients.

Conclusions
Over 80 % of patients, FM and HP found it helpful to receive personalized information about life expectancy formatted as 3 scenarios for survival time.

26-017-P

IS METRONOMIC CHEMOTHERAPY LESS TOXIC THAN CONVENTIONAL CHEMOTHERAPY IN THE RANDOMIZED PHASE 2 XENA TRIAL COMBINING Navelbine Oral AND XELODA FOR HER2 NEGATIVE BREAST CANCER PATIENTS?


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Introduction
Treatments fulfilling the criteria of: disease control, minimal toxicity and minimal disturbance of everyday life are desirable in the treatment of metastatic breast cancer.

Objectives
We will test metronomic treatment with Navelbine Oral in a randomized setting combined with standard Xeloda treatment in the XeNa phase 2 trial with Clinical Trials.gov identifier number: NCT0141771.

<table>
<thead>
<tr>
<th>Adverse event</th>
<th>Standard arm (events)</th>
<th>Metronomic arm (events)</th>
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</thead>
<tbody>
<tr>
<td>Grade 1</td>
<td>288</td>
<td>229</td>
</tr>
<tr>
<td>Grade 2</td>
<td>129</td>
<td>84</td>
</tr>
<tr>
<td>Grade 3</td>
<td>42</td>
<td>37</td>
</tr>
<tr>
<td>Grade 4</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>470</td>
<td>353</td>
</tr>
</tbody>
</table>

Conclusions
Inclusion of 120 metastatic or locally advanced HER2 negative breast cancer patients. Randomization are between Navelbine Oral 60 mg/m2 day 1–day 8 in the first cycle followed by 80 mg/m2/day 1–day 8 in the following cycles or continues Navelbine Oral 50 mg three times a week. Xeloda 1000 mg/m2 twice a day, day 1–14 are administered in both arms.
disease-related symptoms or toxicity from chemotherapy/radiation. Approximately half of all responding patients were willing to try cannabis during their disease if it became legal.

Conclusions
Complimentary/alternative treatment was used by 16% of cancer patients attending the outpatient clinic. Among these, cannabis was used by more than a third in a country where the substance is illegal. Half of the responding patients were willing to try cannabis as a supportive cancer treatment if the drug became legal.

26-019-P
INCORPORATING VALIDATED MEASURES FOR PATIENT-REPORTED OUTCOMES IN CLINICAL PRACTICE
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2 Radiation Oncology, Mayo Clinic, Scottsdale, USA
3 Oncology, Mayo Clinic, Rochester, USA

Introduction
Patient-reported outcomes (PROs) reflect the subjective experience of the patient with respect to their well-being and quality of life. Historically there have been barriers to routine assessment of PROs, including methodological challenges and clinical realities.

Objectives
This paper presents three approaches that have capitalized on clinical realities and technological advances to integrate patient-reported outcomes (PROs) into an improved case management approach to health care.

Methods
Three clinical practice implementations were tested:
1) Screening via single-item quality of life (QOL) measures to identifying patients in need of supportive care.
2) Systematic monitoring of key QOL domains and pathways for QOL deficit management.
3) Identifying key QOL patient concerns and matching resources to improve PROs.

Results
System 1) Over 30,000 individual clinical visits have incorporated single item measures of overall QOL, pain, and fatigue. Up to 50% of patients reported QOL deficits and had clinical interventions or treatment modified as a result.
System 2) 148 patients receiving radiotherapy involved in a pilot of a 12-item QOL monitoring system reported improvements in pain, fatigue, mental well-being and emotional well-being over the course of treatment.
System 3) Pilot testing in three palliative care units identified the most important concern among the majority of 50 patients and initiated targeted case management to address concerns which would otherwise have gone unnoticed.

Conclusions
Empirical data from the three systems indicate that PROs are prognostic for patient survival and can have profound impact on the course and success of treatment.

26-020-P
VERTEBRAL FRACTURES IN LOCALLY ADVANCED NSCLC PATIENTS TREATED WITH RADICAL IMRT
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Introduction
Little is known about late toxicity of radical radiotherapy (RT) for locally advanced non-small cell lung cancer (NSCLC). Since survival is slowly increasing however, we learn more about this phenomena. One of the late toxicities identified in our patient cohort is the vertebral fracture, leading to symptoms and an impaired health related quality of life.

Objectives
To report on the incidence of vertebral fractures and its association with the RT dose to the vertebra.

Methods
Patient-reported outcomes (PROs) into an improved case management approach to health care.

Results
Three hundred and thirty six patients were eligible for analyses. Twenty-eight patients (8%) suffered from fractures of the thoracic vertebra. Age was significantly higher in the group with VF (p=0.01), and post-menopausal female was borderline associated with VF (p=0.07). However, after balancing age and menopausal status, the percentage of volume that was prescribed with $\geq$ Gy (Vx) and the equivalent uniform dose (EUD) were significantly associated with fractures of the vertebrae (p<0.01).

Conclusions
A dose response relation between dose of IMRT and the occurrence of thoracic vertebral fractures was established in patients with NSCLC. Dose modifications are to be discussed.

26-021-P
SURVIVORSHIP CARE FOR PEOPLE WITH COLORECTAL CANCER IN AUSTRALIA: A POPULATION-BASED SURVEY
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2 University of Sydney Sydney NSW Australia, Cancer Epidemiology and Cancer Services Research (CESR) Sydney School of Public Health, Sydney, Australia
3 University of Sydney Sydney NSW Australia, Discipline of Surgery, Sydney, Australia

Introduction
Survivorship care includes surveillance for recurrent and new cancers, management of treatment side-effects and secondary prevention. Colorectal cancer is the second most prevalent cancer worldwide, with over 3.5 million survivors alive 5 years post-diagnosis, yet evidence about effective and cost-effective survivorship care for this patient group remains elusive.

Objectives
To investigate survivorship care received and recommended among a population-based sample of colorectal cancer survivors across New South Wales (NSW).

Methods
Mailed survey of patients with colorectal cancer who were notified to the NSW Central Cancer Registry between 29 November 2012 and 31 May 2013. Patients completed questionnaires at baseline and 12 months, with questions about survivorship care included in the follow-up survey.

Results
Of 1027 patients contacted, 560 participated (55%) at baseline and 484 (86% of baseline participants, 47% of invited sample) at 12 months.
Most were being followed up by a surgeon (80 %) or a general practitioner (71 %) with a substantial proportion attending numerous health professionals. Only 23 % had received a written survivorship care plan, with this more common among migrants, non-urban dwellers and those with little experience of the health system. Guideline-concordant surveillance investigations were reported by less than half and were more common among those with private health insurance. While patients reported high interest in improving general health and lifestyle since their cancer diagnosis, few had received advice about screening for other cancers or assistance with issues such as diet and physical activity.

Conclusions
Survivorship care is highly variable, with missed opportunities for health promotion.

26-022-P

EVALUATION OF PACLITAXEL HYPERSENSITIVITY REACTIONS (HSRS) FOLLOWING THE DISCONTINUATION OF PROPHYLACTIC PRE-MEDICATIONS

P. Ng1, C. Meyer2, C. Raymond3, E. Amir4, R. Lee1, H. Mackay2, A. Oza4, D. Warr4

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2Pharmacy, University Health Network–Toronto General Hospital, Toronto, Canada
3Medical Oncology and Hematology, University Health Network–Princess Margaret Cancer Center, Toronto, Canada

Introduction
Paclitaxel administration is associated with hypersensitivity reactions (HSRs). Such reactions are infrequent beyond the second dose. Pre-medications (corticosteroids and anti-histamines) are administered to reduce HSR risk, but are associated with adverse effects and longer visit time. It is unclear if pre-medications are needed beyond the second dose.

Objectives
Pre-medications were discontinued for patients receiving paclitaxel beyond the second dose. This practice change was evaluated and we hypothesize that HSR rate is unlikely to increase.

Methods
Charts were reviewed retrospectively to determine HSR rate. Inclusion criteria: patients who received paclitaxel and did not have HSRs during the first two doses. Surveys were administered to patients receiving weekly paclitaxel to evaluate patient preference. Time required to administer pre-medications was also estimated. Institutional review board has approved this study; individual consent waived because study is retrospective.

Results
Of 187 patients who met the inclusion criteria, 77 received weekly paclitaxel, seven received dose-dense paclitaxel every two weeks and 103 received paclitaxel every three weeks. Non-severe HSR rate was 1.80 % in patients who received paclitaxel + platinum and 2.63 % in those who received paclitaxel +/- trastuzumab. Omitting pre-medications saved approximately 90 minutes of chair time per patient (per clinic visit). 86.9 % of patients who returned the surveys preferred treatment without pre-medications compared to their first two doses with pre-medications.

Conclusions
Discontinuation of paclitaxel pre-medications is a feasible option if a patient has not experienced an HSR during the first two paclitaxel doses. Omission of pre-medications has also resulted in substantial savings in chair time.

26-023-P

ATTITUDES OF PATIENTS WITH ADVANCED CANCER, THEIR FAMILY MEMBERS, AND OTHER HEALTH PROFESSIONALS TO RECEIVING PERSONALISED INFORMATION ABOUT LIFE EXPECTANCY FORMATTED AS THREE SCENARIOS

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2Medical Oncology, Chris O’Brien Lifehouse, Sydney, Australia
3Medical Oncology, Central West Cancer Service, Orange, Australia
4Medical Oncology, Nambour General Hospital, Nambour, Australia

Introduction
We developed a web-based tool to help oncologists estimate and explain best-case, typical, and worst-case scenarios for survival time in patients with advanced cancer.

Objectives
We sought the attitudes of patients, their family members (FM), and health professionals (HP) to receiving prognostic information in this format.

Methods
Whenever a patient with advanced cancer sought quantitative prognostic information, the oncologist estimated the ‘median survival of a group of similar patients’ and used the tool to calculate ranges for the 3 scenarios for survival time based on this estimate. Oncologists explained the information to patients and their FM using standardized oral and printed formats, and a printed summary was sent to other HP involved in the patient’s care. Patients, FM and HP completed questionnaires about their attitudes to receiving this information.

Results
One hundred twenty-one patients of 21 oncologists completed questionnaires. Responses to the attitudes questionnaires are tabulated. Most patients agreed that being told each scenario was helpful: best-case (92 %), typical (86 %) and worst-case (82 %). The prognosis was considered “about the same as expected” by 46 % of patients, “better than expected” by 30 % and “worse than expected” by 25 %. Most HP (83 %) agreed it would be helpful to receive similar prognostic information for their other advanced cancer patients.

<table>
<thead>
<tr>
<th>Number of completed questionnaires</th>
<th>Patient</th>
<th>FM</th>
<th>HP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>121</td>
<td>84</td>
<td>113</td>
</tr>
<tr>
<td>Having life expectancy explained this way:</td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was helpful</td>
<td>88</td>
<td>89</td>
<td>83</td>
</tr>
<tr>
<td>Made sense</td>
<td>95</td>
<td>95</td>
<td>93</td>
</tr>
<tr>
<td>Improved my understanding</td>
<td>89</td>
<td>83</td>
<td>80</td>
</tr>
<tr>
<td>Was reassuring</td>
<td>61</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Gave hope</td>
<td>54</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>Was upsetting</td>
<td>46</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>Helps with management decisions</td>
<td>71</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conclusions
Over 80 % of patients, FM and HP found it helpful to receive personalized information about life expectancy formatted as 3 scenarios for survival time.
26-024-P

DANISH AND AUSTRALIAN FAMILIES HAVE THE SAME SUPPORTIVE CARE NEEDS DURING CANCER TREATMENT – AN INTERNATIONAL STUDY

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Introduction
Family has a strong influence on the health of individuals, providing support in a health crisis such as cancer. However, family functioning and supportive needs may vary across culture and settings.

Objectives
This study investigated the needs of adult oncology patients and their relatives in Denmark and Australia. Furthermore, how nurses best meet their needs.

Methods
A descriptive, cross sectional design explored the supportive needs and relationship with the nurses. Patients and family members from Odense University Hospital Oncology Unit in Denmark and Gold Coast Hospital Oncology Unit in Australia were recruited. The survey included the ICE Expressive Family Functioning Questionnaire (ICE-EFFQ), and the ICE Family Perceived Support Questionnaire (ICE-FPSQ).

Results
In total 232 participants were recruited; Danish patients n=56, Danish family members n=54, Australian patients n=83, Australian family members n=39. Mean age 59 years. Cancer types were breast 22 %, lung 13 %, colon 17 %, haematological 14 %, others including prostate and stomach 34 %. There were strong correlations between all scales. Significant differences were identified between patients and family member across the scales, with the family members scoring lower.

Conclusions
Minimal differences were found between Danish and Australian families suffering from cancer regarding family functioning, and perceived support from nurses. Particularly emotional needs of the female family members were not met. The study highlighted the needs of the family for more support; however this supportive care information may be shared within the two countries.

26-025-P

A PHASE III OPEN LABEL RANDOMIZED CONTROLLED TRIAL OF YOGA IN WOMEN WITH BREAST CANCER UNDERGOING RADIOTHERAPY

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1Radiotheraphy, Acharya Tulsi Regional Cancer Treatment and Research Center, Bikaner, India
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Introduction
Yoga has proved to be useful adjunct in breast cancer patients undergoing radiotherapy (XRT). Improved quality of life (QOL) is the most important outcome associated when relaxation techniques such as yoga are incorporated in cancer patients.

Objectives
We conducted a randomized controlled trial comparing breast cancer patients undergoing XRT along with yoga versus no adjunct treatment.

Methods
Patients with stages I to III breast cancer were randomized before starting XRT to undergo adjunctive treatment in the form of yoga (n=103) or no other adjunctive treatment (NAT, n=104) four times a week for 6 weeks during XRT. EORTC breast cancer-specific quality of life questionnaire (EORTC QLQ-BR23 in local language) was used to collect data at baseline, end of treatment, and 1, 3, and 6 months later.

Results
The reliability and validity of the English and translated versions of the questionnaires were tested by Cronbach alpha (0.61–0.96) and item-scale correlation (0.63–0.93). The yoga group had significantly improvement in QOL scores as compared with the NAT group at 1 and 3 months after XRT (P=0.01 and P=0.03). At 1, 3, and 6 months, the yoga group had greater improvements in physical functioning compared with NAT group (P=0.03).

Conclusions
The translated versions of EORTC QLQ-BR23 were found to be valid for further use in clinical trials on Indian women with breast cancer. Yoga improved QOL and physiological changes associated with XRT and these benefits appear to have long-term durability.

26-026-P

SHOULD ONCOLOGY NURSES ROUTINELY CHECK VITAL SIGNS PRIOR TO INTRAVENOUS CHEMOTHERAPY? RESULTS FROM A TWO-CENTER STUDY OF 1000+ PATIENTS

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2Biomedical Statistics, Mayo Clinic, Rochester, USA
3Medical Oncology, Mayo Clinic, Rochester, USA

Introduction
The American Society of Clinical Oncology and the Oncology Nursing Society recently issued a guideline that states vital signs should be routinely checked on the day of intravenous cancer chemotherapy administration.

Objectives
This study sought evidence to justify this approach.

Methods
This study focused on consecutive cancer patients from two institutions and evaluated outcomes during the first cycle of gemcitabine-based chemotherapy.

Results
A total of 1158 patient medical records were reviewed; vital signs were checked in 589 patients on day 1 and in 486 on day 8. A total of 148 patients (12.8 %) were evaluated in the emergency department, 145 (12.5 %) were hospitalized, and 41 (9.9 %) died during their first cycle of chemotherapy. In multivariate analyses, which were adjusted for age, gender, cancer type, role of chemotherapy (for example, adjuvant), number of chemotherapy drugs administered on day 1, and institution, checking vital signs on day 1 was associated with either higher rates of emergency department visits or with increased hospitalization. Ironically, in multivariate analyses, checking vital signs on day 8 was
associated with higher rates of emergency department visits (odds ratio: 3.71 (95% CI: 2.18, 6.22); p<0.0001) and higher rates of hospitalizations (odds ratio: 3.98 (95% CI: 2.34, 6.73); p<0.0001).

Conclusions
This study questions the role of routinely checking vital signs prior to the administration of intravenous chemotherapy and calls for further evidence-based data to support this clinical practice.

26-027-P

DETERMINATION OF HOPE - HOPELESSNESS LEVELS AND CONTINUOUS ANGER AND ANGER EXPRESSION STYLES OF ONCOLOGY NURSES

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Introduction
The anger expression styles of nurses and their hopelessness levels indicating their prudential pessimism levels, cause exhaustion to appear and accordingly cause low work performance and negative attitude towards work and as a result effect the care quality to oncology patients negatively.

Objectives
This study was made descriptively in order to to determine the hopelessness levels and continuous anger and anger expression styles of oncology nurses.

Methods
This research was performed between 28/10/2014 - 30/11/2014 with the participation of 144 oncology nurses working in oncology units in city of Samsun. The data was collected by a survey form consisting of 14 questions and by Continuous Anger and Anger Expression Style Scale and Beck Hopelessness Scale.

Results
It was determined that the Beck Hopelessness point average of nurses was detected as 6.9±1.4, their continuous anger level point average was detected as 18.5±4.0, controlled anger sub dimension average of anger style scale was detected as 19.4±4.6, externalised anger sub dimension point average was detected as 14.6±3.7, suppressed anger point average was detected as 14.8±3.4. The relation between some socio-demographic and professional properties of nurses and their scale sub group point averages were found to be statistically significant.

Conclusions
It was determined that the prudential emotions, expectations and hopes of nurses are high, that their motivational losses are low, that their anger externalisation and anger repression point averages are close to each other, that they control their anger in their relations with others to a large extent.

26-028-P

SOCIAL INEQUALITY IN CONTINUOUS TOBACCO USE WHEN TREATED WITH RADIOTHERAPY - A CLINICAL COHORT STUDY OF DANISH LARYNGEAL CANCER PATIENTS IN 2000–2010.

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Introduction
Tobacco smoking impose a poor prognosis on cancer patients either from reduced treatment response, new primary cancers, or other tobacco-related diseases. Predictors of continuous smoking during radiotherapy have only been investigated in small samples with inconsistent results.

Objectives
In this study we conducted analyses to identify predictors of being continuously smoking during and after radiotherapy with a specific focus on the socio-economic predictors.

Methods
In the clinical database of the Danish Head and Neck Cancer Group (DAHANCA), we identified 1,455 Danish laryngeal cancer patients, all smokers at date of diagnosis and treated with primary radiotherapy in 2000–2010. Socio-economic characteristics were obtained from Statistics Denmark the year prior to diagnosis. Logistic regression analyses were applied.

Results
Having a low income [OR 2.21, 95% CI(1.23–3.98)], living alone [OR 1.56, 95% CI(1.13–2.14)], having a poor WHO performance status when diagnosed with cancer [OR 3.09, 95% CI(1.71–5.61)] or commenced smoking before age 15 [OR 1.77, 95% CI(1.32–2.38)] were associated with an increased risk of continuous smoking behavior during and two months post radiotherapy. Similar findings were found one year after radiotherapy, however, no association with living alone [OR 1.08]. Continuous smoking behavior was not related to the extent of disease or the average daily tobacco consumption.

Conclusions
Patients with laryngeal cancer having a low income, living alone, having a poor performance status and early smoking initiation were most likely to continue smoking during and after radiotherapy. Social inequality in continuous smoking behavior when treated with radiotherapy is a factor to be considered in future smoking interventions.

26-029-P

RADIATION THERAPIST RESEARCH - WHERE IS IT? A REVIEW OF PUBLISHED ABSTRACTS FROM ESTRO AND CARO MEETINGS FROM 2004 TO 2014

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Introduction
The roles, responsibilities and scopes of practice for radiation therapists (RTs) have expanded, however, RT research seems to be underrepresented at international radiation oncology meetings.

Objectives
Review meeting abstracts from the European Society for Radiotherapy and Oncology (ESTRO) and the Canadian Association of Radiation Oncology (CARO) to quantify and describe RT research.

Methods
We reviewed all published abstracts from the proceedings of the ESTRO General and Biennial Meetings and Forums and the CARO Annual
Scientific Meetings from 2004–2014 inclusive. Abstracts were selected if their main focus was the RT, or work conducted primarily for or by a RT.

**Results**

Of 14935 abstracts reviewed, only 75(0.5 %) were selected: 46/12254(0.4 %) from ESTRO and 29/2681(1.1 %) from CARO. The number selected per year ranged from 1 in 2004 to 24 in 2014 for ESTRO and from 0 in 2006 to 6 in 2005/2013 for CARO. 65 % of selected ESTRO abstracts were from 2013/2014. Subject matter themes identified were: Education [ESTRO:21/46(46 %), CARO:4/29(14 %)], Clinical Applications [ESTRO:12/46(26 %), CARO:14/29(48 %)], Role Definition [ESTRO:8/46(17 %), CARO:11/29(38 %)], Workplace Wellness [ESTRO:3/46(7 %)], Quality of Care [ESTRO:2/46(4 %)]. ESTRO meetings had a slightly more diverse range of themes.

**Conclusions**

The roles, responsibilities and scopes of practice for the RT are expanding but this progress is not well represented at ESTRO and CARO meetings, as only 0.5 % of published abstracts from 2004 to 2014 focused on the RT, or work conducted primarily for or by a RT. We anticipate that RT research will increase in the future.

**26-030-P**

**A PROGNOSTIC MODEL TO PREDICT SURVIVAL IN PATIENTS WITH CANCER AFTER PERCUTANEOUS NEPHROSTOMY TUBE INSERTION**

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**Objectives**

To identify prognostic factors in patients with malignant ureteric obstruction

**Methods**

A retrospective cross sectional study of cancer patients who had malignant urinary obstruction and received percutaneous nephrostomy tube insertion between January 2009 and December 2013 at a tertiary cancer center.

**Results**

211 patients were identified, 53.6 % males, 46.4 % females. Median survival was 5.05 months, 95 % CI (3.87-7.11). On univariate analysis, factors significantly associated with shorter survival were: bilateral hydronephrosis, low serum albumin <3 mg/dl, presence of metastasis, ascites, and pleural effusion (P value <0.05). Multivariate analysis by Cox proportional hazards regression model showed serum albumin <3 mg/dl, pleural effusion, bilateral hydronephrosis to be significantly associated with shorter survival (P value <0.05). Using these three factors we stratified patients into 3 prognostic groups: good—0 risk factors (39 patients), intermediate—1 risk factor (65) and poor—2 or 3 risk factors (107). Median survival in the good, intermediate and poor groups was 17.6 months, 6.03 months, and 2.33 months, respectively. The difference in the survival of the three prognostic groups was statistically significant (p <0.0001).

**Conclusions**

The presented prognostic model can be used to predict survival in patients with malignant ureteric obstruction. This may help in clinical decision making and patient counseling.

**26-031-P**

**LOW INCIDENCE OF NOSOCOMIAL INFECTIONS IN AN ONCOLOGY WARD**

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3 Department of Clinical Microbiology, University Hospital Odense, Odense, Denmark

**Introduction**

According to the existing data approximately one of ten patients is exposed to a nosocomial infection while they are hospitalized. The immune system of oncological patients is frequently weakened, and a higher incidence of nosocomial infections could therefore be expected in an oncology ward.

**Objectives**

To determine the incidence and type of nosocomial infections in an oncology ward.

**Methods**

A structured analysis of 771 patients which covered all hospitalizations during a 3 month period. The records were reviewed by applying the criteria, for specific type of infections, based upon definitions by the National Healthcare Safety Network at the US Centers for Disease Control and Prevention and modified to danish conditions by National Centre of Infection Control at Statens Serum Institut. The main focus was on pneumonia, bacteremia, urinary tract, diarrhea, and mouth.

**Results**

Twenty patients (2, 6 %) had a nosocomial infection (Table 1). One hundred twenty-one patients (15, 6 %) had an ongoing infection when admitted to the ward.

**Table 1: 22 nosocomial infections in 20 patients**

<table>
<thead>
<tr>
<th>Infection</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumonia</td>
<td>4</td>
</tr>
<tr>
<td>Bacteremia</td>
<td>1</td>
</tr>
<tr>
<td>Urinary tract</td>
<td>8</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>0</td>
</tr>
<tr>
<td>Mouth</td>
<td>9</td>
</tr>
</tbody>
</table>

**Conclusions**

The incidence of nosocomial infections in the oncology ward was lower than expected from previous studies. Our findings indicate that focus should be on urinary tract and mouth hygiene in order to achieve a further reduction. The risk of nosocomial infections has not previously been reported selectively from oncological wards, but the risk found in this study is lower than those previously reported from medical and surgical wards.

**26-032-P**

**COMORBIDITY PROGRESSION IN PATIENTS WITH MULTIPLE MYELOMA IN THE US**

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**Introduction**

Multiple myeloma (MM) patients often present with significant comorbidities, with worsening health status as disease progresses.

**Objectives**

This study examined the progression of comorbidities in MM patients using the most recent claims data in the US.
Methods
Adult patients with newly diagnosed MM (ICD-9-CM code 203.0x) in 7/1/2006 - 3/31/2014 who received ≥3 lines of MM therapy were extracted from MarketScan Databases. All patients had ≥6 months of continuous enrollment prior to the first MM diagnosis and were followed until the earliest of inpatient death or end of data. Charlson Comorbidity Index (CCI) and percentage of patients with individual comorbidities were examined during the 6 months prior to the initiation dates of first line (1 L), second line (2 L), and third line (3 L) of therapy, separately.

Results
A total of 1966 MM patients met the study criteria (mean age: 64.4 years, male: 55.3 %, commercial insurance: 54.4 %). CCI increased across lines of therapy: Mean CCI was 0.80 for 1 L, 0.87 for 2 L and 0.92 for 3 L; proportions of patients with CCI≥2 were 23.6 %, 25.7 %, and 26.7 % for 1 L, 2 L, and 3 L, respectively. During the 6-month prior to the start of 1 L, 2 L, and 3 L therapy, the percentages of patients with the conditions increased for the majority of comorbidities examined (Table).

Conclusions
Comorbidity conditions among patients with MM were prevalent and worsened as patients received additional lines of therapy, which adds to the complexity and cost of MM treatment. Novel treatment regimens with manageable safety profiles are needed to ensure treatment effectiveness.

Introduction
Active surveillance is a viable option for patients with early stage prostate cancer. Studies have suggested that cardiac comorbidities may play significant role in the prognosis of these patients.

Objectives
To describe the prevalence of cardiac comorbidities and severity in patients of clinically localized prostate cancer undergoing Active Surveillance.

Methods
228 patients with clinically localized prostate cancer (clinical stage (T1/ T2), prostate-specific antigen level (<10 ng/mL), Gleason score 7 or less), enrolled in a prospective cohort study of Active Surveillance between 2/1/ 2006-12/31/2008. Cardiac comorbidities/ severity index and overall comorbidity severity scores were obtained using Adult Comorbidity Evaluation 27 index.

Results
Overall comorbidity based on ACE-27 index showed that 51 patients (22.4 %) had moderate or severe comorbidities. Most common group of comorbidities were Cardio (65.8 %), Endocrine (13.6 %), Other Malignancies (9.6 %), Respiratory (5.6 %), and Neurological (3.9 %). Cardiac severity score was moderate or severe in 14 % of the patients. Table 1 lists the most common cardiac comorbidities and their severity.

Conclusions
Prevalence of cardiac comorbidities was high in patients undergoing Active Surveillance and may play a significant role in the morbidity and mortality of patients with localized disease. Further studies are ongoing we plan to determine the role of these comorbidities and their severity in long term morbidity and mortality.

26-033-P

CARDIAC COMORBIDITIES IN EARLY STAGE PROSTATE CANCER IN ACTIVE SURVEILLANCE

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Introduction
In Denmark, adjuvant chemotherapy for early breast cancer consists of six cycles of respectively Epirubicin, Cyclophosphamid and Docetaxel (EC/TAX). Because of the risk of febrile neutropenia it is standard to give Pegfilgrastim with Docetaxel. Many patients experience bone pain after this treatment, a pain that in some circumstances makes it necessary to reduce the dose of chemotherapy.

Objectives
To achieve greater knowledge about the course and identify risk factors to predict incidence, severity and duration of Pegfilgrastim-induced bone pain.

PATIENT’S SELF REPORTED QUESTIONNAIRE FOR BONE PAIN DURING ADJUVANT CHEMOTHERAPY WITH PEGFILGRASTIM FOR EARLY BREAST CANCER.

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Introduction
In Denmark, adjuvant chemotherapy for early breast cancer consists of six cycles of respectively Epirubicin, Cyclophosphamid and Docetaxel (EC/TAX). Because of the risk of febrile neutropenia it is standard to give Pegfilgrastim with Docetaxel. Many patients experience bone pain after this treatment, a pain that in some circumstances makes it necessary to reduce the dose of chemotherapy.

Objectives
To achieve greater knowledge about the course and identify risk factors to predict incidence, severity and duration of Pegfilgrastim-induced bone pain.
Methods
This study is conducted at Aarhus University Hospital recruiting patients receiving adjuvant EC/TAX. The patients are asked to fill out a questionnaire during each cycle. They have to grade the amount of pain and the effect on their social life and ability to walk daily the first 15 days after each treatment. Potential risk factors including participant age, BMI, and chemotherapeutic regime will be analyzed.

Results
The study is still ongoing but preliminary results shows that Pegfilgrastim-induced bone pain caused interventions in daily life and had a major impact for most of the women, sometimes so severe, that the treatment had to be interrupted.

Conclusions
For most women Pegfilgrastim-induced pain have a major impact on daily life. Our study shows that the problem of bone pain is more severe than expected. We expect that the knowledge achieved in this study can help predict which patients is in higher risk of severe pain, so we can help them better in the future.

26-035-P
ACUTE CARDIOVASCULAR COMPLICATIONS IN A CARDIO-ONCOLOGY UNIT

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Introduction
Prolonged survival have been achieved with advances in cancer treatment, but also more complications related to progression disease or secondary to treatment were seen. Due to the importance of cardiovascular (CV) complications in cancer patients, it have been developed specific cardiovascular care units in oncological institutions.

Objectives
To describe the causes of admission and clinical course of cancer patients hospitalized due to serious cardiovascular complications in a cardio-oncology unit (COU).

Methods
Observational, prospective study. Patients diagnosed with solid or hematological cancer, requiring admission to the COU between July 2011 and January 2014 in Alexander Fleming Institute, Buenos Aires, Argentina.

Results
A total of 74 patients were admitted. Median age 63 years (53 – 72). Male: 38 %. Primary tumours: lung 15 (20.3 %), breast 14 (18.9 %), hematologic 11 (14.8 %), gynecologic 8 (10.8 %), gastrointestinal 7 (9.5 %), prostate 2 (2.7 %), melanoma 2 (2.7 %), other cancer 15 (20.3 %). The CV events were: heart failure: 19 (25.7 %) (2 of them Takotsubo syndrome.), acute coronary syndromes: 15 (20.3 %), 5 of them vasospasm by 5-FU, arrhythmias: 12 (16.2 %), cardiac tamponade: 11 (14.9 %), thromboembolic events: 10 (13.5 %), hypertensive crisis: 6 (8.1 %) and syncope due to cardiac metastases 1 (1.3 %). The global mortality was 10, 8 % (8 patients). Four of them in heart failure, 2 in coronary syndrome, 1 in thromboembolism and 1 in the arrhythmia group.

Conclusions
A number of cancer patients develop cardiovascular complications, affecting their prognosis. Supportive care should include a group of experts in cardiovascular disease. A group of patients will require this type of attention.

26-036-P
HOLISTIC NEEDS DIRECTED LIFESTYLE ADVICE AND COMPLEMENTARY THERAPIES DURING COMPLEX RADIOTHERAPY - EVALUATION OF THE CANCER PARTNERS UK (CPUK) LIVING WELL PROGRAMME

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3Integrative care, Penny Brohn Cancer Support Centre, Bristol, United Kingdom

Introduction
CPUK is the second highest provider of complex radiotherapy in the UK. In 4 of its 8 centres it has a Living Well Programme in partnership with an integrative Cancer Support Centre. In addition to healthy lifestyle advice, specifically trained Coordinators perform a holistic needs assessment and, relevant to its results, offer mindfulness meditation and relaxation as well as acupuncture, reflexology and counselling by visiting specialists.

Objectives
To evaluate the CPUK Living Well Programme

Methods
This service evaluation was conducted between Sep 15th -Dec 15th 2014. 52 patients completed a MYCaW questionnaire1 at the start and 45 at the end of radiotherapy. (MYCaW measures the impact of services related concerns and wellbeing in a range 1–6). Of those who accepted integrative therapies, a further satisfaction questionnaire was completed containing a likert (1–5) scale.

Results
At the start of treatment 51 % of patients reported psychological and emotional, 38 % physical and 11 % general wellbeing and practical concerns (Mean ratings score 4.4). The mean concern score improved to 2.8/6 at the end of treatment (p<0.05 using a Wilcoxon signed-rank test, non-parametric). Of the 75 % who accepted one or more integrative therapies the satisfaction scores were: Reflexology (n=25) 4.4; Relaxation (n=13) 4.7; Acupuncture (n=14) 4.3; Counselling (n=9) 4.7; Mindfulness meditation (n=6) 4.8.

Conclusions
Patient concerns significantly improved over the course of treatments especially psychological. Integrative therapies were well accepted and had a high satisfaction rate. We believe this programme improved physical and emotional wellbeing of attending patients.


26-037-P
DEVELOPMENT OF A SYSTEMATIC APPROACH TO PATIENT ASSISTANCE PROGRAMS ON ACCESSING UNFUNDED CANCER AND SUPPORTIVE CARE DRUGS

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2Provincial Pharmacy, BC Cancer Agency, Vancouver, Canada

Introduction
Cancer and supportive care drugs are essential for treating patients with a variety of oncology diagnoses. Access to these drugs can vary among different provincial funding agencies and therefore cancer patients may be faced with a dilemma on how to receive unfunded treatment without significant financial burden.

Objectives
New cancer and supportive care drugs become commercially available several months before funding decisions are made by provincial funding agencies. Increasingly, patient assistance programs are being set up by drug manufacturers to facilitate access of their new drugs before they
become eligible for public funding. There is an increasing need to keep this information current and available in a central repository.

**Methods**
The project was completed at the BC Cancer Agency (BCCA), a publicly funded provincial cancer care organization that oversees chemotherapy and supportive care treatments across British Columbia, Canada. A centralized patient assistance chart was created and a standardized process was developed for addition and maintenance of information. A link to the patient assistance repository was added on the BCCA website for dissemination of information.

**Results**
As of January 2015, the repository contains information on 56 patient assistance programs involving 16 unfunded anti-neoplastic drugs and 8 supportive care drugs.

**Conclusions**
Patient assistance programs allow cancer patients to access both cancer and supportive care drugs when provincial funding is not available. A centralized patient assistance chart was created and a standardized approach developed for dissemination and use by all who require information on accessing unfunded cancer and supportive care drugs.

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**26-039-P**

**COST-EFFECTIVENESS OF MYELOID GROWTH FACTOR PROPHYLAXIS STRATEGIES FOR FEBRILE NEUTROPENIA AMONG NON-HODGKIN’S LYMPHOMA PATIENTS RECEIVING CURATIVE-INTENT R-CHOP CHEMOTHERAPY**

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**Introduction**
Febrile neutropenia (FN) is a major complication of myelosuppressive chemotherapy.

**Objectives**
To compare the cost-effectiveness of myeloid growth factor prophylaxis strategies for reducing FN risk among Non-Hodgkin’s Lymphoma patients receiving curative-intent R-CHOP chemotherapy.

**Methods**
A Markov model was created to compare seven prophylaxis strategies: 1) Primary Prophylaxis (PP) with nivestim throughout all cycles of chemotherapy; 2) PP with nivestim at the first two cycles of chemotherapy; 3) Secondary Prophylaxis (SP) with nivestim; 4) PP with pegfilgrastim throughout all cycles of chemotherapy; 5) PP with pegfilgrastim at the first two cycles of chemotherapy; 6) SP with pegfilgrastim; and 7) no prophylaxis (NP). Hospital’s perspective was taken. Cost-effectiveness was expressed as costs per FN episode avoided over six cycles of chemotherapy. Probabilistic sensitivity analysis was conducted.

**Results**
Strategy #3, #6, and #7 were dominated in the base case analysis by strategy #5. Costs associated with strategy #2, #5, #1, and #4 were US$ 3,813, US$ 4,056, US$ 4,545, and US$ 5,331, respectively. The incremental cost-effectiveness ratios for strategy #5 vs. #2, strategy #1 vs. #5, and strategy #4 vs. #1 were US$ 13,532, US$ 22,565 and US$ 30,452 per FN episode avoided, respectively. At a willingness-to-pay (WTP) of US$ 6,581 to avoid one FN episode, the probabilities of strategy #2 and #5 to be cost-effective were 56.0 % and 42.8 %, respectively.

**Conclusions**
PP with pegfilgrastim throughout all chemotherapy cycles is the most effective, but more costly than other strategies. The cost-effective prophylaxis strategy would depend on the WTP to avoid one FN episode.

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**26-040-P**

**TELE-CLINIC SERVICES IN PALLIATIVE CARE–UNIQUE WINDOW OF OPPORTUNITY TO DELIVER SPECIALIST SUPPORTIVE CARE SERVICES TO RURAL AREAS FROM TERTIARY CARE CANCER CENTRES**

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**Introduction**
Patients too poor or sick to travel, staying at distant districts find it impossible to reach our Center- which is a Tertiary Care Cancer Center. Information technology and connectivity has put India on the Global Map in Communications. Therefore we considered this as option, connecting rural hospices with Tele-Clinics at Tertiary Palliative Care Centers.
Objectives
1) To look into the economics of a Tele-clinic
2) To improve symptom control as at the Regional Cancer Center, to which the Hospice is connected has Specialist Palliative Care Doctors

Methods
1) We trained doctors and nurses on basics of Palliative Care, empowering the family
2) We made oral Morphine available
3) Hospices are close to homes

Results
1) Several districts are not well covered by railways, the terrain is hilly
2) A taxi to our center and back to their home cost $100, this is saved
3) Being a weekly affair we have seen good pain relief and wounds becoming clean
4) Initially we stated with one Hospice in 2006, now we have two
5) Several requests are coming up
6) We see on an average 400 patients every year
7) We could detect 10 early curable oral cancers
8) For the patient and family seeing the doctor after discharge on the TV Screen improves the Hope Structure and Hope Quotient

Conclusions
1) This project can be replicated in Resource Scarce Nations
2) In several cases we could help patients in making the transition from being ‘seriously ill and fighting death to becoming terminally ill and seeking peace

26-041-P

CONSERVATIVE TREATMENT OF COLORECTAL ANASTOMOTIC LEAKAGE

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Introduction
Anastomotic leakage is one of the most feared complications of colorectal surgery. It causes considerable morbidity and mortality, and contributes to local tumor recurrence. Quality of life is often affected due to poor functional outcomes with high rates of permanent stoma formation. Risk factors include patient-specific factors and technical factor including local ischemia and anastomotic tension. The risk also varies with the site of the anastomosis with those placed less than 5 cm from the anal verge being particularly vulnerable

Objectives
This study aimed to determine the effectiveness and direct medical costs of early surgical closure of the anastomotic defect with Endosponge

Methods
Between January 2006 and December 2012, 12 patients with anastomotic leakage following low anterior resection (RAR) and neoadjuvant radiochemotherapy (NARCT) were treated with transrectal Endosponge. They were prospectively evaluated

Results
Stapled straight end to end colorectal anastomoses were performed in all patients between 3 and 7 cm above the anal verge, a protective ileostomy was performed in every patients. The diagnosis of anastomotic leakage was performed after a median interval of 15 days (range 7–22) the median size of the cavity was 81x46 mm. The median duration of therapy was 35 days (range 16–51), with 8–15 sponge exchanges for patient. Median healing time was 59 days (range 32–65). No intraoperative complications were recorded, 5 cases of mild anal pain successfully treated medically

Conclusions
According to the European experience, the Endosponge seems an effective minimally invasive procedure to treat extraperitoneal anastomotic leakage without re-intervention reducing morbidity and mortality among patients
DETERMINANTS OF CLINICAL BENEFIT IN ADULT OUTPATIENTS TREATED FOR MALIGNANT ASCITES WITH THE TRIFUNCTIONAL ANTIBODY CATUMAXOMAB

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²General Gynecology and Obstetrics, Gynecologic Center Bonn-Friedensplatz, Bonn, Germany

Introduction
Catumaxomab (CATU) is a trifunctional antibody approved for the intraperitoneal (IP) treatment of malignant ascites (MA) related to carcinomas expressing the epithelial cell-adhesion molecule (EpCAM).

Objectives
This study sought to evaluate determinants of clinical benefit related to IP CATU in outpatients with various gynecologic tumor including metastatic breast cancer.

Methods
30 pts having failed a median of 4 prior systemic therapies were included (ovarian cancer, 16; breast cancer, 7, miscellaneous, 7). IP CATU was administered at 4 increasing doses (10–150 µg) given at 4 day intervals over a 2 week treatment period comprising a standard supportive medication. Puncture-free survival (PuFS) was calculated from start of IP CATU until the next MA-related IP puncture, death or loss to follow-up. Overall survival (OS) was calculated from start of CATU to death or loss to follow-up. Determinants of long-term were: initial Karnofsky performance status (KPS), absence of extraperitoneal metastases (including liver metastases), initial relative lymphocyte count (RLC), patients’ compliance (i.e., ability to undergo all 4 CATU instillations), ability to undergo systemic therapy following IP CATU.

Results
Median was OS 79.5 d and median PuFS 56.0 day. A KPS≥80 %, absence of extraperitoneal metastases, ability to undergo all intanted 4 IP CATU instillations and acclinificantly improved PuFS and OS. In contrast, initial RLC and intensity of systemic pretreatment prior to IP CAU were not related to clinical outcome

Conclusions
Determinants of clinical benefit in outpatients treated with IP CATU were KPS, absence of extraperitoneal metastases, ability to undergo all 4 CATU instillations and ability to undergo subsequent treatment following IP CATU.

THE DIFFERENCES OF SYMPTOMS, UNCERTAINTY, AND QUALITY OF LIFE BETWEEN THE DIFFERENT LEVELS OF SELF-EFFICACY IN LUNG CANCER PATIENTS

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Introduction
The confidence of coping with cancer in cancer patients is an important issue. However, few studies have focused on the cutoff point of self-efficacy for coping with cancer.

Conclusions
The aims of this study were to (1) examine the difference of symptoms, uncertainty, and quality of life (QOL) between the different levels of self-efficacy for coping with cancer; (2) identify the factors related to patients with lower self-efficacy.

Methods
The cross-sectional study, a total of 158 lung cancer patients during treatment recruited from a medical center in Taiwan. Patients were assessed of their symptoms, uncertainty, quality of life and self-efficacy for coping with cancer (by Coping Behavior Inventory-Brief; CBI-B). The optimal cutoff point of CBI-B was identified in our previous study (score<7 indicate clinical meaning lower levels of self-efficacy as at risk of depression). Logistic regression was conducted to identify the factors related to patients in two groups (lower vs. higher self-efficacy).

Results
The results showed that patients who were in lower self-efficacy group had significantly worse symptoms (e.g., fatigue, pain, nausea/vomiting, dyspnea, and appetite), higher uncertainty, and lower scores in QOL, physical function, role function, emotional function, cognitive function, and social function than patients who were in higher self-efficacy group; furthermore, patients had lower self-efficacy if they were male.

Conclusions
Patients with lower self-efficacy reported worse symptoms, uncertainty and QOL in this study. Thus, the cutoff point of CBI-B is suggested to apply in clinical setting for quickly screening the patients who need the further care.
services were statistically significant indicating improved quality of life and sleep patterns between the two data sets. However this trend was not observed when considering counselling and complementary therapies alone.

Conclusions
The findings closely reflect existing literature and support the use of these therapeutic support services due to their positive impact on cancer patients’ quality of life and sleep patterns.

26-046-P

Efficacy and Safety of Darbepoetin Alfa Initiated at Hemoglobin ≤10 g/dL in Patients with Stage IV Cancer and Chemotherapy-induced Anemia

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Introduction
After the addition of a boxed warning to the US label in 2008, no clinical trials have been conducted to evaluate efficacy of darbepoetin alfa (DA) administered on label (at hemoglobin <10 g/dL).

Objectives
To determine hemoglobin response and incidence of transfusions in patients initiating DA per the current US label versus those on placebo.

Methods
Data from patients with Stage IV cancers and hemoglobin ≤10 g/dL from 3 DA clinical trials that enrolled patients receiving myelosuppressive chemotherapy (excluding hematologic cancers) were pooled and analyzed. Outcomes included incidence of hemoglobin response (increase ≥1 g/dL or ≥2 g/dL) from initiation through 12 weeks, red blood cell or whole blood transfusions during treatment weeks 5–12, and safety.

Results
For 213 patients, the most common tumor types (DA/placebo) were lung (55.7 %/64.3 %), breast (19.1 %/9.2 %), and gastrointestinal (7.0 %/10.2 %). Mean baseline (standard deviation) hemoglobin levels were 9.2 (0.7) g/dL for both arms. Patients on DA had higher rate of hemoglobin response and lower rate of transfusions than those on placebo (Table). Most patients in both arms (96.5 % DA, 98.0 % placebo) reported an adverse event, most commonly gastrointestinal disorders (58.8 %, 71.7 %), general/administration site disorders (57.0 %, 56.6 %), and respiratory/thoracic/mediastinal disorders (38.6 %, 46.5 %).

<table>
<thead>
<tr>
<th>Patients with event, % (95 % confidence interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemoglobin increase ≥1 g/dL</td>
</tr>
<tr>
<td>DA (N=115)</td>
</tr>
<tr>
<td>Placebo (N=98)</td>
</tr>
<tr>
<td>72 (63.4–79.5)</td>
</tr>
<tr>
<td>36 (26.9–45.6)</td>
</tr>
<tr>
<td>Hemoglobin increase ≥2 g/dL</td>
</tr>
<tr>
<td>44 (35.6–53.5)</td>
</tr>
<tr>
<td>18 (11.9–27.2)</td>
</tr>
<tr>
<td>Transfusion</td>
</tr>
<tr>
<td>24 (16.8–33.1)</td>
</tr>
<tr>
<td>45 (34.8–54.7)</td>
</tr>
</tbody>
</table>

Conclusions
Patients who met the current label indication for DA had appropriate hemoglobin responses and reductions in incidence of transfusions when prescribed per the approved schedule.

26-047-P

Context-Governance-Integration: Developing a Framework for Analysing Network Implementation Process During Cancer Services Modernization

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Introduction
Networks in health care are considered by policy-makers, clinicians, managers and researchers to be a crucial mediator in the success of health service modernization. Research evidence suggests that numerous contextual factors and multiple processes determine network implementation. It is a challenge to find a framework to capture the determinants that are both theoretically robust and meaningful to those providing cancer care.

Objectives
To address the need for a conceptual clarity of the cancer network implementation process and offer a framework to elucidate what are the most critical elements to be analysed.

Methods
As part of a mixed method multi-center (n=6) study of the implementation of six cancer networks in Quebec (Canada), a
framework for collecting data reflective of the complex process of cancer network implementation was developed. The development involved an iterative process of evidence synthesis, critical interdisciplinary discussion in the research team, and feedback from partners (n=50) in the participating organizations.

Results
In collaboration with partners from the clinical, managerial and policy spheres to share and debate the framework of the study, three thematic areas were perceived to underpin the whole cancer network implementation process. The five functions of governance, the four dimensions of health services integration and the complexity of the multi-level context focus on domains in which the data could be organized.

Conclusions
The framework can be used to help explain how governance functions contribute to integrating organizational and clinical practices during cancer network implementation. The framework could be used as a means of ensuring the key domains of the implementation of networks are considered.

26-048-P
ARE WE REALLY “PATIENT-CENTRED”? A MULTIPLE CASE STUDY OF 2 ONCOLOGY TEAMS
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Introduction
Canadian policies are intended to facilitate the continuum of care and ensure interprofessional follow-up that is patient centred. Interprofessional patient-centred (IPPC) practice should facilitate a patients’ journey along their continuum. Despite the importance of engaging in IPPC practice, to our knowledge, few studies have documented this practice in the oncology care continuum and from patients’ and families’ perspectives.

Objectives
The goal of this study was to describe IPPC practice throughout the continuum of cancer care.

Methods
A qualitative study of multiple cases was conducted with two interprofessional teams at a teaching hospital in the Montreal region (Quebec, Canada). The sampling (N=31) consisted of 8 patients, 3 family members, 18 professionals and 2 managers. Twenty-eight interviews were conducted, as well as 57.6 h of observation of clinical activities.

Results
The results suggest that the teams’ IPPC practice reflected a duality of cultures (treatment-centred culture versus patient-centred culture). In addition, the IPPC practice of teams in the study fluctuated due to the influence of many factors, such as “how the team works,” “the physical environment” and the “stance” of patients and professionals. The results further suggested that the deployment of healthcare teams varied in intensity over the trajectory. Also, the description of the IPPC practice that patients, their family members and professionals would like was described.

Conclusions
For optimal IPPC practice, patients must be supported at their own pace; they should not have professionals’ values and objectives imposed on them, and they should be part of a team that works closely together.

26-049-P
PROCANCERIC EFFECT OF LOW-FREQUENCY ELECTROMAGNETIC FIELD EXPOSURE ON NERVOUS, VASCULAR, AND DIGESTIVE SYSTEM
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Introduction
Due to conditions provided by the modern life, the human being is exposed to electromagnetic Appliance such as microwave oven, mobile phone, computer and power producing systems which have an extensive role in human life are the source of EMF. The effect of electromagnetic field (EMF) as an environmental factor on different organs including nervous, vascular, and digestive system is of critical concern.

Objectives
The aim of the present study is to evaluate the Pro canceric effect of low-frequency (LF)-EMF nervous, vascular, and digestive system

Methods
For this study, the BALB/c mice were divided into control and experimental group in animal lab. The mice in the experimental group were exposed to 3 mT EMF field, 4 h/day for 4 months. The LF-EMF was produced by a system using 50 Hz alternative current. The mice from both groups were sacrificed and their brain, heart and stomach and intestine was dissected apart and prepared for light and electron microscopy.

Results
Microscopy revealed that in the experimental group, in comparison to control group, Nucleolus condensation, irregularly, dilation of nuclear envelope, with vague of mitochondria in cytoplasm.

Conclusions
According to our findings it is concluded that EMF exposure for a long time would affect Nervous, cardiovascular, and digestive system structurally and functionally and may facilitate Pro canceric Effect. It is suggested that EMF could disturb cellular morphology by affecting genetic and chromosomal structures.
Objectives
The researchers believe that the gaps in the entire spectrum of childhood cancer can be efficiently filled with the services of an NGO. The authors run an NGO for children with cancer and their families.

Methods
This study was run for 18 months among 100 children with cancer and their families. The state of the children before the intervention of the NGO was documented. Then the NGO started working with the children in the key areas like treatment, counseling, food, education, palliative care, and death and bereavement. And after 18 months, the same 100 children were studied to see how the NGO has made a difference in their lives.

Results
The result was that significant improvement was noted.

Conclusions
The authors have concluded that the services of the NGO make a tremendous difference to the lives of the children with cancer.

26-051-P

EFFECTS OF POLICY ON CODE STATUS DOCUMENTATION FOR ONCOLOGY IN-PATIENTS

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Introduction
Despite practice guidelines recommending timely code status (CS) discussions, studies consistently show low rates of CS documentation.

Objectives
Our aim was to evaluate the effect of a hospital wide policy requesting documentation of code status and the level of end-of-life care upon admission to hospital on code status documentation rates.

Methods
In this retrospective cohort study, CS documentation was assessed for patients admitted to an oncology ward between September 2011 and December 2013. CS documentation was compared between those admitted during the years prior to and after implementation of a new policy across regional hospitals. Results were analyzed using chi-square analyses.

Results
Of 605 admissions, there were 350 pre and 255 post-CS policy. From pre to post-policy implementation, there was a trend towards an increased rate of CS documentation on admission day (67/350 (19.1%) pre vs. 65/255 (25.5%) post, \( p = 0.06 \)), and a significant increase in CS discussions during admission (86 [24.6%] pre vs. 101 [39.6%] post, \( p < 0.01 \)). Most of these discussions took place within 48 h of admission (86% pre, 84% post). Compared to admissions from home, transfer from another ward or hospital predicted for CS documentation on admission both pre and post-policy (all \( p < 0.01 \)). Transferred patients had a low rate of CS documentation prior to transfer both pre (12%) and post (18%) policy.

Conclusions
Although there was a significant increase in CS rates during oncology ward admissions post policy implementation, the documentation rate remained less than half. Additional interventions, including staff training, may further improve CS documentation.

26-052-P

SYMPTOMS MANAGEMENT OF HOSPITALIZED PATIENTS WITH COLORECTAL CANCER (CC) IN A GENERAL HOSPITAL

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Introduction
CC patients are having a wide range of symptoms that must be evaluated during their hospitalization in order to have a better management.

Objectives
To determine if an accurate evaluation of symptoms makes supportive therapy better monitored by improving doctor-patient communication.

Methods
92 patients (median age 67 years old), with colorectal cancer, were evaluated and monitored every other day with 1) VAS (visual analogue scale): for pain. 2) ESAS (Edmonton Symptom Assessment scale): numerical scale ranging from 0–10; a symptom was considered severe if >7. 3) PAP score (Palliative Prognostic Score): to assess prognosis. They were divided into three groups: Group A: life expectancy after 30 day >70%, Group B: expectancy after 30 day 30-70%, Group C: expectancy after 30 day <30%.

Results
Symptoms, evaluated through ESAS, have shown an improvement in 82% of admissions, no-change in 3%, and a worsening in 15%. Particularly there has been a significant improvement in 59.9% of patients with pain, in 58% with anorexia, in 49.3% with dyspnoea, and in 56.6% with asthenia.

Conclusions
A multidimensional evaluation of colorectal cancer patient’s symptoms is crucial to target palliative treatment on patient’s real needs and, to this purpose, standardized methods should be regularly used by oncologists working in General Hospitals.

26-053-P

EVALUATION OF THE EFFECT OF ISOMETRIC HANDGRIP EXERCISE ON THE PERIPHERAL INTRAVENOUS CHEMOTHERAPY ADMINISTRATION IN PATIENTS WITH NON-HODGKIN LYMPHOMA

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Introduction
Systemic intravenous chemotherapeutic agents can cause multiple emergency situations including acute and chronic local and systemic reactions.

Objectives
This is a controlled and experimental study evaluating the effect of isometric handgrip exercise-induced increase in blood flow rate in vessels of forearm on the peripheral venous catheter application in patients with non-Hodgkin lymphoma receiving chemotherapy.

Methods
The study was conducted in inpatient service of the department of Hematology in Eskisehir. Of the 20 patients meeting the inclusion criteria and accepting to participate in the study were divided into intervention group and control group.

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Results
In the intervention group, blood flow rates in brachial artery (BA) and vein (BV) were found to be slightly increased in the 2nd measurement compared to the 1st measurement [BA(t = -2.234, p = 0.05); BV(t = -1.393, p = 0.197)]. On the other hand, in the control group, the blood flow rate was decreased in the brachial artery and did not change in brachial vein in the 2nd measurement compared to the 1st measurement [BA(t = 0.310, p = 0.764); BV(t = 0.000, p = 1.000)]. The success rate for the placement of a peripheral intravenous catheter was found to be high in both groups. The time for the insertion of the peripheral intravenous catheter and the time of being in place for the catheter were slightly shorter in the intervention group [(t = 0.305, p = 0.764), (t = 0.404, p = 0.691)] respectively. On the other hand, no complications were observed in the second stage in both groups.

Conclusions
Isometric handgrip exercises did not result in a significant increase in the blood flow rates in brachial artery and vein and had no effect on peripheral intravenous catheter application and chemotherapy administration.

26-054-P

OPTIMIZED PATIENT-TRAJECTORY FOR PATIENTS UNDERGOING TREATMENT WITH HIGH-DOSE CHEMOTHERAPY AND AUTOLOGOUS STEM-CELL TRANSPLANTATION - FROM A NURSE PERSPECTIVE

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Introduction
Patients undergoing high dose chemotherapy and autologous hematopoietic stem-cell transplantation (HD-ASCT) suffer from significant loss of physical function and weight, and experience multiple complications during and after hospitalization.

Objectives
We investigated the feasibility of fast track trajectory in patients with hematological diseases undergoing HD-ASCT based on an interdisciplinary optimized action focusing on management of nutrition, GI-mucositis, pain and physical exercise in order to reduce complications.

Methods
Inspired by the elements in fast track trajectories we developed guidelines based on best evidence for each known complications of this procedure. Furthermore we developed structured care plans in which the nurses had to assess the complications daily in order to recognize complications early and act according to the guidelines. During hospitalisation the patients had to participate in daily group exercise led by a physiotherapist. We included the patient in the project just after diagnosis and the patient got information about the salvage treatment and were seen by a physiotherapist who instructed the patient in an individual training program.

Results
In total we included 40 patients, of which 26 patients completed HD-ASCT. The patient group consisted of patients with lymphoma (12), multiple myeloma (13) and amyloidosis (1). Thirteen patients did not have HD-ASCT due to disease progression. The data analysis is still in progress. We will present data on duration of admission and degree of complications.

Conclusions
We have shown that it is possible to apply the elements known from fast track trajectory in surgery into a medical treatment as HD-ASCT.

26-055-P

ATP DETERMINATION AS A METHOD FOR ASSESSING CLEANSLINESS IS NOT APPLICABLE IN HOSPITAL ENVIRONMENTS

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Introduction
Several publications have reported a relation between nosocomial infections and the number of microorganisms in a hospital environment. ATP determinations are listed as a possible method for assessing hospital cleanliness.

Objectives
To determine whether ATP determination as a marker of the microbial load can be used to assess level of hospital cleanliness compared to visual inspections and microbiological control.

Methods
During one month four hospital rooms in an oncology ward were inspected using

1. Visual inspections according to Danish standards (DS-2451-10 and DS INSTA 800)
2. ATP determinations using 3 M™ Clean-Trace™ NGi Luminometer
3. Microbiological control using a TSI contact plate. Microbial load was determined by aerobic colony count and expressed as colony forming units per cm² (CFU/cm²). All microorganisms were identified.

The visual control and ATP determinations were made by the same supervisor. The cleaning staff was the same throughout the period. The microbiological control was performed by a microbiologist.

Results
There is no consistency between the various techniques. There is a major difference between the two visual methods, and these are not concordant with ATP determinations. In only 70 % of cases there is consistency between ATP measurements and microbiological control.

Conclusions
ATP determinations cannot currently be recommended for controlling hospital cleanliness, because of the absence of sufficient correlation between this technique and microbiological controls. ATP determination may be useful as a method to identify surfaces which are difficult to clean.
26-056-P

HOW DO YOUNG ADULTS (19–24 YEARS) LIVING WITH CANCER EXPERIENCE SUPPORTIVE CARE?

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Introduction
Cancer in young adulthood is rare. At the point of entering treatment the psycho-social consequences on the transitional personal biography of young adults are largely unknown. Therefore the organisation and delivery of supportive care in this context has little evidence base.

Objectives
To understand how supportive care was identified, perceived and defined by young adults (19–24 years old) recently diagnosed with cancer. With the intention that outcomes would add to the current body of knowledge and influence practice development in this area.

Methods
Using constructivist grounded theory (Charmaz 2014) data were collected through in-depth interviews, with eleven young adults. Sampling strategies included purposive and theoretical techniques. Data were analyzed concurrently through open and focused coding and the constant comparative method. The use of theoretical coding and memoing allowed for the construction of the final substantive theory.

Results
The interpretation of identified categories was that young adults saw the purpose of supportive care to be the protection of their developing adult identity. Translating a critical situation and the threat it posed to their planned biography young adults sought self-agency within social and professional supportive care to retain their self identity. Participation was congruent with the social context of their life-stage, and fluid across internal strategies and use of the external resources.

Conclusions
To continue young adults’ transitional tasks of young adulthood and to heed their desire for personal agency the structure and delivery of care in this context should be considered in future organisational development.

26-057-P

KNOWLEDGE OF CANCER AND TREATMENT-RELATED ADVERSE EFFECTS AMONG COLLEGE STUDENTS: A CNTRL STUDY

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Introduction
Patients and survivors generally struggle with multiple adverse effects related to cancer and its treatments that can impact their psychosocial functioning and quality of life. Knowledge of cancer and treatment-related adverse effects is sine qua non to understanding and providing needed support to cancer patients and survivors.

Objectives
To assess knowledge of adverse effects of cancer and its treatments among college students.

Methods
We collected data from students at a private Midwestern University in the USA. Descriptive and frequency statistics were conducted to help characterize the sample. Univariate and multivariate analyses of variance were conducted to examine group-based (e.g., sex, race/ethnicity, household income, major) differences on reported likelihood of adverse effects as cancer and treatment-related adverse effects (CTAE).

Results
The sample included 581 participants (74 % female; 70 % White), mean age 19 years, 89.8 % US-born, 88 % spoke English primarily at home, 90.7 % knew someone who had a cancer diagnosis (34.8 % family, 11.4 % friends, 6.7 % acquaintance, 1.7 % others, 36 % multiple relationships including friends, family, and acquaintance, and 0.3 % were themselves). Observable issues (e.g., hair loss, nausea) were more likely to be identified as CTAE compared to neurocognitive problems (e.g., attention, memory) (p<0.05). Students’ major and sex were significant predictors of the likelihood of identifying fatigue and cognitive functioning as adverse effects of cancer and its treatments (p<0.05).

Conclusions
Knowledge of CTAE is lacking among college students. Strategies to ameliorate cancer burden for patients and survivors need to integrate knowledge of CTAE among students, especially given their likelihood of becoming healthcare takers/providers.

26-058-P

THE EVIDENCE SYNTHESIS OF PROSTATE CANCER SUPPORTIVE CARE (ESOPS) PROJECT: A SYNTHESIS OF THE QUALITATIVE EVIDENCE

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Introduction
Prostate cancer is the most common cancer in men in the UK, with 41,700 men diagnosed annually. Men often have a long illness pathway but current guidance on supportive care is generic across cancer types rather than specific to prostate cancer.

Objectives
To conduct a qualitative systematic review and synthesis of prostate cancer and supportive care, examining men’s experience of and need for supportive care.

Methods
Seven databases were searched, twenty journal articles were identified and critically appraised. Following data extraction, key concepts were identified. A thematic synthesis was conducted in which descriptive themes were drawn out of the data.

Results
20 papers were included, reporting on studies from Australia, Canada, the USA and Europe (2004–13). Following data extraction, key descriptive themes were developed. These were peer support, support from partner, online support, communication with health professionals, experience of a cancer specialist nurse, self-care, unmet needs: emotional support, information needs, support for treatment induced side-effects, and men’s suggestions for improved delivery of supportive care. This was followed by the development of overarching analytic themes which were uncertainty, reframing and timing (of receiving treatment, information and support).

Conclusions
The most valued support was one-to-one peer support and support from partners. Communication with health professionals and timely delivery of
information were often lacking so men were unprepared for the length and severity of treatment side-effects. This review highlights the need for improved access to cancer specialist nurses throughout the care pathway, individually tailored supportive care, and psychological support for treatment side-effects.

26-059-P

SUPPORTIVE CARE INTERVENTIONS FOR MEN WITH PROSTATE CANCER: A SYSTEMATIC REVIEW.

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Introduction
Men with prostate cancer (MPC) are likely to have a long illness pathway and experience debilitating side effects from treatment with subsequent psychological distress. Supportive care (SC) may be helpful for these consequences of cancer.

Objectives
To systematically review the evidence of SC for MPC taking into account the treatment pathway and components of individual interventions.

Methods
Major databases were searched from inception-July 2013. We included randomised controlled and controlled trials of MPC that compared any SC intervention with usual care. We excluded palliative and end-of-life care. Two authors independently assessed risk of bias and extracted data.

Results
26 papers (2,740 participants) described SC interventions for MPC. Twelve trials were conducted pre/during primary treatment and included information and specific therapies. Eight trials were conducted within 6mths of treatment and comprised of information, peer support and specific therapies. Five trials were conducted 6mths beyond treatment; four of these described the same intervention which included peer support and cognitive behavioural therapy. The most frequent outcomes were quality of life, depression, anxiety, coping and self-efficacy. All trials rated poorly for risk of bias. There were few statistically significant differences comparing interventions to usual care but there was limited evidence of benefit for quality of life and depression.

Conclusions
There is a lack of robust evidence for SC interventions for MPC, in spite of the fact that trials considered the patient pathway and appeared to investigate appropriate interventions and measure appropriate outcomes. We will present recommendations on the design of future trials.

26-060-P

IS THERE ANY DOSIMETRIC PREDICTOR OF ACUTE TOXICITY DURING RADIOTHERAPY FOR NASOPHARYNGEAL CARCINOMA THAT CAN BE MODULATED BY GENETIC RISK FACTORS?

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Introduction
Intensity Modulated Radiation Therapy (IMRT) with/without chemotherapy constitutes standard treatment for nasopharyngeal cancer.

Objectives
To correlate acute toxicities to dosimetric risk factors and identify patients for studies on radioxicity genetic determinants.

Methods
Analyses’ endpoints were mean-grade mucositis ≥1,3, grade-3 dysphagia and grade-2 xerostomia recorded during IMRT. Selected Organs at Risk were oral cavity (OC) for mucositis; OC, pharyngeal constrictor muscles (PCM), supraglottic larynx (SL) for dysphagia; OC, parotid glands (PG) for xerostomia. Average DVHs of patients with/without each toxicity were compared through two-sided t-tests to assess the most discriminative values. Logistic uni- and multi-variate (MVA) analysis were performed, including selected dosimetric and clinical variables: a backward feature selection method based on minimization of residuals was implemented.

Results
Complete dosimetric data were available for 128 patients. Mean-grade mucositis ≥1,3 was reported in 32 % of patients, grade≥3 dysphagia in 37 %; grade≥2 xerostomia in 67 %. MVA resulted in a single variable model - OC(V62,5Gy) - for mucositis (OR=1,04, p=0.004); 3-variable model - OC(V62,5Gy) (OR=1,03, p=0.05), minimum dose to PCM (OR=1,06, p=0.05), SL(V30Gy) (OR=1,05, p=0.37) - for dysphagia; 2-variable model for xerostomia - PG(V72,5Gy) (OR=1,09, p=0.21), OC(V65Gy) (OR=1,06, p=0.01). Residuals calculation identified 15 (12 %) and 9 (7 %) high-residual patients for mucositis and dysphagia respectively that exhibited toxicity despite low MVA prediction, suggesting a potential radiosensitivity. Conversely, 9 low-residual patients for xerostomia who didn’t exhibit toxicity despite high MVA prediction might imply radioresistance.

Conclusions
Preliminary analysis suggests a dose–response relationship for acute mucositis, dysphagia and xerostomia. Residual patients identified could represent candidates for genetic determinants analysis of radioxicity.

26-061-P

EFFICACY AND TOXICITY OF INTRAPERITONEAL OR INTRAPLEURAL ADMINISTRATION OF TRIAMCINOLONE ACETONIDE FOR THE CONTROL OF MALIGNANT ASCITES AND PLEURAL EFFUSION

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Introduction
Patients with advanced gynecologic cancer often suffer from massive ascites or pleural effusion, requiring frequent drainage.

Objectives
Triamcinolone acetone (TA) is used via intraarticular administration in the treatment of rheumatoid arthritis. We conducted a retrospective multi-

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institutional study to evaluate the efficacy and toxicity of intraperitoneal or intrapleural TA administration for the management of malignant ascites or pleural effusion.

Methods
The medical records of patients with gynecologic cancer who were treated with paracentesis (PC) or thoracocentesis (TC) followed by administration of 400 mg of TA between 2005 and 2014 were reviewed.

Results
The median age of the 74 eligible patients was 59 years. PC followed by TA administration was performed in 65 patients, and 37 patients were treated in a palliative setting. Chemotherapy or surgery after TA administration was performed in 37 patients in an aggressive setting, of which 14 patients were treated for primary disease and 23 patients were treated for recurrent disease. The time interval between serial drainage sessions was prolonged in 14 of 19 assessable patients, resulting in a response rate of 74 % (95%CI: 54–93 %). Median overall survival after TA therapy in a palliative setting was 36 days (95%CI: 19–58 days). After TA therapy in a palliative setting, one patient complained of mild abdominal pain, 2 patients with severe carcinoma experienced bowel perforation, and 3 patients died within 7 days owing to disease progression.

Conclusions
Intrapertioneal and intrapleural TA administration was feasible and effective in symptomatic control of ascites and pleural effusion.

26-062-P
LONG TERM FOLLOW UP OF BREAST CANCER PATIENTS TREATED WITH ACUPUNCTURE FOR HOT FLASHES.

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Introduction
As treatment of breast cancer becomes increasingly effective, more women are living with side effects due to postoperative interventions, including endocrine therapy, affecting their quality of life. Women treated with estrogen antagonists complain of side-effects often associated with menopause; most commonly hot flashes that often disturb sleep patterns leading to insomnia and irritability, and in turn reduced quality of life.

Objectives
To investigate quality of life, two years after a series acupuncture aimed at reducing hot flashes.

Methods
Eighty patients, who had 2 years previously been randomized to either a course of 15 acupuncture treatments or sham acupuncture (control), were asked to fill out the Kupperman Menopausal Index (KI) indicating health related quality of life.

Results
Sixty one women returned KI questionnaires. Baseline values between the sham-group and acupuncture group were not significantly different. When trajectories for both groups were examined, a difference could be observed between the groups. The TCM group had a statistically significant better QoL compared to the sham group up to two years post-treatment.

Conclusions
Acupuncture seems to have a positive effect on health related quality of life for at least two years post-treatment in women with breast cancer, medicated with estrogen antagonists.

26-063-P
RELATIONSHIP BETWEEN NEEDS AND HOPE IN NON-ADVANCED PATIENTS WITH HEMATOLOGIC OR SOLID MALIGNANCIES TREATED IN THE SUPPORTIVE CARE UNIT OF A COMPREHENSIVE CANCER CENTER

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Introduction
Data are lacking on the needs and hope of patients on active treatments

Objectives
to evaluate the relation between needs and hope in non-advanced patients

Methods
Patients treated at Supportive Care Unit (September 2013 - March 2014) were asked to complete the Italian validated version of Need Assessment Questionnaire (NEQ), ESAS, Hope Hert Index (HHI) and System Belief Inventory (SBI-15R). Linear simple and multivariable regression models were fitted to test the expected need-hope inverse association

Results
NEQ and HHI were completed by 298 patients mean age mean 60.2; 59.2 % with solid cancers; 10.4 % with metastases or relapse; KPS<80 in 4.5 %. Inverse association between presence of needs in the informative (items 1–8,13) and relational (items 20–23) areas and hope (Hert total score) was shown, both bivariate and after adjustment for clinical and demographic characteristics. The strongest associations were for item 5 (involvement in therapeutic choices, p .022), 7 (clinicians to be more sincere, p .003), 8 (better dialogue with clinicians, p .019), 13 (to be more reassured by clinicians, p .003), 20 (to be more reassured by relatives, p .019), and 22 (to feel less abandoned, p .002).

Conclusions
In non-advanced cancer patients on supportive therapies hope is related to fulfilling expectations for communication and support. The patients’ suffering and their needs must be evaluated starting from the diagnosis and across the cancer trajectory

26-064-P
LASER EFFECT IN THE TISSUE REPAIR PROCESS: INFLUENCE OF DOSE AND METHOD OF DELIVERING ENERGY

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Introduction
The process of skin and mucosa wound healing is an important event during cancer treatment, mainly because the injured tissue, from patients submitted to chemotherapy and/or radiotherapy, becomes more susceptible to infections. The low level laser therapy (LLLT) has been used in oncology to accelerate the skin and mucosa wound healing process, however, studies related to dosimetry are needed to establish the ideal LLLT protocol for each clinical situation.

Objectives
Evaluate the influence of LLLT dose and method of delivering energy on the tissue repair of excisions performed in rats.
Methods
Twenty rats were divided into groups, namely: C: without irradiation; L1: group receiving one point of 10 J/cm²; L2: one point of 50 J/cm² and L3: five points of 10 J/cm². The tissue excision was made on the back of animals with a punch and, after that, the animals from laser groups received one irradiation session with a low power diode laser (660 nm/40 mW/0.04 cm² of the spot area). Ten days later, photographs were performed for clinical analysis of lesion area and, right after, the animals were sacrificed and samples collected for histological analyzes.

Results
All animals that received irradiation had a reduced lesion area compared with the control group, being more evident for L3 (p≤0.05), which was confirmed with histological analyses, where was observed less intense inflammatory process and a greater amount of collagen.

Conclusions
Based on our results LLLT can assist in the reparative process and the dose and method of delivering energy directly influences the outcome.

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26-065-P

OPT-OUT-TESTING FOR HIV IN THE EMERGENCY ROOM OF A COMPREHENSIVE CANCER CENTER

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Introduction
Cancer is a leading cause of death in HIV patients who have increased frequency of both AIDS-defining cancers and non-AIDS-defining cancers and often more aggressive disease. Treatment for HIV improves cancer treatment outcomes and is facilitated by newer antiretrovirals. The CDC and US Preventative Task Force recommend testing all patients aged 15-65 (A level recommendations) and many emergency rooms (ERs) perform opt-out-testing. There are no guidelines from ASCO or NCCN and limited data on the prevalence of HIV in cancer patients. There are no screening programs in cancer ERs.

Objectives
Determine the feasibility of opt-out-testing in a cancer ER.

Methods
An algorithm was devised for result verification, reporting and care linkage. Education was conducted on HIV and cancer, testing recommendations and legal requirements for the ER and institutional committees. Patient education was provided. Electronic health record (EHR) was adjusted to simplify documentation and ordering. Agreement was achieved to add HIV to the hospital consent. New and previously untested patients were targeted.

Results
Standard opt-out-testing was prevented by frequent multiple visits, end of life care and inability of the EHR to delineate these groups. Testing was increased 6 fold from 2013-2014. Only 10 % of patients declined (15/151). Seroprevalence was 1.3 % (2/151), including one incident case (0.6 %). Testing was independently initiated in other departments.

Conclusions
Standard opt-out-testing in our cancer ER was not feasible but testing rates were significantly higher than prior years. Implementation of ER testing raised institutional awareness and increased testing. Many oncologists are not aware of CDC recommendations or cancer patients increased risk.

26-066-P

A DEDICATED OUTPATIENT SUPPORTIVE CARE UNIT (SCU) REDUCES THE COST OF UNPLANNED BLOOD COMPONENTS TRANSFUSIONS (BCTS) IN A COMPREHENSIVE CANCER CENTER

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Introduction
In patients undergoing oncologic therapies, BCTs are one reason of unplanned hospitalizations with additional costs for the health care system (HCS) and delay of planned admission and treatments.

Objectives
Compare the costs of BCTs performed in inpatients oncologic Units with those in the dedicated outpatient SCU.

Methods
Through a cross-check on the national identification numbers of patients who were hospitalized for BCTs in four inpatient oncologic Units (Bone Marrow Transplantation, Radiotherapy, Medical Oncology I and II), we extracted the data regarding only the ones who were transfused at a later stage in the SCU, from 2009 to 2013. Of these selected 227 patients (79 % with hematological malignancies; 112 female; median age 60 years), we compared the transfusions performed in the inpatient facilities with the ones within the SCU, in terms of quantity, cost efficiency (average cost per transfusion) and economic/financial impact on the HCS.

Results
The number of BCTs performed by the SCU has grown constantly and consistently through the years, until reaching 1,402 in 2013, exceeding all the other considered structures. The total savings were estimated at 297,633.21 Euros (151,182.85 for the year 2013 only).

Conclusions
A dedicated out-patient SCU, beyond aiming to monitor side effects and toxicity of anticancer therapies and comorbidities, was also found to be a factor affecting positively and efficiently the cost management of a hospital and providing savings to the HSC.

26-067-P

CHANGES IN WEIGHT AND BODY COMPOSITION AMONG WOMEN WITH BREAST CANCER DURING AND AFTER ADJUVANT ANTI NEOPLASTIC TREATMENT – A PROSPECTIVE FOLLOW UP STUDY

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MULTIPROFESSIONAL CANCER MEDICATION MANAGEMENT IN THE CENTER FOR INTEGRATED ONCOLOGY

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Introduction
In cancer therapy, patients are at high risk of experiencing adverse events due to the high toxicity of anti-cancer drugs and the complexity of the medication.

Objectives
The aim of this study is the enhancement of patient safety by providing a structured multiprofessional medication management for cancer patients.

Methods
The medication management consists of five multiprofessional care modules, which were adapted to the setting of the oncologic outpatient clinic. All care modules contain a care algorithm, evidence-based recommendations for supportive care and patient information brochures. The medication management was evaluated by questionnaires measuring patient-reported symptom load (PRO-CTCAE), quality of life and patient satisfaction with information. The newly developed care model was tested in a single-arm pilot study.

Results
Care modules were developed for the medication management (medication review, interaction check) and for the management of three common adverse events (nausea and emesis, mucositis, fatigue). For the pilot study 21 cancer patients with solid tumors were recruited. Results show the feasibility of the multiprofessional care model. The most frequently applied adverse event module was nausea and emesis (100 %) followed by mucositis (91 %) and fatigue (62 %).

Conclusions
In the pilot study feasibility of the medication management and acceptance by the patients and the multiprofessional care team were analyzed. In order to evaluate the effectiveness, a randomized two-arm study will be conducted including a further care module for medication adherence. Primary endpoint of the study will be the frequency and severity of treatment-associated toxicity.

SUPPORTIVE CARE (SC) INPATIENT SERVICE FOR PATIENTS WITH SOLID TUMORS AT THE INSTITUTE FOR ONCOLOGY AND RADIOTHERAPY OF SERBIA (IORS): LAST FIVE YEARS

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Introduction
Supportive care (SC) makes excellent cancer care possible. A mobile SC team (2 physicians, 2 nurses, a psychologist, a pharmacist and a social worker) and a SC unit with 4 beds are available for all hospitalized patients (360 beds) at the IORS, the National Cancer Center. The SC team provides assessment and treatment of the disease and treatment related symptoms at the Medical Oncology (MO), Radiation (RO) and Surgical Oncology Clinic (SO), in close collaboration with referring oncologists.

Objectives
The purpose of this abstract is to review the last five years of the SC service at the IORS.

Methods
We retrospectively reviewed our database for the main reasons to refer patients for SC consultations, number of visits required per patient and consultation frequency depending on each clinic.

Results
During 5 years, 3459 (mean 691(SD=150) per year) hospitalized patients were evaluated for SC needs. The five main reasons for consultations were pain (51 %), dyspnea (3 %), febrile neutropenia (FN) (3 %), mucositis (2 %) and nausea and vomiting (2 %). We had mean 401(SD=80) consultations due to psychological distress per year. The majority of patients required more than two visits (61 %). Consultations were requested by all clinics (RO, MO, SO; 49.5 %, 39.5 % and 11 %, respectively). Patients with the increased risk for treatment induced toxicities were preferably admitted to the SC unit (25 %). Other reasons for admission included: FN and sepsis, uncontrollable pain, hypercalcemia and dyspnea (15 %, 11 %, 7 %, 5 %, respectively).

Conclusions
Supportive care service is integrated in routine care of cancer patients at the IORS.
**26-070-P**

**THE VALUE ADDED OF NON-MEDICAL SUPPORTIVE CARE IN MEDICAL ONCOLOGY SERVICES IN FRANCE: A MIXED-METHODS SURVEY**

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**Introduction**

Improving quality of life could reduce the need for aggressive therapy without decreasing length of life (Temel, 2010), and non-medical care contribute. In oncology, those cares are often embedded in hospital medical services. We explored the nature and extent of non-medical supportive cancer care being provided in French hospitals.

**Objectives**

The objectives of this mixed-methods study were to a) collect data on healthcare providers’ and patients’ perceptions of supportive care provided in three French cancer hospitals; b) analyze data to produce coded list of non-medical supportive care functions; c) determine which functions are used a given day with a cohort study.

**Methods**

a) cross-sectional study: face-to-face interviews were conducted with providers, patients and family caregivers at three French cancer hospitals regarding their perceptions of services they provided or received; b) a functional analysis identified themes and organized data accordingly; c) cohort study performed by 3 healthcare hospitals in one day.

**Results**

Several non-medical functions was described around mental assistance of patient and family and different service provided to help people to meet several non-medical supportive care functions.

**Conclusions**

Our study suggests that a high proportion of patients in French cancer care hospitals are there for non-medical reasons. Non-medical care provided performs a variety of social, financial, psychological and legal helpful functions, particularly essential during critical phases of caring for people with non-curable cancer.

**26-071-P**

**COMPLEMENTARY AND ALTERNATIVE MEDICINE (CAM) USE AMONG CANCER PATIENTS AND THE INFLUENCING FACTORS IN TURKEY**

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**Introduction**

Complementary and alternative medicine use is known to occur quite frequently in the population of cancer patients.

**Objectives**

The aim of this study is to determine the use of complementary and alternative medicine among cancer patients and also evaluate the influencing factors.

**Methods**

This is a descriptive and cross-sectional study that is performed with total 280 patients who were being treated in the oncology service and ambulatory chemotherapy unit of Trakya University Health Research and Practice Center. Patients Characteristics Form and Complementary and Alternative Medicine Scale were used in order to collect data. Significance level of *p*<0.05 is used.

**Results**

It was determined that 25.4% of the patients received a diagnosis of lung cancer and 68.2% were seen in the inpatient treatment. Patients taking ambulatory treatment used energy approaches and general complementary and alternative medicine approaches more frequent in comparison to inpatients. No significant difference was found between complementary and alternative medicine use and education, occupation, performance score, diagnosis, diagnosis period and having an operation. The use of complementary and alternative medicine methods by patients were; 39.3% of them sometimes laughed, 41.1% were praying frequently, 43.6% were drinking linden tea and 67.1% were consuming honey. It was reported that 43.9% of the patients were using the complementary and alternative medicine to strengthen the immune system.

**Conclusions**

Complementary and alternative medicine use among cancer patients is quite frequent. Health professionals and patients should be informed about the use of these methods, especially the advantages and disadvantages of these approaches.

**26-072-P**

**DEVELOPMENT AND IMPLEMENTATION OF A SUPPORTIVE CARE APPROACH: WHEN LEADERSHIP, RESEARCH AND DEVELOPMENT ACT, REACT AND INTERACT IN CLINICAL PRACTICE**

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**Introduction**

Leaders are responsible for developing and securing quality in practice. Participatory Action Research (PAR) and Action Learning (AL) as design has proven to be both suitable and useful in healthcare according to development of evidence-based practice and to attain lasting implementation changes in practice. On that background the head nurse in a hematologic department at a Danish hospital employed a nurse specialist post.doc with action research and leadership skills to initiate and implement action research and -learning processes in clinical practice and a nurse specialist with development skills to transform and secure the actions in practice.

**Objectives**

The overall aim is to secure quality in hematologic patients’ care and treatment, based on a supportive care approach.

**Methods**

PAR, AL-sessions, dialogue conferences, ad hoc meetings, field studies, logs

Participants: Primarily nursing staff in the department.

**Results**

The action design has provided individually and collective reflection in and over clinical practice according to a supportive care approach. On this basis there is initiated and implemented various actions both mono- and interdisciplinary according to hematologic patients’ trajectories – including development of an evidence-based practice.
Conclusions
PAR and AL are valuable tools for creating development, dynamics and lasting implementations in clinical practice, given that the involved leaders continuous support the PAR- and AL processes. However it is a continuous managerial challenge to take into account and secure both development and sustainable implementation processes in daily clinical practice by use of PAR and AL, given the bureaucratic and hierarchical health care setting in which practice takes place.

26-073-P
CHEMOPREVENTIVE EFFECT OF HONOKIOL IN BENZO(A)PYRENE INDUCED LUNG CARCINOGENESIS IN SWISS ALBINO MICE.
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Introduction
Lung cancer is the major cause of overall cancer deaths, and chemoprevention is a promising strategy to control this devastating condition. Honokiol, a lignan phytochemical has been studied widely for its chemopreventive properties.

Objectives
The aim of the present study is to explore the anti-tumor activity of honokiol against benzo(a)pyrene [B(a)P] induced lung carcinogenesis in Swiss albino mice.

Methods
B(a)P was administered orally (50 mg/kg b.wt) twice a week for four weeks to induce lung cancer in mice. Animals were treated with honokiol (25 mg/kg b.wt, orally) thrice a week for a total duration of 16 weeks. The body weight, lung weight, tumour incidence, lipid peroxidation, activities of tumor marker enzymes, antioxidant enzymes and histopathological analysis of lung tissue were carried out. Western blotting analysis of NF-kB and PCNA were also carried out.

Results
In B(a)P induced lung cancer bearing animals there was an increase in lung weight, tumour incidence, lipid peroxidation and activities of marker enzymes with subsequent decrease in body weight and antioxidant levels. Honokiol treatment to the lung cancer bearing mice considerably prevented all the above alterations, which indicates the anticancer effect. In western blotting analysis NF-kB and PCNA levels were brought back to normal levels by honokiol treatment. Histopathological analysis further supported the anticancer effect of honokiol, as it ameliorated the pathological changes observed in lung tissues of cancer bearing animal.

Conclusions
The results of the present study indicate the chemopreventive effect of honokiol against B(a)P induced lung carcinogenesis in mice.

26-074-P
DEVELOPMENT OF A CANCER SELF-MANAGEMENT INTERVENTION FOR CHINESE AMERICAN PATIENTS WITH LIMITED-ENGLISH-PROFICIENCY
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Introduction
Studies have suggested cancer patients who have language barriers experience more symptom distress, reduced cancer screening, delays in seeking health care and lack of appropriate health seeking behaviors. Health care providers also report feeling that they are unable to communicate as effectively with these patients and admit to providing less patient-centered care due to language barriers.

Objectives
This paper presents a pilot project to develop a self-management intervention handbook for Chinese American cancer patients with limited-English-Proficiency (LEP).

Methods
A prototype of self-management intervention handbook was developed based on the conceptual and research literature by a team of interdisciplinary content experts. The handbook includes self-care strategies on symptom management, physical activity, and communication. The content was reviewed by eight interdisciplinary health care providers for validation. The English and Chinese version were developed with the forward-and backward-translation process. Sixteen female monolingual/bilingual Chinese American cancer survivors were invited to provide feedback of the handbook. The reported feedback was analyzed by the content analysis method

Results
The health care provider expert panel considered the bilingual self-management handbook is a useful and feasible tool for patient self-management. The common reported barriers and experiences during their treatment included: limited understanding about treatment/medication and side effects; unable to communicate in order to make decision; language barriers; unable to understand information related to resources and do not know what to ask.

Conclusions
The finding provides preliminary data of the feasibility and need of cancer self-management for culturally-diverse LEP cancer patients. Further research includes testing different delivery methods of the intervention.

26-075-P
INTERREGIONAL GUIDELINE OF THE PLACE OF ACUPUNCTURE IN SUPPORTIVE CARE IN HEMATOLOGY-ONCOLOGY.
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Introduction
The use of complementary and alternative medicine by cancer patients is increasing worldwide. Particularlly acupuncture are now taking a significative place in the care supply. French Association of Supportive Care in Oncology (AFSOS) put together a working team in partnership with the French Institution of Acupuncture and Traditional Chinese Medicine (CFA-MTC) to provide caregivers with information regarding the use of acupuncture in hematology-oncology.

Objectives
To elaborate a guideline for professionals to better inform patients in the use of acupuncture in hematology-oncology.

Methods
The method used follows AFSOS procedure : it means the constitution of an interregional working group including physicians, oncologists, nurses, supportive care specialists, and other professionals involved in Acupuncture in hematology-oncology.

The working team:
– Analyzed the literature published on this question.
– Conducted several phone meetings that lead to circumscribing the question, defining the methodology and elaborating a work plan.
– Presented and debated on their work during the national supportive care guidelines sharing days, organized by AFSOS on December 11th and 12th, 2014 leading to the integration of modifications and consensual validation in plenary session.

Results
A shared interregional and multidisciplinary guideline, a very useful tool to help teams inform patients on risks and benefits of acupuncture, on their teaching and their practitioners.

Conclusions
The aim is to enlighten caregivers regarding acupuncture indications as a complementary therapy to the conventional medicine mainly on the management of secondary effects in hematology-oncology. The final goal is to enhance the relationship and the dialog between patients, complementary medicine practitioners and caregivers.

26-076-P

ATTEMPTS OF INTERDISCIPLINARY CANCER TEAMS TO IMPROVE PATIENT-REPORTED EXPERIENCE: THE HIDDEN PATIENT ACTIVATION MECHANISM

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Introduction
Evidence on interdisciplinary teamwork (ITW) in oncology suggests that the links between quality of team functioning and patient outcomes are few and far between, and offer inconsistent results. The mechanisms by which ITW produces specific outcomes related to patient cancer care experience are currently receiving very little research attention and are poorly understood.

Objectives
This project aims to explain how ITW is associated to the patient-reported experience of cancer care.

Methods
This multi-center (n=7) case study draws on the principles of realist evaluation to explore the complex interaction among ITW context (C), mechanism (M), and outcome (O). This approach use multiple qualitative data sources in a pragmatic and reflexive manner to build a picture of the CMO relationships using the guiding question “what works, for whom, under what circumstances?” Data collection included focus groups with patients (n=33) using a four-stage vignette presenting a hypothetical scenario of a patient experience with his interdisciplinary team. The vignette provides information for participants to have an understanding of the scenario, but needs to be vague in ways that compel participants to ‘fill in’ detail. We undertook an interpretative analysis to answer our guiding questions.

Results
Supporting patient activation emerged as a critical mechanism (M), fed by four secondary ones. Each of these mechanisms appeared to be driving the association between ITW context (C) and the perceived patient’s positive and less positive cancer care experience (O).

Conclusions
Within the local context, ITW differently supported the patient activation mechanism and met differing patient outcomes.

26-077-P

PREGNANCY OUTCOME IN PATIENTS WITH STAGE 1A ENDOMETRIAL ADENOCARCINOMA, WHO CONSERVATIVELY TREATED WITH MEGESTROL ACETATE

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Introduction
The most effective treatment of well-differentiated endometrial carcinoma (EC) is surgery. Nowadays that the age of marriage has increased among different communities, there are more patients who would like to preserve their fertility despite having EC. Hormonal therapy can be considered as an alternative in patients who want their fertility preserved.

Objectives
The evaluation of megestrol acetate on young patients with well-differentiated endometrial cancer who wish to preserve their fertility, with regard to the receptors.

Methods
16 patients were treated initially with 160 mg/day of megestrol acetate and continued with 320 mg/d for non-responsive cases. All patients followed with FD&C and hysteroscopy. The responsive patients were referred to IVF group.

Results
Response rate to hormonal therapy was 10/16 (62.5 %). The mean time of responding was 7.5 months. Other six (37.5 %) patients underwent total abdominal hysterectomy (TAH). Of 10 patients who responded to hormonal therapy, one exited of the study because of her husband’s infertility. Two patients are under IVF. Three patients did not get pregnant and four patients became pregnant and finally underwent TAH. All patients had progesterone receptors. Only one patient lacked estrogen receptors; who also responded to treatment.

Conclusions
Progesterins treatment of these patients who want to have child may be useful, but close long-term follow-up is necessary. The evaluation of estrogen and progesterone receptors assay may be useful in predicting response to the treatment.

26-078-P

SURVEY ON POSTMORTEM CARE “ANGEL CARE” IN A JAPANESE GENERAL HOSPITAL

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Introduction
Until in the 1960’s, the terminally ill were mainly attended by family members at home and postmortem care (“angel care”) was also performed by family members. Today, nurses give angel care, and their lack of confidence in giving such care has been reported by general hospitals and differs for each institution and hospital ward.
Objectives
This survey clarified the attitude toward postmortem care of nurses at hospitals.

Methods
A self-administered questionnaire was given to hospital nurses in City A to investigate their personal backgrounds, satisfaction with existing postmortem care, confidence in performing postmortem care and other items. Questionnaires were collected, and chi-squared tests were done (SPSS ver.22).

Results
The 99 respondents (collection rate: 90.2 %) were all female. The results revealed a positive correlation between the satisfaction with the equipment used for postmortem care and confidence in performing postmortem care. Regarding whether nurses would be satisfied if they had received the postmortem care they gave, a positive correlation between the satisfaction with the postmortem care they gave and “confidence in performing postmortem care” was observed. Concerning “confidence in performing postmortem care”, the nurses who were satisfied with the equipment that was used reported higher self-confidence, and factors such as how many times the nurse had given postmortem care did not correlate with confidence.

Conclusions
Generally nurses lack of confidence in, and satisfaction with, postmortem care. The results show that satisfactory equipment used for postmortem care can help to raise the nurses' confidence in giving such care.

ADDRESSING UNMET SUPPORTIVE CARE NEEDS OF GYNAECOLOGICAL CANCERS SURVIVORS-DESIGNING A CARE MODEL TAILORED TO ADDRESS SUCH NEEDS IN RESOURCE CONSTRAINED ECONOMIES

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Introduction
In a resource constrained, overburdened healthcare system, gynaecological cancer survivorship is challenging because it involves dealing with impaired fertility, treatment-related menopause, diminished sexual response in addition to lack of awareness and education of patient family. Such circumstances give rise to unmet supportive care needs. High priority unmet needs are fear of Cancer Recurrence, anxiety of safety & wellbeing of the family, psychosocial obligations and dependence on others for self-task. Addressing these needs will automatically improve adherence to treatment recommendation, managing treatment-related toxicities and reducing mental burden.

Objectives
Tailored to address resource-poor low- and middle-income countries (LMICs), a new integrated, patient partnered participatory care model is being proposed. It is based on the integrated care model of Anaissi et al. and Bruera et al.

Methods
Validated data source of citations from five electronic databases (Pubmed, Medline, CINAHL, Embase and Ovid) were searched for the period of 2004–2014. Systematic reviews that include “unmet supportive care needs”, survivorship burden, resource constrained healthcare systems, care models were considered including peer reviewed journals representing original work.

Results
The model fit well denoting that high quality care occurred when there was a fundamental valuing, feeling of empowerment and involvement of families in all modalities of care administered.

Conclusions
Unawareness and lack of education, closed cultural systems are the root cause for existence of such unmet needs for this cohort. Integrated and participatory care model will encourage dissemination of information and clarity on the state of survivor.

HEAD AND NECK CANCER PATIENTS’ EXPERIENCES WITH SPOUSE AND RELATIVES BEFORE, DURING AND AFTER TREATMENT WITH RADIOTHERAPY

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Introduction
It is well known that cancer and it’s treatment affect spouse, the entire family and close relationships.

Objectives
To investigate head and neck cancer patients’ experiences with spouse and relatives before, during and after treatment with radiotherapy.

Methods
Seventeen patients (age range 56-90, mean 65) who had completed radiotherapy were interviewed in three focus groups focusing different aspects related to the treatment course. In this study only statements related to spouse and relatives were in focus.

Results
Spouse and especially children have focus on potential illness and often demands visiting the doctor. Spouse is a big support in listening and remembering what is said at the hospital. Spouse often retains the overview and guides the patient through the process. Spouse and relatives give practical help at home. As an example, they help the patient to get sufficient nutrition. Spouse and relatives are mental supporters. Patients are focusing on the close family’s reactions concerning the illness and treatment. Patients have a need for some distance to spouse, family and friends. In particular, they need a haven from disease.

Conclusions
The patients’ experiences with spouse and relatives are generally positive related to mental and practical help. However, patients have a great need concerning that not everything in everyday life should be about disease and treatment. Support from primarily spouse has an important impact on quality of the treatment course.

PATIENTS FACING DEATH – THE WORK OF PSYCHOLOGISTS AT THE BRAZILIAN NATIONAL CANCER INSTITUTE

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Introduction

The paper draws on the psychoanalytical conceptualization of death together with the way it is dealt by in literature. Freud (1923) demonstrates that one cannot experiment oneself as dead. Through the world of literature one can be reconciled with death, however that will never happen with one’s own, only with that of “the other”. A Tolstoi’s passage reads “the very fact of the death of someone so close aroused, as usual, in each one to whom he was acquainted, a happy feeling that an other had died and not oneself. There he lies, dead; not me – thought or felt each one”. Psychoanalysis emphasizes people’s inclination not to include death when calculating life.

Objectives

To examine the consequences of denying death both in the patients and in psychologists working in the Brazilian Cancer Institute.

Methods

Patients (n=50) and psychologists (n=10) were listened at consultations and during supervision sessions. Psychoanalytical method of listening when those who speak are in a “transference relationship” was applied. Evaluation Forms were filled in order to classify data.

Results

Both patients and psychologists are under the injunction of not regarding their own death as possible. However a difference was found between those who face it as subjects considering death as part of life and those who regard themselves as objects to whom death occurs unwantedly.

Conclusions

When a subject takes in hands the decision to face the inexorability of death other ways to cope with the horror of death may be opened, both for those who speak are in a “transference relationship” with this community was identified. It results from the masses’ super attachment to cultural practices and beliefs; some of which are incompatible with a typical modern care and support approach; accounting for high deaths among people diagnosed with terminal conditions: as much as 50 % occurring within 01–06 weeks post diagnosis. About 80 % of these community dwellers prioritise tradi-practitioner or sorcery consultations over modern medicine hence most conditions are diagnosed late whereas health units are often inadequately equipped.

Conclusions

Addressing challenges like poverty and primitive culture would greatly enhance quality of palliative care and support for life-limiting health conditions especially in paediatric oncology. This study outcome guided our new care guidelines drafting and implementation which we are steadily improving on.

26-083-P

USE OF ALTERNATIVE AND COMPLEMENTARY MEDICINE IN PATIENTS WITH MALIGNANT DISEASES IN CROATIA

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Introduction

Nowadays, the proportion of oncolgic diseases in total mortality in Croatia, same as in the rest of the developed world, accounts for some 25 %. It should not be forgotten that some of these patients seek a solution for their health problems outside the framework of modern, evidence-based medicine. As cancer incidence rate and survival time increase, use of alternative and complementary medicine (ACM) will likely increase.

Objectives

This study is undertaken to assess the prevalence and predictors of ACM use in patients suffering from malignant diseases in Croatia, since these products and procedures could possibly significantly alter cancer treatment.

Methods

The study involves patients treated at the University Hospital Center “Sestre Milosrdnice” in Zagreb, and is carried out in the form of a questionnaire. During a period of one year, it is planned to include at least 300 patients with histopathologically confirmed diagnosis of malignant disease in the study.

Results

Preliminary results show that a significant proportion of patients (61.2 %) had personal experience with some form of ACM. Most patients use herbal preparations, recommended most often by herbalists and homeopaths, with a goal to raise immunity, detoxicate the organism, and even treat cancer. Only 40 % of patients talked about the usage of ACM with their oncologist.

Conclusions

Considering the fact that a large proportion of patients had used at least one ACM approach, we need to continue our efforts to improve patient – oncologist communication, and to initiate research to determine possible drug-ACM interactions.

26-084-P

SUPPORTIVE CARE, PALLIATIVE AND QUALITY OF LIFE IN PATIENTS WITH LIFE-THREATENING CANCER AND THEIR RELATIVES: A PARTNERSHIP ON RESEARCH PRIORITIES

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Introduction
User involvement in health care in Denmark is not a new phenomenon, however offering users the opportunity to impact future research directions within supportive care, palliation and quality of life is novel. Traditionally, research topics deemed worthy of scientific pursuit are determined, assessed and prioritised by researchers and funders.

Objectives
This project challenges conventional research processes by inviting patients with life-threatening cancer, their relatives and patient organizations/ambassadors to join in a partnership with clinical specialists and researchers to identify and prioritize future research.

Methods
This is a qualitative study involving three parallel focus group interviews (FGI) with patients, relatives and clinical specialists, respectively. The FGIs will identify and define important research issues, and a fourth follow-up FGI with representatives from each group will validate and prioritize the identified research issues. This process will be carried out in two different patient groups; brain tumour and leukaemia from May 2015 to April 2016. Audio recordings will be transcribed and thematically classified into main and sub-topics for research issues.

Results
The research topics will be approved by the projects steering group and a systematic literature review will be conducted to explore whether evidence is available within the identified research areas.

Conclusions
This study has clinical relevance, as it considers both user and clinical specialist perspectives in the identification and prioritization of future research within supportive care and palliation, including symptom management. Establishing a partnership between patients/relatives, clinical specialists and researchers can lead to new perspectives within Danish health care research.

26-085-P

A LITERATURE REVIEW (LR) OF THE IMPACT OF ANEMIA (AN) IN PATIENTS (PTS) WITH MYELOFIBROSIS (MF)

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Introduction
This is the first LR focused on the burden of An in MF.

Objectives
Our objective is to summarize evidence and identify gaps to inform further study.

Methods
In Mar2014, a PubMed search was conducted yielding 279 articles of which 64 were selected for review.

Results
Table 1 highlights data from the abstraction:

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Ranges of available data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalence of anemia in MF</td>
<td>As low as 35 % at diagnosis (Dx) (~352/1,001 pts in seven institutions, Cervantes, 2009) to as high as 64 % (247/386 pts≥one year post Dx, Telfer, 2012)</td>
</tr>
<tr>
<td>% of pts transfusion (TX)-dependent</td>
<td>As low as 17 % at Dx (32/185 pts, Telfer, 2009) to 45 % for pts referred a year after Dx (164/365 pts, Gangat, 2011)</td>
</tr>
<tr>
<td>Frequency of TXs</td>
<td>Range of total number of TXs per pt – none to 121 in a study</td>
</tr>
</tbody>
</table>

We found that the economic burden of An has not been studied and only one study explored the impact of An on MF pt quality of life (QoL). Mesa (2007) found that An led to a stepwise increase in fatigue (P<0.01).

Conclusions
An has been associated with poor prognosis, reduced QoL, and potentially high resource use.

26-086-P

BREAST CANCER! THEN THE SIDE EFFECTS OF TAMOXIFEN, HOT FLASHES DAY AND NIGHT, I WAS EXHAUSTED, MY QUALITY OF LIFE WAS ZERO. A QUALITATIVE STUDY.

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Introduction
Conventional medical treatment of estrogen receptor positive breast cancer involves the use of hormone therapy for a minimum of 5 years. Side effects of such medication seriously reduce quality of life (QoL). A few quantitative studies have been published confirming this, but qualitative information has so far been lacking.

Objectives
To qualitatively examine QoL of breast cancer patients, medicated with estrogen antagonists, 2 years after having acupuncture treatment for hot flashes.

Methods
Eighty two women who had two years previously participated in a randomized controlled trial investigating the effects of acupuncture on hot flashes, a side effect of estrogen antagonist treatment, were asked a qualitative question. “Would you like to share your thoughts and experiences related to your breast cancer diagnosis, treatments or anything else?” The question was by being open, broad, and nonspecific, intended to stimulate subjective information, which was not included in the original, quantitative RCT. Qualitative data were analyzed using systematic text condensation.

Results
Most women were troubled by two or more side effects due to anti-estrogen medication, negatively affecting their life quality. Symptoms including hot flashes, sleep problems, muscle and joint pain, arm edema, fatigue, weight gain, depression, and lack of sexual desire. Other topics the women wrote about were their reactions to diagnosis and treatment, confidence issues and relationships, also social and work problems.

Conclusions
Side effects due to anti-estrogen treatment seriously affect long term quality of life in breast cancer operated patients.
Introduction
Oncology patients need home care services after chemotherapy and discharging.

Objectives
Aim of study was to determine expectations of the oncology patients and their caregivers on home-care services (HCSs).

Methods
This descriptive study included the patients above 18 years old without any psychiatric condition and their caregivers (N=60) who were admitted to medical oncology clinic who had received at least one course of chemotherapy.

Results
50% was female and 50% was male with mean age being 57.8±11.5 years of patients. In regard to distribution of diagnoses of the patients, 21.7% of the patients had breast cancer. It was found that 60% of the patients had no sufficient knowledge on the HCS. 71.7% of the patients reported that they had experienced adverse effects following chemotherapy. Side effects most frequently after chemotherapy were pain (81.6%), nausea/vomiting (70%), and anorexia (55%). Accordingly, 27% of the caregivers reported that their patient should be cared by healthcare professionals and 25.2% of them resolved their new-developing conditions by using home-care service. 74.1% of the caregivers reported that they had not had quality health care from the HCS.

Conclusions
The oncology patients do not utilize home-care services at adequate and desired level, and that home-care services are not efficient and widespread in meeting expectations of the oncology patients. As for other chronic conditions, home-care services should be widened and its service coverage should be widened to cover the cancer patients in order to cope and manage effectively the symptoms associated with cancer treatment.

26-088-P

ANALYSIS OF INCIDENCE, GRADE AND TREATMENT OF HYPERTENSION DUE TO VEGFR TYROSINE KINASE INHIBITORS IN PATIENTS WITH RENAL/LIVER CANCER: AN OBSERVATIONAL PROSPECTIVE MULTICENTER STUDY.

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3Nicso, Nicso, Pisa, Italy

Introduction
VEGFR Tyrosine Kinase Inhibitor (TKI) like Sunitinib, Sorafenib and Pazopanib are drugs approved for treatment of renal and liver cancer. Hypertension is one of the most frequent adverse events reported (5–40%). Moreover, it’s a risk factor for ischemic heart disease, stroke and renal impairment. Incidence and severity of hypertension are related to specific TKI and comorbidities. No validated guidelines are available for the management of hypertension due to VEGFR TKI.

Objectives
To evaluate the real incidence and grade of hypertension in the study cohort. Secondary objectives are, the description and the management of hypertension and all the related cardiac and cerebrovascular events.

Methods
Observational prospective and multicenter study in a sample of about 200 patients treated in first line with TKI for metastatic renal or liver cancer. Patients will be followed for a period of six months after study entry.

Results
The study received the Ethical Committee approval on October 2014 and actually 26 Italian Oncologic Center affiliated to NICSO, are participating to the study. The enrollment is ongoing.

Conclusions
The study, supported and promoted by NICSO, is an important step for evaluating prospectively hypertension and its consequences in the “real world clinical practice” across different Italian Oncological Centers. Furthermore, results will be used as a tool for new studies design in the field of cardiovascular toxicities.

26-089-P

RAPID DETECTION OF CARRIERS WITH BRCA1 AND BRCA2 MUTATIONS USING HIGH RESOLUTION MELTING ANALYSIS IN IRANIAN BREAST CANCER PATIENTS

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Introduction
Breast cancer is the most commonly malignancy worldwide with nearly 1,000,000 new cases diagnosed per year. Germline inactivating mutations in BRCA1 and BRCA2 underlie a major proportion of the inherited predisposition to breast and ovarian cancer.

Objectives
High resolution melting (HRM) analysis is a rapid screening methodology with very low false negative rates. Therefore, the aim of study was to investigate founder mutations of BRCA1/2 in the high risk Iranian families.

Methods
All subjects were 84 breast cancer patients. We designed PCR amplicons for HRM scanning of BRCA1 gene exons 2 and 20 (carrying the founder mutations185delAG and 5382insC respectively) and the part of the BRCA2 exon 11 carrying the 6174delT founder mutation. The analysis was performed on an HRM-enabled real time PCR machine.

Results
Founder mutations185delAG and 5382insC, were detected in 2 and 3 patient, respectively, and 6174delT founder mutation was not seen anybody.

Conclusions
The findings show that family history is a good predictor of being a mutation carrier. Foremore, these mutations are usually detected by DNA sequencing but in some cases, such as tracking mutations through pedigrees, sequencing may only be necessary to confirm positive results. Cost-effective and rapid methods to screen for these mutations would enable the extension of mutation testing to a broader population.

26-090-P

A RANDOMIZED, CONTROLLED STUDY INVESTIGATING EFFICACY OF OMEGA 3 FATTY ACID AUGMENTATION OF ANTIDEPRESSANT IN THE TREATMENT OF CANCER-RELATED DEPRESSION

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Introduction
Cancer-related depression has been associated with underlying inflammatory processes. Omega-3 fatty acids (Omega-3 FA), due to its anti-inflammatory effects, might be beneficial in the treatment of depression with underlying inflammatory processes. Additionally, evidence from randomized controlled trials suggest efficacy of Omega-3 FA as an adjunct to antidepressants in the treatment of depression.

Objectives
In a double-blind, placebo-controlled, flexible dose study: Investigate efficacy and safety of omega-3 FA supplementation as an adjunct to desvenlafaxine (standard antidepressant) in the treatment of cancer-related depression. Investigate impact on comorbid symptoms, quality of life, immune markers and cortisol levels.

Methods
A total of 60 adult patients with cancer and diagnosed with clinical depression are treated over a 12-week period. All subjects receive fixed-dose desvenlafaxine (50 mg/day). Subjects are randomized to receive omega-3 FA supplements (360 mg of EPA and 240 mg of DHA per 1.2 g tablet/capsule) or placebo as an augmentation strategy. The Omega-3 FA supplement (or placebo) is titrated from 2.4 mg to a maximum of 4.8 mg/day over the first 2 weeks based on tolerability. Primary study assessments include validated depression, anxiety questionnaires conducted throughout the study period. Secondary assessments include fatigue, pain, sleep and quality of life assessments, safety assessments as well as assessments of biomarkers, specifically inflammatory markers and cortisol levels.

Results
A total of 11 subjects are enrolled to date. Preliminary study results will be presented.

Conclusions
This pilot study is a vital step towards larger studies investigating omega-3 FA as an adjunctive treatment for cancer-related depression.

DETERMINING THE AWARENESS OF UNIVERSITY STUDENTS ABOUT HUMAN PAPILLOMAVIRUS (HPV) VACCINE

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Introduction
HPV has been determined to be responsible for development of cervical cancer but lack of knowledge and worries about the use of the vaccine have been found not only in adolescents and their families but also in the health personnel.

Objectives
It is aimed to determine the knowledge level of the students about HPV vaccine.

Methods
The population of the study comprised of 998 students at School of Health. The sampling was composed, using random sampling method, of 468 (116 Nursing, 116 Physical Therapy and Rehabilitation, 217 Midwifery) female students having accepted to participate in the study. The participants were applied a questionnaire form developed through literature review. The participation rate was 46.90%. The data were analysed using percentage and chi square.

Results
It was seen that the knowledge level of the students about the following was very low. There are statistically significant discrepancies in the knowledge level of the students about HPV and its vaccine in terms of their departments and knowledge level of the students in terms of their grades; the knowledge level increases as the grade rises.

Conclusions
Awareness of the university students about HPV and vaccine is rather low. It is recommended that in order to inform the youth about the subject, educational programs should be provided through cooperation among related sectors, counselling centres should be built.

SUPPORTIVE ROLE OF MUSIC FOR ONCOLOGY PATIENT UNDERGOING RADIOTHERAPY

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The aim of this study was to evaluate the effects of relaxing chemotherapy on the symptoms and emotional well-being of cancer patients during the treatment process.

Objectives: Radiation therapy is a medical use of ionizing radiation, generally as a part of cancer treatment to control or kill malignant cells. It may be curative in a number of types of cancer if they are localized to one area of the body. Listening to the music has a lot of beneficial effects on cancer patients receiving radiation therapy that often experience harsh side effects of this treatment, such as anxiety, fear or loneliness.

Methods: The aim of this study was to evaluate the effects of relaxing music on the emotional state of cancer patients during radiotherapy. 100 patients of Greater Poland Cancer Centre in Poznan that underwent curative radiotherapy for at least four weeks: adults (M, F) aged 20–80 years who had consented to participate in the project with diverse sites of irradiation. Patients were given a standard radiotherapy treatment and at the same time they were exposed to the music. Patients were given anonymous questionnaires with questions concerning their reactions to the treatment process and music they were listening during radiotherapy.

Results: Music aroused positive emotional impressions, filled time during radiation, improved patients’ mood and well-being during radiation therapy. Only a few patients expressed their disapproval of the method and the lack of positive emotions from the contact with music. The results show that acoustic stimulation with relaxation music during radiotherapy has a favorable impact on the emotional condition during cancer treatment. Music improves emotional state, quality of life and affects the quality of provided radiotherapy service.

Conclusions: Listening to the relaxation music during radiation therapy helps patients’ minds off the discomfort caused by the treatment. Music may also be basic for planning effective programs of relaxation for cancer patients - to promote wellness, improve physical and emotional well-being, improve quality of life and improve the quality of radiotherapy service.

26-094-P

DETERMINATION OF AWARENESS ABOUT CERVICAL CANCER, HUMAN PAPILLOMA VIRUS (HPV) AND HPV VACCINE IN FEMALE STUDENTS OF A HEALTH SCIENCES FACULTY

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Introduction
Education of healthcare personnel is important in early diagnosis and prevention from cervical cancer.

Objectives
This study was planned to determine the awareness and influencing factors in female students of a Health Sciences Faculty about cervical cancer, human papilloma virus (HPV) and HPV vaccine.

Methods
The study was conducted on 374 students in the Faculty of Health Sciences of a University in Turkey. Data were collected by a questionnaire form.

Results
The mean age of the students was 20.2±1.5. Of the students, 64.4% was nursing department, 40.6% was 3rd grade, 85.8% was against premarital sexual intercourse, 2.7% had sexual experience, first sexual experience age was 19.9±2.0 and 3.5% had genital warts problem. The study determined that 1.1% of students were done HPV vaccination and 92.5% of them want to get information about HPV vaccine. Nursing students were higher knowledge about recognition of HPV (65.6%), preventing ways from HPV (68.0%), and HPV vaccine (37.4%) than the other departments’ students (p<0.001). Of the 4st grade students, 64.1% known to HPV vaccine and 92.3% known to the protection ways from HPV (p<0.001), 76.9% of the students like to be HPV vaccine was 4th year students (p<0.001).

Conclusions
Departments and classes of students affected to the awareness about HPV, HPV vaccine and cervical cancer. Nursing and 4th grade students had good awareness about HPV. Training programs should be organized beginning from the 1st grade in order to increase the awareness of students who are future healthcare professionals.

26-095-P

SYMPTOM BURDEN AT START OF CHEMOTHERAPY FOR COLORECTAL CANCER

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Introduction
Colorectal cancer (CRC) is one of the most common cancers in the world. Patients with CRC often report symptoms, but symptoms are often studied separately, and little is known about multiple concurrent symptoms before starting treatment in these patients.

Objectives
The purpose of the present study was to investigate the overall symptom burden in patients with CRC starting chemotherapy, and to investigate differences in symptom occurrence, severity and distress between patients with CRC scheduled to receive adjuvant, or palliative chemotherapy.

Methods
Data were collected through the Memorial Symptom Assessment scale (MSAS) by evaluating multiple dimensions of 32 symptoms, The Self-Administered Comorbidity Questionnaire (SCQ), and Karnofsky Performance Status scale. Demographic and clinical variables were collected prior to the initiation of chemotherapy.

Results
A total of 120 patients were included, 68 were scheduled to receive adjuvant chemotherapy whereof 19 neoadjuvant, and 52 palliative chemotherapy. Worrying (65%), lack of energy (59%), feeling drowsy (54%), feeling bloated (53%), pain (51%), and difficulty sleeping (50%) were the most common symptoms reported by both groups. There were only small differences between the patients related to the treatment intent.

Conclusions
Patients with CRC experience several and distressing symptoms at the initiation of chemotherapy. As chemotherapy also gives symptoms, health care professional should be aware of the patients’ symptom burden and assist in relieving symptoms also before the treatment starts.
26-096-P

A PHASE II STUDY OF GEMCITABINE, OXALIPLATIN, AND ERLOTINIB COMBINATION CHEMOTHERAPY IN UN-TREATED PATIENTS WITH LOCALY ADVANCED UNRESECTABLE OR METASTATIC Pancreatic CANCER: SAFETY RESULTS

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Introduction
Several combination treatments consisting of gemcitabine with newer agents have been investigated for patients with advanced pancreatic cancer. However, most treatments have disappointing results.

Objectives
Therefore, we studied the efficacy and safety of erlotinib with gemcitabine and oxaliplatin combination chemotherapy given as first-line therapy for advanced pancreatic cancer.

Methods
Patients with chemotherapy-naïve, histologically confirmed, locally advanced unresectable or metastatic pancreatic cancer were given GEMOX-T (oral erlotinib 100 mg daily, gemcitabine 1000 mg/m² iv, and oxaliplatin 50 mg/m² iv on days 1 and 8) every 3 weeks. The primary endpoint was the response rate.

Results
33 patients are registered. The patients’ mean age was 59 (range 31–82) years. In total, 168 chemotherapy cycles were delivered. Generally, GEMOX-T was well tolerated. The major grade 3/4 hematological toxicities were neutropenia (20 %) and anemia (12 %), which were manageable. The main non-hematological toxicities were nausea (29 %), anorexia (29 %), rash (27 %), fatigue (25 %), and diarrhea (24 %); these were mainly grade 1/2. There was no treatment-related mortality. The relative dose intensities of gemcitabine, oxaliplatin, and erlotinib were 97, 97, and 100 % of the planned doses, respectively.

Conclusions
GEMOX-T appears to be active as first-line chemotherapy for advanced pancreatic cancer, and the safety profiles are acceptable.

26-097-P

RETROSPECTIVE REVIEW OF THE INCIDENCE OF MONITORING BLOOD GLUCOSE LEVELS IN PATIENTS RECEIVING CORTICOSTEROIDS WITH SYSTEMIC THERAPY

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Introduction
Corticosteroids are used adjuvant to certain chemotherapy regimens, either as an antiemetic, to reduce other side effects, or to enhance cancer treatment. Steroid use may induce hyperglycemia in approximately 20–50 % of patients, which may negatively affect patient outcomes.

Objectives
To determine the frequency of blood glucose monitoring in patients receiving continuous corticosteroids with chemotherapy, and to determine the incidence of treatment-emergent abnormal blood glucose levels, steroid-induced diabetes mellitus, or pre-diabetes.

Methods
A retrospective review was conducted for 30 genitourinary cancer patients who were treated with continued oral corticosteroids as part of their chemotherapy regimen. Glucose monitoring was defined as receiving a blood test before first chemotherapy administration along with a test within a week of each subsequent treatment cycle. We applied the Canadian Diabetes Association criteria for diagnosis of pre-diabetes and diabetes.

Results
The mean incidence of blood glucose monitoring was 19 % and 76 % in non-diabetics and diabetics, respectively. Fifteen non-diabetics received a fasting blood glucose test, of which 40 % had abnormal blood glucose results; half of these fell into the diabetic range and half in the pre-diabetic range. Ten non-diabetic patients were tested for diabetes during or after chemotherapy, of which 30 % developed diabetes.

Conclusions
In order to optimize patient care, blood glucose should be monitored in patients receiving continued oral corticosteroids as part of their chemotherapy. Future studies should be conducted prospectively to determine the most effective manner of monitoring in order to implement screening guidelines and avoid unnecessary morbidity.

26-099-P

RELATIONSHIP BETWEEN HOPE AND RELIGIOUS / SPIRITUALITY IN NON-ADVANCED PATIENTS WITH HAEMATOLOGIC OR SOLID MALIGNACIES TREATED IN THE SUPPORTIVE CARE UNIT OF A COMPREHENSIVE CANCER CENTER

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3ISPO, Cancer Prevention and Research Institute Florence Italy, Florence, Italy

Introduction
Data are lacking on the relationship between hope and religiosity in cancer patients.

Objectives
To evaluate the relationship between hope and religiosity in non-advanced cancer patients on supportive care due to toxicity.

Methods
From September 2013 till March 2014 patients were asked to complete the Italian validated version of Need Assessment Questionnaire (NEQ), ESAS, Hope Hert Index (HHI) and System of Belief Inventory (SBI-15R). Multiple linear regressions on HHI and SBI score, adjusted for patient baseline characteristics, were fitted.

Results
BSI-15R and HHI were completed by 298 patients mean age 60.2, 59.2 % solid cancers; 10.4 % with metastases or relapse; KPS<80 in 4.5 %. SBI score and expressed religiosity (44.1 % churchgoer, 41.9 % believer-non-
churchgoer, 14% non-believer) were strongly associated according to the multiple linear regression model: churchgoers had SBI-total score 13.5 higher than believer-non-churchgoers, and 32.1 higher than non-believers. HHI score was strongly associated both with spirituality (SBI) and with expressed religiosity: non-believers had 4.8 points lower HHI score (p<.001) than churchgoers, and believer-non-churchgoers 2.5 points lower than churchgoers (p=.010); each 10 points higher SBI score predicted 1.3 higher HHI score (p<.001)

Conclusions
In non-advanced cancer patients hope is significantly related to Religion/spirituality; thus more attention both to expressed religiosity and spirituality is needed among these patients in order to support their hope and to exploit all their resources in dealing with the disease.

26-099-P

MODELS OF CARE FOR ONCOLOGIC EMERGENCIES: VARYING NEEDS AND RESOURCES RESULT IN DIFFERENT APPROACHES TO CARE

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Introduction
Outpatient treatment has increased acute care needs.

Objectives
Investigate models and availability of care.

Methods
Oncologic emergency centers were investigated by interviewing physicians and searching literature.

Results
Sloan-Kettering and MD Anderson emergency centers each provide over 20,000 annual visits. Faculty, mostly internists see established patients for treatment complications or disease progression and admit over half. Oncologists are available for collaboration. Observation units decongest the centers. Acute care growth is disproportionate to institutional. Asan provides cancer care to approximately 10% of patients in South Korea and has a Cancer ER (CER). Goal was improved treatment of established patients and reduced census. Emergency medicine faculty and fellows in internal and emergency medicine provide care to over 13,000 visits annually. Oncologists round, collaborate and make treatment decisions. A blend of observation and ER, the CER treats infections, symptoms, transfers blood, electrolytes, and provides procedures like gamma knife, stents, and placement of pleural/peritoneal catheters. Stay averages 33 h, resulting in 85% to 42% admission decrease. Challenged with outpatient treatment in divergent settings, and multiple ERs, the Clatterbridge Merseyside and Cheshire Cancer Network devised an Acute Oncology Service (AOS). Problems were inadequate knowledge and communication with oncologists. AOS implemented protocols for oncologic emergencies and pathways for unknown primaries. The AOS trains ER and inpatient physicians and liaises with oncologists and palliative care. Improved length of stay and satisfaction has resulted.

Conclusions
Approaches based on needs and resources share prevailing themes of prolonged stays, high acuity and admission rates, procedures, importance of collaboration with oncologists and palliative care.

26-100-P

POSITRON-EMISSION TOMOGRAPHY IN HEAD AND NECK CANCERS: IMPACT ASSESSMENT EXPERIENCE ABOUT 52 CASES


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Introduction
The aim of our communication is to evaluate the role of positron-emission tomography (PET) in clinical practice.

Objectives
We would like to confirm the interest of PET in clinical head and neck oncology for initial staging and locoregional assessment.

Methods
This retrospective analysis focus on patients undergoing PET: Clinical Data, tumor stages, diagnosis before PET were collected and modifications of treatment, diagnosis and restaging were analysed.

Results
Fifty-two patients meet inclusion criteria: 42 men and 10 women (mean age 57, range 40–92). Of 52 patients, 46 (88%) had performs status 0–1, and 45 (86%) had stage III-IV tumors. Distant metastases were discovered in 19 patients (36%). Metastatic sites were lung (7), bone (1), multiple sites (9), thyroid (1), and liver (1). Stage III-IV diseases are high metastatic risk. Synchronous second tumor locations were shown in 4 (7%) patients: 2 lungs, 1 prostate and 1 rectal cancers. Eleven (21%) patients underwent PET at initial staging: 3 cases of polymetastatic disease were discovered. Fourteen (27%) patients presented carcinoma unknown primary (CUP) after magnetic resonance imaging (MRI) or computed tomography (CT). In this case PET provides diagnosis for six patients (42% of CUP): 4 laryngeal, 1 lung, 1 oropharyngeal cancers. Recurrent disease was suspected for twenty-seven patients (52%). Of 27 patients, PET showed 19 recurrent diseases, 14 locoregionally advanced, and 14 metastases at distant sites.

Conclusions
The use of PET in head and neck cancers showed an interest in assessment of the recurrent or metastatic disease, and for specify primary sites. Further investigations should be interesting for the management of recurrent disease.

26-101-P

THE AMBIGUOUS TRANSFORMING BODY – A PHENOMENOLOGICAL ANALYSIS OF THE MEANING OF CHANGES IN WEIGHT AND BODY-COMPOSITION AMONG WOMEN TREATED FOR BREAST CANCER

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**26-103-P**

**MODERN ASPECTS OF TREATMENT OF PRECANCEROUS CERVICAL DISEASE.**

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Introduction

The problem of cervical cancer is very acute in developing countries where statistics number are impressive.

Objectives

Aim and purpose of the research was the use of a-2b interferon locally in young women with precancerous cervical disease and assessment of efficiency.

Methods

Use of recombinant a-2b interferons (Laferon, Laferobion 1 000 000) injection locally on the cervix by scheme.

Results

Assessment of treatment results was made after 12 to 18 months. Observed improvement in clinical and laboratory data in 91.4 %, Condition was not changed in 8.6 %, Progression of the diseases was not observed.

Conclusions

Based on these results interferon is the best in the treatment of precancerous conditions of the cervix because is characterized by dual effect: causes an improvement of immune status and there is a correction processes in the cervix.

Late Breakers

27-01-O

**PREVENTION OF NEUROPATHY USING CALM ANGAFODIPIR (PLEDOX®): RESULTS FROM A PHASE I STUDY AND A PLACEBO-CONTROLLED RANDOMIZED STUDY (PIANT) IN PATIENTS WITH METASTATIC COLORECTAL CANCER (MCRC)**


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Introduction
Chemotherapy-induced peripheral neuropathy (CIPN) is a major problem after oxaliplatin and no protective agent is available. Calmangafodipir (Karlsson, Transl Oncol 2012;5:492), has shown promising activities in model systems in preventing oxaliplatin-induced adverse effects, without negatively interfering with the antitumor activity.

Objectives
To evaluate this further, a dose-escalating phase I study and a subsequent randomized multicenter phase II study was performed to assess safety and efficacy of calmangafodipir in ameliorating CIPN.

Methods
The PLIANT study included mCRC patients to be treated with the FOLFOX-6 regimen (oxaliplatin 85 mg/m², calciumfolinate 200 mg/m², 5FU bolus 400 mg/m², 5FU infusion 2400 mg/m²) every fortnight. Ten minutes prior to each chemotherapy cycle calmangafodipir was given intravenously during 5 min. Neurotoxicity was evaluated according to the Oxaliplatin Sanofi Specific Scale, a Cold Allodynia Test and the Leonard Scale. Tumor evaluations were done after 4 and 8 cycles.

Results
In the open part 1, 11 eligible patients were included with escalating doses of calmangafodipir 2, 5 and 10 μmol/kg. Nine patients received at least 7 of the planned number of 8 cycles and were fully evaluable. Calmangafodipir was well tolerated. Neurotoxicity was very low, with no grade II or higher toxicity compared to expected 40 % after 8 cycles (Loprinzi, JCO 2014;32:997). Cold allodynia was also low. Patient inclusion has been completed in the randomized 3-armed study (n=173).

Conclusions
Early experience using a chemoprotector calmangafodipir is promising in the open phase of the PLIANT study. Results from the placebo-controlled study will be presented at the meeting.

Acknowledgments
The PLIANT study included mCRC patients to be treated with the FOLFOX-6 regimen (oxaliplatin 85 mg/m², calciumfolinate 200 mg/m², 5FU bolus 400 mg/m², 5FU infusion 2400 mg/m²) every fortnight. Ten minutes prior to each chemotherapy cycle calmangafodipir was given intravenously during 5 min. Neurotoxicity was evaluated according to the Oxaliplatin Sanofi Specific Scale, a Cold Allodynia Test and the Leonard Scale. Tumor evaluations were done after 4 and 8 cycles.

References
Karlsson, Transl Oncol 2012;5:492.

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S385

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A RANDOMIZED, PHASE 3, DOUBLE-BLIND STUDY OF INTRAVENOUS FOSAPREPTANT AS A SINGLE DOSE FOR PREVENTING CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING ASSOCIATED WITH MODERATELY EMETGENIC CHEMOTHERAPY

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Introduction
Fosaprepitant (FA) is a water-soluble NK1 receptor antagonist (RA) approved as an alternative to a 3-day oral aprepitant regimen as a single intravenous (IV) dose for prevention of chemotherapy-induced nausea and vomiting (CINV) associated with highly emetogenic chemotherapy (HEC), and with moderately emetogenic chemotherapy (MEC) in several countries outside the United States.

Objectives
To evaluate the efficacy and safety of a single IV dose of 150 mg FA given with a 5-HT3 RA and a corticosteroid in preventing CINV associated with MEC.

Methods
This was a global, phase 3, randomized, double-blind, parallel-group study in HEC- and MEC-naive adults scheduled to receive an IV dose of ≥21 MEC agents on treatment day 1 (NCT01594749). Subjects were randomly assigned 1:1 to a control or FA regimen as described in Table 1. Primary outcomes were the proportion of subjects with a complete response (CR: no vomiting and no rescue medication use) during the delayed phase (25 to 120 h after MEC) and FA safety/tolerability. Secondary outcomes included CR in acute (0–24 h after MEC) and overall (0–120 h after MEC) phases.

Results
Pending.

Conclusions
Pending.

Table Treatment regimes

<table>
<thead>
<tr>
<th>Regime</th>
<th>Study</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
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</thead>
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<tr>
<td>Fosaprepitant</td>
<td>Fosaprepitant</td>
<td>150 mg IV</td>
<td>1 capsule 30 min prior to MEC</td>
<td>1 capsule 8 h after first dose</td>
</tr>
<tr>
<td>Ondasetron 8 mg</td>
<td>1 capsule</td>
<td>1 capsule capsule</td>
<td>q12h</td>
<td></td>
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<tr>
<td>Dexamethasone 4 mg</td>
<td>3 capsules + 2 placebo capsules</td>
<td></td>
<td>q12h</td>
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<tr>
<td>Control</td>
<td>Placebo</td>
<td>IV</td>
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<tr>
<td>Ondasetron 8 mg</td>
<td>1 capsule</td>
<td>1 capsule</td>
<td>q12h</td>
<td></td>
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<tr>
<td>Dexamethasone 4 mg</td>
<td>5 capsules</td>
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</table>

IV = intravenous. MEC = moderately emetogenic chemotherapy

A PREVALENCE OF LOW BONE MASS AND OSTEOPOROSIS IN WOMEN DIAGNOSED WITH GYNECOLOGIC CANCER

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5Biostatistics, UT MD Anderson Cancer Center; Houston, USA
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7Radiology Oncology, UT MD Anderson Cancer Center; Houston, USA
8Gynecologic Oncology & Reproductive Medicine, UT MD Anderson Cancer Center; Houston, USA

Introduction
There is growing number of cancer survivors, the Institute of Medicine estimates that by 2010 there will be more than 18 million survivors in the US. Further research into conditions affecting cancer patients is of crucial importance.
Objectives
To assess the prevalence of low bone mass (osteopenia) and osteoporosis in women presenting with gynecologic cancers.

Methods
Prospective study, with 24 month follow up, University of Texas MD Anderson Cancer Center. Study was approved by the Institutional Review Board. Results: 208 participants, 37 participants with a bone mineral density (BMD) test and one non-cancer case were excluded from analysis, 170 cases were included in the analysis.

Results
Mean age at diagnosis was 52 years (S.D. 13), age range 26–88 years. Race: White n=133 (78 %), African-american n=23 (14 %). Ethnicity: latino n=25 % (16 %), non-latino n=128 (84 %). Diagnosis: cervical cancer n=103 (61 %), Endometrial cancer n=58 (34 %), and vaginal cancer n=9 (5 %). Personal history of prior fracture 15 (10 %), smoking history 51 (33 %), premature menopause n=24 (24 %), BMI =29±6. Among 170 participants, 8 (4.7 %) had osteoporosis, 64 (38 %) osteopenia, and 97 (57 %) normal BMD.

Conclusions
A large proportion of women with gynecologic cancers at time of diagnosis have low bone mass (osteopenia) or osteoporosis, placing them at higher risk of future fractures. Further research into clinical outcomes in such patients is important.

27-04-P
QUALITY OF CLINICAL PRACTICE GUIDELINES FOR FERTILITY PRESERVATION IN CHILDREN WITH CANCER
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4On behalf of PanCareLIFE Consortium

Introduction
There is little uniformity in fertility preservation care for children with cancer. To ensure high-quality care, evidence-based clinical practice guidelines are essential.

Objectives
As a step towards guideline development, we aimed to identify existing guidelines for fertility preservation in children and young adults with cancer, evaluate their quality, and explore differences in recommendations.

Methods
We performed a systematic search in PubMed (2000-October 2014), guideline databases and websites of cancer, paediatric and fertility organizations. Two reviewers evaluated the quality of the identified guidelines using the Appraisal of Guidelines Research and Evaluation Instrument (AGREE II). From the high quality guidelines, we evaluated areas of concordance and discordance among the recommendations.

Results
Twenty six guidelines met our inclusion criteria. Twenty guidelines focused on adults and children and 6 on adults only. So far, not all the guidelines underwent a full critical appraisal. Until now, the average AGREE-II domain scores varied from 15 % on applicability to 100 % on clarity of presentation. We found areas of discordance regarding the clinical questions “Who should receive fertility preservation?”, “What fertility preservation method should be used?”, “When should fertility preservation be discussed and initiated?”, “Who should be involved in the discussion and decision for fertility preservation?” and “What are the ethical aspects?”. Final results will be presented in the updated abstract.

Conclusions
Variations in fertility preservation recommendations can affect the quality of care. Clinical practice guidelines including a transparent decision process for fertility preservation can help health care providers deliver optimum care and improve the quality of life of children with cancer.

27-05-P
SINGLE NUCLEOTIDE POLYMORPHISM (SNP) OF TAC 1 GENE IN PATIENTS EXPOSED TO RADIATION
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Introduction
Even though the expression of neuropeptides (Tachykinin gene, TAC 1 gene) in tissue reactions in cytotoxic therapy is mentioned in few preclinical and clinical studies, it has not studied effectively in clinical setting.
INVESTIGATING LAPATINIB-INDUCED DIARRHEA IN A TUMOUR-BEARING RAT MODEL

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Introduction
Lapatinib, an ErbB1/ErbB2 tyrosine kinase inhibitor is effective in breast cancer treatment but is associated with diarrhea. ErbB1 inhibition by lapatinib may interfere with the normal functioning in the intestines.

Objectives
To identify histological changes in intestines following lapatinib treatment and to determine the mechanism of diarrhea related to the treatment.

Methods
Female albino Wistar rats were injected subcutaneously with Walker 256 breast tumour cells. When the tumour reached 0.01 % of body weight, rats were divided into three groups: control, lapatinib 240 mg/kg once daily gavaged (L240 1x) and lapatinib 200 mg/kg twice daily gavaged (L200 2x). Rats were assessed for indicators of intestinal injury. Upon necropsy, jejunum and colon were collected for histological assessment via H&E staining. Expression of ErbB1, ErbB2 and markers for apoptosis (caspase-3) and proliferation (ki-67) were detected via immunohistochemistry.

Results
Diarrhea was seen in L200 2x group but not in other groups, and was associated with histological damage in jejunum and colon and increased caspase-3 and ki-67 expression in jejunum and colon. In the L200 2x group, ErbB2 expression was significantly higher than controls in both colonic apical (p<0.01) and basal (p<0.001) regions. Interestingly, there were no changes in ErbB1 expression. No significant changes were noted for apoptosis, proliferation or receptor expression in the L240 1x group.

Conclusions
Lapatinib twice daily administration caused diarrhea. However, it was not related to ErbB1 expression as was expected. As such, a mechanism unrelated to growth factor receptor suppression may be more important in the pathogenesis of diarrhea.

27-07-P

PREFERENCE FOR PARENTERAL NUTRITION AFTER EDUCATION IN PATIENTS WITH NONFUNCTIONAL BOWEL DUE TO ADVANCED CANCER: A PILOT STUDY

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Introduction
Many patients with advanced cancer are receiving parenteral nutrition (PN) in the end of life. Regardless of academic evidences, most of patients and their family had resistance in withholding PN when the patient became unable to intake food.

Objectives
To investigate whether the preference for PN is changes after receiving an individual education about the risk and benefit of PN

Methods
Patients are eligible if aged ≥20 years, cannot tolerate enteral feeding, have Palliative Performance Scale ≤50 % due to progressive cancer. Patients with functioning bowels were excluded. If patient sign consent, a trained nurse educated patients and family for about an hour using the handout. After education, patients made decision whether or not to receive parenteral nutrition. Quality of life was checked by EORTC QLQ-C15-PAL weekly until 3rd weeks. Severity of 7 symptoms related to fluid overloading or dehydration was surveyed weekly also. As a pilot study, we conducted prospective trial of 1-year period from January 2014 to December 2014 in hospice ward of Seoul Medical Center.

Results
Among 22 eligible patients, 18 patients participated in this study. At the consent date, 15 patients (83.3 %) are receiving PN. After education, 12 patients (66.7 %) chose to keep receiving parenteral
nutrition. (Quality of life scores, symptom scale according to treatment arms and factors associated with their choice will be updated.)

Conclusions
Terminal cancer patients and their family chose to receive PN despite the potential risks. Education for an hour could not change their preferences for parenteral nutrition.

27-08-P

EFFECTS OF HEAD AND NECK IRRADIATION ON DENTIN BONDING STRENGTHS

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Introduction
Oral complications of radiation therapy for head and neck cancer (HNC) are mostly focused on osteonecrosis and unfavorable results of this situation. There are few reports on irradiated teeth and the restorative systems related with these patient group.

Objectives
In this study the aim is to evaluate the influence of irradiation on the strength of different dentin bonding systems.

Methods
The extracted premolar and molar teeth (n=10) from patients who had received head and neck radiotherapy at least a year ago and had hyposalivation (unstimulated salivary flow rate<0.1 ml/min) were collected in cloramine solution. Also extracted premolars and molars (n=10) for orthodontic therapy were collected and preserved under same conditions. Three different dentin bonding systems were applied to every teeth in both groups.

Results
The differences in adhesive strategies of three different bonding systems effected significantly inbetween the bonding strengths of groups in the samples tested.

Conclusions
The most important point of this study to verify best treatment options in restorating irradiated teeth and also attract oncologist attention for predental assessment.