selection of endocrine therapies but also for chemotherapies. HER2 and vessel invasion were added to nodal status, tumor size, grade and hormone receptors as prognostic/predictive factors.
The addition of bevacizumab, an antiangiogenetic drug, to taxol showed an important improvement in response rate and time to disease progression when added to taxol given as first-line chemotherapy for advanced disease.
The most striking improvement in breast cancer therapy has been achieved by the adjuvant use of trastuzumab as shown by the first results of three large randomised studies conducted in patients with HER2 overexpression.
Many promising drugs are in clinical development and give hope for further improvement of the outcome of women suffering from breast cancer. It is important for all caregivers that they have an adequate knowledge and experience in handling the new drugs and their side effects in order to optimize the benefit of these drugs.

Joint EONS/MASCC symposium
Rehabilitation: an overlooked area of supportive care

1526 INVITED

The interface between rehabilitation and supportive care

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The Multinational Society Supportive Care in Cancer (MASCC) has developed a definition of Supportive Care which addresses support regarding the effects of cancer and its treatment and it also explicitly includes enhancement of rehabilitation and survivorship (MASCC 2003). Although considering the entire continuum of a patient's illness, that definition does neither include nor exclude supportive care as part of palliative care. Therefore, the MASCC definition does not indicate whether supportive care in its core is directed more towards rehabilitation and cure or more towards rehabilitation or symptom control and dying. Equal priority is given to supportive care alongside diagnostic and therapeutic activities. In this sense, supportive care can be seen as part of the rehabilitation process but the interface between the two concepts needs further analysis and development. A truly supportive care issue in rehabilitation is presented by the barriers to rehabilitation for cancer patients through a persistent attitude amongst public, patients and health care professionals, interpreting cancer as remaining a fatal disease, needing an acute, short-term, treatment focused orientation. Historically, rehabilitation has not been systematically integrated as a process in cancer care. A rehabilitation model, adaptable to a variety of needs in a variety of settings has not been successfully implemented on a wide scale in most countries. These issues will be discussed and will be presented in the format of an interview between two experienced oncology nurses involved in MASCC activities.

1527 INVITED

Group rehabilitation for cancer patients: the effects, patient satisfaction and utilisation in daily practice

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Group interventions for cancer patients were first documented in the late 1970s. When cancer treatments became more effective, more cancer patients survived, or at least became long-time survivors. This led to an increased interest in psychosocial issues and interventions to improve patients' ability to cope with problems occasioned by disease and treatment, and to prevent later psychosocial problems.
Group therapy offers advantages compared to individual therapy: (1) Social support. Many patients participate in groups because of the benefits of seeing and talking with others experiencing the same problem. (2) Cost-effectiveness. Group therapy makes the limited professional resources available to many patients. When compared, individual and group interventions have been found to be equally helpful.
Several studies of group interventions for adult cancer patients have been published during the last decades. The interventions often consist of 6–11 weekly, 1–2 hour sessions and are mostly conducted by a multi-professional team. Positive effects of group interventions have been found on anxiety, depression, quality of life, physical function, pain, nausea, vomiting, knowledge etc.
Studies of group interventions for cancer patients have shown that, in general, patients were satisfied when asked to give an overall assessment of the intervention. However, when asked about separate components of interventions, ratings tend to vary.
It should be possible, in spite of limited resources, to implement group interventions at many hospitals. Maybe this would lead to more satisfied patients, taking a more active part in their treatment and care. However, it is important to continuously evaluate such interventions.

1528 INVITED

The role of exercise in supportive care

L. Adamsen[1], M. Quist[1], J. Midtgaard[1], C. Andersen[2], T. Møller[3], L. Knutsen[1], A. Tveterås[1], M. Rorth[2]. [1]*Copenhagen University Hospital, Dept 7331, Copenhagen, Denmark;* [2]*Copenhagen University Hospital, Dept 5073, Copenhagen, Denmark;* [3]*Copenhagen University Hospital, Dept 4042, Copenhagen, Denmark*

Irrespective of their cancer diagnosis, patients report fatigue, diminished physical capacity, and declining quality of life. There is growing evidence that exercise programmes can increase physical fitness, reduce fatigue and improve quality of life (QOL) during and after treatment. Women with breast cancer represent the largest group of patients having participated in exercise studies. Very few studies investigated the potential impact of exercise on oncological or haematological cancer patients with mixed diagnoses, who were undergoing cytostatic treatment. Low to moderate exercise interventions of varying durations appear to be the standard across existing studies. Predominantly, studies have examined the effects of a single activity, e.g. cardiovascular training on stationary bicycles, rather than resistance exercise as the exercise modality. The aim of the present study was to investigate the impact of a multidimensional exercise intervention focusing on physical capacity; one repetition maximum (1RM) and maximum oxygen uptake (VO_2Max), activity level, general well being and QOL in cancer patients undergoing chemotherapy. The intervention comprised: resistance and fitness training, massage, relaxation and body-awareness training. Eighty-two cancer patients, with or without evidence of residual disease, were included: sixty-six patients with 13 different types of solid tumours, and 16 patients with 6 types of haematological malignancies. The patients trained in mixed groups for 9 h weekly for 6 weeks. Physical capacity, physical activity level and psychosocial well-being as measured by the MOS 36-item Short-Form Health Survey (SF-36) and the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire C30 (EORTC QLQ-C30) were assessed pre- and post intervention. Highly significant increases were achieved in muscular strength ($p < 0.001$), physical fitness ($p < 0.001$), and physical activity levels ($p < 0.001$). The patients reported significant reduction in treatment related symptoms i.e. fatigue ($p = 0.006$) and pain ($p = 0.03$). Highly significant improvements were observed in physical functioning ($p < 0.001$) and role functioning ($p < 0.001$). Even patients with advanced disease were able to improve their results after six weeks. This study indicates significant, clinical meaningful improvements. A clinically controlled trial including 250 patients with mixed diagnoses and who are undergoing chemotherapy is concurrently being carried out.

Poster session
Symptoms and improvement in clinical practice

1529 POSTER

A meta-analysis of exercise interventions among people treated for cancer

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Background & Purpose: Research examining the effects of exercise among cancer patients has expanded dramatically in the last decade, and with that expansion comes the need to synthesize and integrate the research findings. This review applied meta-analytic procedures to integrate primary research findings that tested exercise interventions among people treated for cancer.
Methods: Extensive literature searching strategies located published and unpublished intervention studies that tested center- or home-based exercise interventions with at least 5 adult participants. Primary study results were coded. A standardized mean difference effect size (ES) was calculated for each comparison on each available outcome and adjusted for small-sample bias. Larger samples were given more influence in estimates and tests by weighting each ES by the inverse of its sampling variance. The overall analysis was carried out using both the fixed- and random-effects models. Fixed-effects moderator analyses compared the amount of ES variability among levels of a study-level moderator with the amount of variability in observed ESs that would be expected by subject-level sampling error alone. Single-group pre-post design studies were analyzed

separately, under distinct assumptions regarding pre-post test associations, from two-group studies.
Results: The overall weighted mean ES for two-group comparisons was. 52 (higher mean for treatment than control) for physical function, 35 for symptoms other than fatigue, and. 27 for body composition. More modest positive effect sizes were documented for mood (.19), quality of life (.14), fatigue (.11), and exercise behavior (.04). ES were larger among single group pre-post design studies (function =. 70, mood =. 49, symptoms =. 41, quality of life =. 34, fatigue =. 32, physical activity behavior =. 31, body composition =. 11), but typically followed the same pattern as two-group comparisons. ES among control group participants were typically negative and not (statistically) significantly different from 0. Modified funnel plots of ES by sampling variance suggested missing small sample studies with small or negative ESs.
Conclusions: Exercise interventions resulted in small positive effects on health and well-being outcomes. ES magnitude results were consistent with previous efforts to synthesize parts of this literature. The findings suggest challenges remain in designing interventions that are effective with more subjects and that are successful in attaining larger outcome improvements among subjects. Exercise characteristics essential to achieve favorable outcomes, such as form (e.g. endurance, resistance, flexibility) and dose, could not be synthesized due to scant data. Further research with more diverse samples is essential.

1530 POSTER

Improving symptom outcomes following chemotherapy administration: the experience of WISECARE+

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Background: WISECARE+, a pan-European, quasi-experimental cancer nursing study, evaluated the impact of a nurse-led, evidence-based symptom management intervention on the actual symptoms experienced by adult patients receiving chemotherapy. It focused on nausea, vomiting, fatigue and oral problems and was conducted in 8 units across 5 clinical sites in Europe.
Materials and Methods: This study was undertaken in three phases: pre-intervention, intervention and post-intervention.
During the pre-intervention phase (which lasted 7 months), patients completed a daily symptom questionnaire for 14 consecutive days following each cycle of chemotherapy. This questionnaire incorporated the Chemotherapy Symptom Assessment Scale (Brown et al 2001) and the Oral Assessment Guide (Eilers et al 1988). During this phase, nursing care was delivered according to local practice.
The intervention was then presented to the clinical sites over a 2 month period. This included extensive background literature, guidelines for symptom management and novel methods of communicating with patients about their symptom experiences. The clinical sites were given guidance on methods of integrating this symptom management intervention in practice.
During the post-intervention phase (which lasted 7 months), patient symptom data was collected in the same manner as above. Symptom management of nausea, vomiting, fatigue and oral problems was organised and delivered on the basis of the symptom management intervention.
Results: Data were received from 235 patients across Europe. All data were analysed using SPSS 12 for Windows. Differences between the pre- and post-intervention scores were evaluated using non-parametric tests as the data were not normally distributed. Symptoms of nausea ($p = 0.025$), vomiting ($p < 0.001$) and oral problems ($p = 0.001$) were significantly reduced in the post-intervention phase of the study. There was no significant change in fatigue experiences between pre- and post-intervention phases ($p = 0.611$).
Conclusions: This symptom management intervention resulted in significant improvements in patients' symptom experiences during a course of chemotherapy however, its lack of impact on experiences of fatigue warrants further investigation. Future work may involve incorporating additional symptoms into this model of symptom management.

1531 POSTER

The impact of exercise on symptoms and side-effects in cancer patients undergoing chemotherapy

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Background: The aim of this study was to evaluate the effects of a six weeks intervention with structured physical activity, relaxation techniques and massage on the symptoms/side-effects of cancer patients in chemotherapy.
Material and Methods: In order to obtain a continuous registration of side effects, a diary was developed and used throughout the intervention. The diary contains a structured part based on questionnaires and a "free text" part for the patients to write down their feelings and experience related to the symptoms in question. The patients scored side effects on a scale from 0–4 using the Common Toxicity Criteria and reported the scores in the questionnaires. Twelve possible symptoms/side-effects were registered daily: Lack of appetite, nausea, vomiting, diarrhea, numbness, constipation, physical fatigue, mental fatigue, treatment-related fatigue, muscle pain, arthralgia and "other pain".
Results: During the intervention a decrease in the scoring of 10 of the 12 side effects was found, while the score for vomiting and nausea remained unchanged. Patients with evidence of disease ($n = 26$) had a significant higher level of side effects than patients with no evidence of disease ($n = 28$). Both groups did experience a significant reduction in the sum of side-effects during the intervention.
Conclusions: The results indicate that six weeks of exercise in cancer patients with or without residual disease being treated with chemotherapy can lead to a reduction of treatment-related symptoms.

1532 POSTER

Results of an open non-randomised case study to evaluate a new soft silicone dressing Mepilex® Lite in the management of radiation skin reactions

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Background: Moist desquamation reactions develop in nearly a third of patients who undergo radical radiotherapy treatment to common sites (Wells et al 2004). Such reactions can be painful, distressing and difficult to manage, particularly as they are likely to develop in awkward places such as the neck, axilla and other skin fold areas. Broken skin provides a focus for infection but considerable controversy exists over the most suitable means of protecting moist areas and preventing further skin breakdown during radiotherapy. It is difficult to find a dressing which stays in place comfortably, provides an optimum healing environment, is easy to remove and also helps to relieve symptoms. This paper describes an evaluation of a new soft silicone dressing (Mepilex® Lite) in the management of patients with radiation skin reactions.
Methods: This case study was conducted in two cancer centres, one in Scotland and one in Sweden. Patients were potentially eligible if they were undergoing radical radiotherapy for breast or head & neck cancer and were experiencing severe erythema and/or moist desquamation with at least one symptom. Dressings were applied to the affected areas until skin reactions had healed. Weekly skin assessments were performed using the Radiation-Induced-Skin-Reaction-Assessment-Scale (RISRAS) and digital photography. Patients were encouraged to complete a daily diary, and radiotherapy staff were asked to evaluate the use of the new dressing.
Results: 16 patients were recruited. Many found the dressings comfortable to wear, protective during movement and sleep, soothing and easy to apply and remove. Some patients with extensive areas of moist desquamation found the dressings heavy, and a few commented that they removed a superficial layer of skin when changed, although it is likely that this was non viable tissue rather than healthy skin. 3 patients decided to discontinue using the dressing and 2 experienced severe itching (a known symptom of erythema) and were withdrawn from the study. The majority were very positive about the benefits of Mepilex® Lite and found it easy to adapt to their needs.
Conclusions: Mepilex® Lite has a number of properties which make it particularly suitable for the management of radiation skin reactions. This study suggests that it is a practical, comfortable and safe means