relation to the number of people who experience treatment-related late effects months or years after cancer treatment is completed.
Sexual well-being is identified as a core element of quality of life for people affected by cancer, particularly those receiving treatment for malignancies involving the pelvic organs. Yet clinicians continue to experience significant difficulties talking to patients about the sexual consequences of cancer and its treatment. This paper presents selected data from two studies that explored the organisational, health professional and patient characteristics that act as barriers or enablers to the discussion of sexual concerns in the clinic.
Material & Methods: These two studies used participant observation of radiotherapy follow-up clinics and one surgical urology clinic plus interviews with health professionals, patients and partners to explore the context and content of discussions about male and female sexual morbidity after treatment. Participating patients were women treated for gynaecological or ano-rectal malignancy and men treated for prostate cancer.
Results: In the women's study consultations (n = 69) were led by medical staff and focused largely on disease surveillance, specific aspects of toxicity monitoring and managing active symptoms. Vaginal toxicity was discussed less frequently (42%) than bowel (81%) or bladder (70%) toxicity and sexual issues were discussed in only 25% of consultations. In the men's study (n = 60) content was also set by medical staff and disease and toxicity monitoring dominated discussions, yet men's sexual concerns were addressed in 53% of consultations.
In the urology clinic there was a proactive approach to the pharmacological management of erectile dysfunction that was considered a routine part of urological practice but this was not mirrored in the radiotherapy clinic. In both studies the broader aspects of male and female sexual expression that can be altered by cancer treatment such as desire, orgasm, sexual satisfaction or relationship impact were rarely discussed. Furthermore, partners were not actively involved in the consultation process even when present.
Health professionals felt inhibited discussing sexual concerns with couples, older patients, patients from an ethnic minority background, those with later stage disease, co-morbidities or a number of active problems. Service factors also adversely affected capacity to address the sexual recovery of patients and their partners. This was particularly the case with regard to time constraints, clinician's lack of knowledge regarding the availability of specialist resources and a lack of clear referral pathways both within and beyond the cancer centre.
Conclusions: If prompt and accurate identification of treatment related sexual concerns are to lead to appropriate clinical intervention or further referral these findings suggest change needs to take place at both an individual practitioner and service design level. Questions remain regarding the most appropriate time and context to raise sexual concerns within the constraints of conventional medical follow-up. These findings are important for the development of supportive care and cancer survivorship services and for the training of health professionals engaged in post-treatment toxicity assessment, patient information and support.

308 INVITED

Therapeutic approaches for sexual dysfunction in men treated for prostate cancer

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Prostate cancer (PCa) affects the lives of thousands of men across Europe and the USA, and is the most frequent non-skin male malignancy in Western countries. PCa incidence is greatly increasing because of the worldwide trend for increased longevity in the general population, and the routine prostate-specific antigen tests. Both external-beam radiotherapy (EBRT) and brachytherapy (BT) can be offered as curative options. Although it is commonly believed that the incidence of erectile dysfunction (ED) after radiotherapy is lower than after surgery, percentages reported in the literature vary from 6 to 84% after EBRT to 0−51% after BT. Ejaculation problems and a decrease in libido occur also frequently.
The etiology of ED after radiotherapy for PCa is multi-factorial. Vascular, neurogenic and psychogenic factors are equally important. The most likely mechanism is a damage of the vasculature of the neurovascular bundles and fibrosis of the penile bodies. The time elapsed between radiation therapy and evaluation of erectile function has to be considered; it takes at least 18−24 months before ED rates reach a maximum.
Before the introduction of oral drugs to treat ED, the only therapeutic modality for post-radiation ED was the use of intracavernosal injections that were effective in most of the patients. Two studies have investigated the use of PDE5 inhibitors for treatment of post-radiation ED. In the first study, 45% of the patients after sildenafil and 8% after placebo reported improved erections ($p < 0.001$). Successful intercourse was reported in 55% of the patients after sildenafil versus 18% after placebo ($p < 0.001$). In the second study, 67% of the patients after tadalafil and 20% after placebo reported improvement of erectile function with tadalafil ($p < 0.0001$). Successful intercourse was reported by 48% of patients after tadalafil versus 9% after placebo ($p < 0.0001$). Side effects for both studies were mild or moderate. Sexual dysfunction after radiotherapy for PCa has been often underestimated. Patients should be offered sexual counseling, and informed about effective oral drugs to treat ED.

309 INVITED

Education and training staff: how to develop and integrate oncosexology?

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Cancer and its treatment have extensive influence on sexuality and intimacy and as such seriously impair the quality of life of patient and partner.
In good cancer care 1. the topic of sexuality and intimacy is effectively addressed; 2. problems in these areas are taken seriously and handled well by the various oncology professionals, and 3. when necessary, patient or couple are referred to a sexology professional with enough relevant oncosexological expertise.
These three fields require an adapted set of knowledge. The first two fields require also a set of attitude and skills, that most oncology professionals do not have at their disposal. At the same time many professionals believe that they should possess such skills and attitude. This situation can constitute a major obstacle for changing the tradition of professional silence when intimacy and sexuality are at stake in the cancer population.
Oncology can learn from physical rehabilitation, where we developed extensive experience in the training the various professionals in matters of sexuality. Knowledge is a small part of what is needed. The majority of time is spent on training skills. This starts with 'talking sex' in role-playing and then with ones own patients. Attitude turns out to follow automatically during that training process.
An important part of change is developing the group-competence of discussing sexual topics in a professional way within the multidisciplinary team or unit.
Connected to this process the oncology group/unit should connect with sexology professionals who develop the necessary knowledge, skills and attitude to deal with cancer patients.

References

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Scientific Symposium (Thu, 24 Sep, 09:00−11:00)
Monitoring and management of adverse drug events

310 INVITED

Management of adverse drug events

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Systemic cancer therapy is associated with multiple risks for the patient. Most cancer patients under systemic treatment experience adverse drug events such as constipation/diarrhea, nausea/vomiting, fatigue, myelosuppression, skin reactions, anorexia, and mucositis. These adverse events are usually predictable by available clinical data and can often be prevented or ameliorated.
Nevertheless, the minimisation of toxic effects of anticancer therapy is a challenging task. During the last two decades, several new drugs have become available for supportive care, e.g. 5-HT_3 and neurokinin-1 receptor antagonists for the prevention of nausea and vomiting, or palifermin which reduces the incidence and severity of mucositis. In addition, evidence-based clinical practice guidelines have been developed and implemented, particularly for antiemetic prophylaxis and therapy. Several studies have shown a positive effect of these guidelines on both clinical and economic outcomes. Current research particularly aims at developing measures against other treatment-associated symptoms, e.g. the fatigue syndrome. As a consequence, adverse drug reactions are increasingly 'manageable' leading to a higher quality of life for the patient.
However, special efforts have to be undertaken in order to ensure that an individual patient benefits from this development. In terms of cancer many disciplines contribute to the care process. Thus, cross-profession and cross-sector cooperation is crucial in order to improve information flow and to exploit the specific knowledge of each profession.

Therefore, recent concepts aim at designing frameworks that integrate individual contributions of health care providers into the entire treatment path. Moreover, the patient can play an active role in this process. The concept of pharmaceutical care (also called 'medication management') involves pharmacists as they have a central position concerning drug dispensing and utilization. Important components of pharmaceutical care are a complete medication review and patient education on expected adverse drug events and their management. A model project at the University of Bonn has shown that pharmaceutical care for patients with gynaecological malignancies leads to a significantly higher response to antiemetic prophylaxis, better maintenance of quality of life during chemotherapy and improved patient satisfaction.
In conclusion, new drugs and guidelines for supportive care provide the basis for an effective management of adverse drug events. Multidisciplinary approaches have a large potential to improve safety of systemic cancer therapy as well as quality of life of cancer patients.

311 INVITED

Identification and prevention of drug-drug interactions

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Drugs utilized in oncology are often characterized by narrow therapeutic ranges and are associated with major toxicities. Great effort is made to find the optimal dosage for an individual patient in order to achieve the maximum benefit. Drug-drug interactions may have a major impact on the antineoplastic therapy, as they can cause changes in the pharmacokinetics and/or -dynamics of the administered drugs, which can significantly alter the efficacy or toxicity. However, they are not regularly taken into account in the decision upon an individual therapeutic plan in clinical practice yet. This is often due to limited available knowledge about the clinical relevance of drug-drug interactions and suboptimal access to this knowledge for the prescribing physician.
Scientific literature addressing drug-drug interactions in oncology has mainly reviewing character. The different types of interactions are introduced in general with only limited practical advice. Tables of drug-drug interactions that provide a synopsis of the clinical consequences of individual drug-drug interactions along with a recommendation for measures to be taken have been generated. Moreover, various databases refer to drug-drug interactions with antineoplastic agents. All these sources of information on drug-drug interactions refer to the same studies and case reports. Valuable evidence is scarce and the clinical relevance is often arguable. The judgement on the categorisation in terms of severity differs substantially. In a general comparison of internationally recognized drug-drug interaction databases only nine out of 406 (2.2%) as major classified drug-drug interactions, were listed in all four tested databases. This reflects the lack of both: Standardisation of the used terminology and reliable scientific evidence.
Moreover, there is little evidence about the prevalence of drug-drug interactions in oncology patients. Riechelmann et al. (2007) investigated potential drug-drug interactions among cancer patients. In 109 of 405 cancer patients at least one potential drug-drug interaction was identified (27%; 95% confidence interval [CI] = 23% to 31%). Overall 276 potential drug-drug interactions were observed whereof the main part (87%) involved non-anticancer agents such as warfarin, antihypertensive drugs, corticosteroids, and anticonvulsants, but some (n = 36, 13%) involved antineoplastic agents. Of these 36 drug-drug interactions only one was classified as major (resulting adverse effect can cause permanent damage or life risk) the others were classified moderate (resulting adverse effect can harm and treatment is required).
These findings indicate that drug-drug interactions need to be considered in the planning of individual cancer treatments. Apart from the antineoplastic agents, the screening needs to include the entire medication of the patient. In order to judge the clinical relevance of the potential drug-drug interaction and resolve upon the adequate measures, more scientific evidence needs to be established in significant clinical trials and a close collaboration among physicians and clinical pharmacists with expertise in oncology should be intended.

312 INVITED

How targeted are "targeted therapies"? Side effects of approved targeted agents

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The development of targeted therapies is one of the major ongoing efforts in the treatment of cancer. Targeted therapy refers to treatment strategies directed against molecular targets (tumour microenvironment interactions, and proliferative, survival, and cell death pathways) considered to be involved in neoplastic transformation. Such molecularly targeted agents (MTAs) are currently investigated in all treatment settings and have already gained regulatory approval.
By design, targeted therapy is intended to have negligible side effects in comparison to classical cytotoxic chemotherapy.
Cancer-related morbidity and mortality have been reduced, and many new treatment paradigms are emerging in which newer MTAs are used singly or added to traditional concepts of cytotoxic chemotherapy.
Despite the theoretical concept of drug targeting, which seeks to avoid collateral adverse effects normally associated with classical chemotherapy, the molecular targets of MTAs are also expressed in normal cells resulting in disruption of normal cellular function often with the consequence of adverse events. Members of the health care team now encounter toxicities well beyond the scope of the side-effect profiles of cytotoxic chemotherapy. The toxicity profiles unique to MTAs have surfaced as some of the most challenging side effects for clinicians, and it is especially important to be familiar with their presentation and management. The side effects of selected approved MTAs which have emerged with the introduction of the new therapeutic concept of drug targeting, e.g. skin (rash), hair/nail changes, gastrointestinal toxicity, interstitial lung disease (Anti-EGFR therapies) cardiac toxicities/CHF (Anti-HER-2 therapies), venous thromboembolism, hypertension, proteinuria, bleeding, gastrointestinal perforation, posterior leukoencephalopathy syndrome/RPLS) (Anti-VEGF therapies) and hand-foot syndrome/PPE, rash, hypothyroidism, hair de-pigmentation (multitargeted kinase inhibitors) are presented and reviewed herein.
Many of these toxicities are likely to become more pronounced as cancer patients are older and more likely to have comorbidity than the patient populations included in the registration trials.

313 INVITED

Prevention therapy of fatigue

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Objectives: Cancer-related fatigue is a significant and distressing suffering problem for patients with cancer negatively affecting their physical and psychosocial function and reducing their quality of life. Prominent symptoms are exhaustion and lack of physical energy and aggravated in presence of progressive disease, pain, nausea and by cytotoxic therapy. The biochemical mechanisms behind fatigue are largely unknown and there is no widely spread effective treatment strategy. In several studies simple physical exercise has been tried. The epidemiology of fatigue was investigated in patients with different cancer diagnoses receiving cytotoxic drugs in an outpatient clinic. A sub-group of the patients were randomised to simple exercise as a mean to combat the fatigue.
Methods: The fatigue was assessed using an international fatigue scale, Fatigue Symptom Index adapted to Swedish use. Patients were followed up to three treatment cycles.
Setting: Out-patient ward for cytotoxic drug administration in university hospitals in Sweden and Denmark
Results: The prevalence of fatigue was 90% during the week following chemotherapy and declined over the following weeks. Rated fatigue showed large inter-individual variations but patients were statistically more fatigued during treatment than before. Other side effects, particularly depressed mood showed a strong correlation to fatigue, but also untreated pain, nausea and insomnia contributed significantly. Simple exercise seemed faster to cure cytotoxic induced fatigue, although individualized information was demanded.
Conclusions: Fatigue is a common and distressing side effect in most patients treated with cytotoxic drugs. Effective treatment is still lacking but positive effects were shown following simple exercise.

Scientific Symposium (Thu, 24 Sep, 09:00−11:00)
Multidisciplinary teams in cancer care

314 INVITED

Multidisciplinary teams: what are they, how do they work?

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Most solid tumors, if there are not very early and much highly localised, are associated at time of diagnosis/first treatment with a significant number