(13%), lung (12%), myeloma (6%), leukaemia (6%), prostate (6%), head and neck (6%), stomach (3%), myelodysplastic syndrome (2%), unknown primary site (2%), pancreas (1%), uterus (1%), kidney (1%), bladder (1%) and testis (1%). A the date of enrolment, the median level of haemoglobin (Hb) was 11.6 g/dl (range: 5.2–18.5 g/dl) and 44% of patient had a level of Hb < 11 g/dl. Anaemia was found in all cancer localizations and independently of the stage or the therapeutic status of the disease. Approximately 2/3 of the anaemic patients received treatment by erythropoiesis stimulating agent (ESA), combined with an oral martial treatment in 25% of cases, and 17% of them did not receive any specific treatment for this anaemia. Transfusion was required in 23% of patient: 18% in patient with solid tumours and 35% in patient with malignant haematological diseases. The median level of Hb at the introduction of the ESA was 10 g/dl. A large majority (61%) of ESA treatment was initiated when Hb level was between 9 and 11 g/dl, according to the EORTC guidelines (Bokemeyer et al, Eur J Cancer, 2007).

Conclusion: these results, compared with those reported in ECAS study (European Cancer Anaemia Survey) in 2001, seem to indicate more involvement in the management of anaemia with a higher frequent use of ESA and an earlier introduction of this type of treatment since the appearance of anaemia.

1111 POSTER

The wide spectrum of cutaneous side effects of epidermal growth factor receptor inhibitors and their treatment: experience from a digestive oncology–dermatology collaboration

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Background: Epidermal growth factor receptor (EGFR) inhibitors provoke a unique array of class-specific cutaneous side effects. EGFR inhibitor skin toxicity other than acneiform eruption is not so well known. There is a clear need for a better description of these skin effects in order to achieve a reliable classification and effective treatment regimens.

Materials and Methods: Based on the experience of a digestive oncology – dermatology department collaboration in more than 250 patients, we describe the different kinds of cutaneous side effects elicited by EGFR inhibitors (cetuximab, panitumumab, matuzumab, gefitinib and erlotinib). Furthermore we depict them in clinical photographs as well as the results of dermatological treatment.

Results: An acneiform papulopustular eruption of the seborrhoeic skin areas, sometimes with Staphylococcus aureus superinfection, is seen in more than 80% of patients, especially in the first 3–4 weeks of treatment. Hyperkeratotic crusting of the scalp, seborrhoeic dermatitis-like and fulminant rosacea-like variants are observed more rarely. Telangiectasia may accompany the skin rash. Skin dryness leading to fissures and eczema is another feature. Mucosal involvement with conjunctivitis, vaginal dryness, oral aphtae or geographic tongue may also occur. During longer treatment nail fold inflammation with pyogenic granuloma formation, hair changes (trichomegaly of the eyelashes, facial hypertrichosis) and hyperpigmentation (with darkening of solar lentigines) may arise. After treatment for years, small translucent papules may appear on the nose and the cheeks. Satisfactory treatment results for acneiform eruption are obtained with topical metronidazole and oral minocycline (high dose and saline compresses for severe cases).

Conclusion: EGFR inhibitor skin toxicity has many faces but can be treated effectively in the vast majority of cases.

1112 POSTER

Psychosocial problems among patients with different types of cancer before and after their radiation treatment

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Background: The aim was to determine differences in the prevalence of psychosocial problems in patients with three types of cancer at different time points.

Materials and Methods: Patients with lung, prostate and breast carcinoma received the Screening Inventory of Psychosocial Problems (SIPP) as a standard procedure before and after their radiation treatment (RT) to determine their distress levels. The SIPP is a 24 item, self-administered checklist to identify and recognize psychosocial problems in cancer patients in order to facilitate adequate referral to psychosocial caregivers. Patients can indicate on the SIPP which problems they experience. On the basis of these data the physician can decide to refer the patient to a psychosocial caregiver. Data were retrospectively analyzed, along with demographical and medical information.

Results: The SIPP was completed before, and at two points after treatment by 482, 267 and 113 patients respectively. Prevalence (%) of patients with distress for different patient groups and time points are shown in the table below.

Prevalence (%) of patients with distress for different patient groups and time points.

	Lung cancer	Breast cancer	Prostate cancer
Before RT	63%	60%	34%
Four weeks after RT	49%	57%	24%
One year after RT	33%	61%	27%

Except for breast cancer patients, distress decreases over time. Furthermore, distress was significantly more common among women, patients aged 50 years and below, patients with involved lymfnodes and patients who received chemotherapy as compared to their counterparts. Thirty-six percent of the patients with distress before RT who were referred to a psychosocial caregiver did not show distress four weeks after RT. Educational level, extent of the tumor, metastases (except before RT) and WHO-score (except before RT) were not significantly associated with distress.

Conclusions: Distress is very common in cancer patients and varies from 24 to 63%. As expected, distress was more prevalent in patients with lung cancer and breast cancer, perhaps because of worse prognosis and/or more physical complaints and toxicity of treatment. As expected, referral to a psychosocial caregiver may decrease distress. Still 64% of the patients remained distressed four weeks after RT.

1113 POSTER

Brief instrument to identify information preference groups in cancer patients: a latent-class analysis

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Background: In order to facilitate their adjustment to illness, cancer patients (CP) have demonstrated their desire for detailed information on a range of health issues. Indeed, a growing body of literature suggests that CP who are more informed are likely to experience better psychosocial health outcomes. However, patients are often unable to adequately satisfy their health information needs as they often lack success to such information. In this study, a latent-class analysis (LCA) is used firstly, to identify groups of CP who share similar preferences towards their desire for cancer-related information and secondly, to determine the probability of preference-group membership by means of only one question per group. Thus, physicians could be supported to meet the different information needs of CP more easily and time economically.

Methods: A cross-sectional survey was administered to 710 CP, who had been inpatients at the University Hospital Cologne (response rate 49.5%). To measure CPs' desire for cancer-related information we developed a dichotomous (yes/no) 23-item scale and asked, if they would have liked more information about medical information from the physician, social questions and about methods for health promotion. LCA was conducted with "Latent Gold 4.0" software and fit indices like BIC and AIC were applied.

Results: LCA identified a 5-class model: Class 1 (31.4%) had nearly no information desires (ID); class 2 (27%) had moderate desires for information given by physician regarding findings and treatment options as well as high ID about health promotion; class 3 (16%) had only a high desire for information given by physician regarding findings; class 4 (13.6%) had moderate desires for information given by physician regarding findings and treatment, moderate ID regarding social questions and health promotion. Finally, class 5 (12%) had moderate ID regarding social questions and health promotion. Physicians can identify these 5 classes asking not more than 5 questions, which show high identification probabilities for nearly each class (class 1: 100%; class 2: 100%; class 3: 100%; class 4: 100%; class 5: 88%).

Conclusion: Understanding and identifying different types of information preference groups that exist, may help physicians to tailor information to CP and/or refer them to other health professionals in oncology who are responsible for social questions and/or health promotion. As a result, physicians may enhance CPs' psychosocial health outcomes.

1114 POSTER

Determinants and patient-reported long-term outcomes of physician empathy in oncology: A structural equation modelling approach

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Background: Physician empathy (PE) is assumed to improve desirable outcomes e.g. compliance, reduction of distress and enablement. As there is currently limited empirical evidence about PE in cancer care, its effectiveness for cancer patients (CP) as well as determinants of PE, the purpose of this cross-sectional study was to explore the influence of PE on long-term outcomes in German CP and to analyze CP- and physician-specific determinants of PE.

Methods: A postal survey was administered to 710 CP, who had been inpatients at the University Hospital Cologne (response rate 49.5%). PE was measured with the German translation of the Consultation and Relational Empathy (CARE) measure, and patient-reported long-term outcomes were assessed using the STATE-Scale of the State-Trait-Anxiety-Inventory, the Major Depression Inventory (MDI) as well as the EORTC-Quality of Life (QoL) Questionnaire-QLQ-C30. Hypotheses were tested by structural equation modeling with "AMOS 4.0" software to analyze the relationships between variables.

Results: PE (a) had a moderate indirect effect on "depression" and a smaller indirect effect on "socio-emotional-cognitive QoL" by affecting "information from physician: findings and treatment options" and (b) had via "information about health promotion" a moderate indirect effect on "socio-emotional-cognitive QoL" and a smaller effect on "depression". The determinant with the greatest importance was "general busy-ness in hospital staff": it had a strong negative influence on PE, indirectly influencing "information from physician: findings and treatment options" and also patients' "depression".

Conclusion: PE seems to be an important pre-requisite for information giving by physicians and through this pathway having a preventive effect on depression and improving QoL. Conversely, physicians' stress negatively influences these relationships.

The research findings suggest that reducing physicians' stress at the organizational and individual may be required to enhance patient-physician communication and patient-reported outcomes. Therefore, future research should prospectively investigate physicians' working conditions from the perspective of CP **and** physicians to analyze the influence of physicians' working conditions on the patient-physician relationship (e.g. PE, information) as well as on patient-reported **and** physician-reported outcomes (e.g. stress, burn-out, job dissatisfaction) in an integrated and evidence-based study approach.

1115 POSTER

Epidermal Ggrowth Factor Receptor Inhibitor (EGFRI)-associated rash: a suggested novel management paradigm. A consensus position from the EGFRI Dermatologic Toxicity Forum

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Background: Epidermal Growth Factor Receptor Inhibitors (EGFRIs) are associated with unique, class-specific skin, hair and nail reactions that have potential to disrupt optimal dosing. These are often best addressed by symptomatic treatment, but there is limited controlled, clinical evidence on which to base such treatments. In October 2006, at a US-based EGFRI dermatologic toxicity forum, therapeutic interventions were evaluated and a consensus treatment algorithm was developed. We present this approach within the context of the EU.

Method: 13 experts (oncologists, oncology nurses, pharmacists, dermatologists) attended the forum; all had extensive experience in the management of EGFRI-associated cutaneous toxicities.

Results: Moisturizing dry areas twice a day with thick alcohol-free emollient and limiting exposure to sunlight will likely decrease incidence of dermatologic toxicities. A physical sunscreen (zinc oxide or titanium dioxide) with an SPF $\geqslant 15$ should be applied 1–2 hours prior to sun-exposure. Should dermatologic toxicity occur, an EGFRI-specific three-tiered grading system and step-wise treatment algorithm is proposed.

Mild toxicity–generally localized rash that is minimally symptomatic, with no sign of superinfection, and no impact on daily activities, may not require any form of intervention, but alternatively may be treated with low dose corticosteroid cream or antimicrobial gel/cream.

Moderate toxicity–generalized rash, accompanied by mild pruritus or tenderness, with minimal impact upon daily activities, and no signs of superinfection, should be treated with doxycycline or minocycline (100 mg PO BID) plus low dose corticosteroid cream, antimicrobial gel/cream, or a topical calcineurin inhibitor.

Severe toxicity–generalized rash, accompanied by severe pruritus or tenderness, that has significant impact upon daily activity, and has potential for superinfection should be treated as for moderate toxicity, plus a short term course of oral corticosteroid. EGFRI dose-reduction is also recommended for severe symptoms, in accordance with the product information. If dermatologic symptoms do not abate, despite treatment, then EGFRI interruption is recommended, but should be restarted once the cutaneous reactions have sufficiently diminished in severity.

Conclusions: EGFRI-associated dermatologic reactions are generally manageable, without dose reduction or interruption of EGFRI therapy. The practical application of this strategy is discussed.

1116 POSTER

Impact of pre-operative chemotherapy on the Quality of Life of patients with resectable non-small cell lung cancer using data from the MRC LU22/NVALT 2/EORTC 08012 multicentre randomised clinical trial

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Backgound: There is a paucity of data relating to the longer-term Quality of Life (QL) of patients undergoing potentially curative treatment for non-small cell lung cancer (NSCLC). QL evaluation was therefore integrated into the LU22 trial to assess and compare the QL of patients receiving either surgery alone (S) or 3 cycles of platinum-based chemotherapy (CT-S) followed by surgery.

Methods: All patients were asked to complete SF-36 QL questionnaires prior to randomisation, at 6 and 12 months then annually to 5 years. SF-36 scores were combined into 8 domains and also summarised as a Physical Component Summary (PCS) and Mental Component Summary (MCS). Multivariable regression was used to identify baseline prognostic factors for the 6, 12 and 24 month PCS and MCS scores.

Results: There was no evidence of a survival difference between the 2 treatment groups (519 patients, 244 deaths, median S: 54 months, CT-S 49 months, HR 1.02, 95% CI 0.80, 1.31). Compliance in completion of the SF36 was 82% at baseline, 59%, 60% and 67% at 6, 12 and 24 months respectively. At 6 months, the S and CTS groups reported comparable functioning in 7 domains, but there was a significant difference in role physical in favour of the S group. No differences were observed between the treatment arms for any of the domains at 12 or 24 months. Regression analyses indicated that better physical health outcomes (PCS) were predicted at all follow-up points by baseline PCS and MCS (all $p < 0.05$), whereas longer time since surgery predicted better PCS at 6 months ($p < 0.05$), and younger age predicted better PCS at 24 months ($p = 0.07$). Better MCS was predicted at all time points by baseline MCS ($p < 0.05$). In addition, female gender and baseline PCS were predictors at 6 months ($p = 0.07$ and $p < 0.05$ respectively) whilst younger age predicted better MCS at 24 months ($p < 0.01$). 39% patients rated their health as excellent or very good at baseline, which reduced to 26% at 6 months, no further changes occurred at 1 or 2 years. More than 50% patients considered their health comparable to others, and over 45% were generally optimistic about their future health at 1 and 2 years.