

up of a syringe driver (58%), vena punctures (46%), or antibiotics (26%). Patients had undergone a median of 3 nursing types of care during the last 3 days of life, such as daily washing or showering (76%), measurements of body temperature (63%) and blood pressure (61%), and a routine turning procedure to prevent bedsores (25%).

**Discussion:** Most patients dying in hospital receive medical and nursing types of treatment that may have decreased their comfort during the dying process. Caregivers in the hospital may not in all cases have been aware that patients were dying and that care had to be refocused. Currently, it is studied whether the Dutch version of the *Liverpool Care Pathway for the Dying Patient* can be helpful in these situations.

## 1309

## PUBLICATION

**Procalcitonin in cancer patients with febrile neutropenia**

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**Background:** This study was undertaken to determine the value of procalcitonin (PCT), measured in cancer patients on presentation with chemotherapy-induced febrile neutropenia (FN), as a predictive marker to distinguish patients with serious infection from those with less serious infection and non-infective causes of pyrexia, as well as relationships between PCT and the Multinational Association of Supportive Care in Cancer (MASCC) score, as well as the leucocyte, monocyte and neutrophil counts.

**Patients and methods:** Baseline and serial PCT levels were determined in 78 febrile neutropenic episodes. Patients were classified into groups with normal (<0.5 ng/mL) or elevated (≥0.5 ng/mL) initial circulating PCT values.

**Results:** of 57 patients (73%), mostly with fever of unknown origin (FUO), who had low PCT values at baseline, 56 survived. The remaining 21 patients (27%), 11 (57.1%) of whom had microbiologically proven infections, presented with elevated PCT values, and 7 (31.8%) of these died ( $p < 0.0001$ ). With respect to relationships with clinical and haematological criteria, PCT was found to correlate significantly and negatively with the MASCC score, as well as with the leucocyte, monocyte and neutrophil counts.

**Conclusion:** If used as an adjunct to conventional scoring systems, PCT measured on resatation with FN is a potentially useful strategy to distinguish between patients who are at high risk of life-threatening infection and those with either less severe infection or non-infective causes of pyrexia.

## 1310

## PUBLICATION

**Speed of response to epoetin beta in patients with solid tumours undergoing chemotherapy: results of a meta-analysis**

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**Background:** Anaemia is common in patients with solid tumours undergoing myelosuppressive chemotherapy. Recombinant human erythropoietins (epoetins) have been available for the treatment of anaemia for many years and have a proven efficacy across a range of malignancy types. Patients generally undergo around six cycles of chemotherapy (18–24 weeks), and so it is important for patients to obtain a rapid haemoglobin (Hb) rise when receiving epoetin therapy to maximise quality of life and minimise the need for transfusion. A meta-analysis was performed to investigate the speed of response to epoetin beta (NeoRecormon®) in patients with solid tumours undergoing chemotherapy.

**Methods:** Data were pooled from three randomised, controlled clinical trials of epoetin beta in anaemic patients with solid tumours undergoing chemotherapy (ten Bokkel Huinink et al 1998; Oberhoff et al 1998; Boogaerts et al 2003). Patients were divided into those receiving epoetin beta (~30 000–60 000 IU per week) or standard care (control). Changes in Hb level from study records over a treatment period of 16 weeks were collected and analysed.

**Results:** A total of 454 patients were included in this analysis (epoetin beta,  $n = 255$ ; control,  $n = 199$ ); the most common tumour types were ovarian (39%) and breast cancer (11%). Treatment groups were well balanced with regard to demographic characteristics. Hb levels increased rapidly, with a mean Hb increase from baseline of 1.0 g/dl seen after 4 weeks of treatment with epoetin beta. In contrast, a mean Hb increase from baseline of 0.1 g/dl was seen in the control group. A sub-analysis of change in

Hb level based on the type of chemotherapy received (platinum versus non-platinum) was also conducted. In patients receiving platinum-based chemotherapy, a mean increase of 1.0 g/dl was seen after 4 weeks in the epoetin beta group compared with no change from baseline in the control group. In those receiving non-platinum-based chemotherapy, mean Hb increases of 1.0 g/dl and 0.4 g/dl were seen after 4 weeks in the epoetin beta and control groups, respectively.

**Conclusions:** Epoetin beta rapidly increases Hb levels in anaemic patients with solid tumours undergoing myelosuppressive chemotherapy. Moreover, this rapid increase is seen regardless of the type of chemotherapy used.

## References

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## 1311

## PUBLICATION

**The prevalence of concern about weight loss and decline in food intake in people with advanced cancer**

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**Aim:** This paper reports findings of a survey of the prevalence of concern about weight loss and decline in food intake in patients with advanced cancer. It was part of a larger study with the purpose of exploring the potential for helping patients and their families live with the symptoms.

**Background:** Weight loss and anorexia are commonly reported symptoms in people with advanced cancer. Little is known about patient experience of the symptoms, in particular whether they find them of concern. If patients are troubled by the symptoms, mitigating this distress may be important in enabling them to die at home.

**Methods:** The research was a case study design. The cases were two community palliative home care teams serving a population of over 1 million people in the South of England in 2003. Multiple methods of data collection included a questionnaire survey and semi-structured conversational style interviews with a purposive sample of patients ( $n = 30$ ), carers ( $n = 23$ ) and nurse specialists ( $n = 14$ ). The survey was of 233 patients with advanced cancer (response rate 85%). These people represented 67% of the total caseload across the two study sites over a two week period.

Analyses of the survey data were conducted using SPSS (Statistical Package for Social Scientists version 12.0). Interview data were analysed thematically.

**Results:** More than three-quarters of the 199 patients who returned questionnaires reported weight loss (78.8%) and/or to be eating less (75.9%). More than one third of the people reporting weight loss (35%) and nearly half (45%) of people who reported eating less considered the changes of concern.

Patients who were within 6 months of death were found most likely to report concern about either weight loss and/or eating less. The interview data provide insights into the reasons why the symptoms can be experienced as distressing.

**Conclusion:** Weight loss and eating related distress are commonly experienced and previously unresearched problems in people with advanced cancer. Further work is needed to establish if concerns are amenable to interventions that translate into meaningful outcomes for patients and their families.

## References

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## 1312

## PUBLICATION

**A prospective survey of the management of cancer patients undergoing invasive procedures: evolution during the last five years**

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All along the course of their disease cancer patients are submitted to a lot of repeated invasive procedures. Little is known about the distress and pain induced by these procedures.

In 1998 and 2004 we conducted with a poll institute (Sofres) a national survey targeting adult cancer patients, physicians and nurses involved in cancer care in France.

Overall 1120 pts, 218 nurses, 109 physicians were included in these 2 surveys. 57% of pts were female, with a mean age 54 years, all receiving chemotherapy (1/3 adjuvant, 1/3 first line, 1/3 beyond). During last 3 months the mean number of invasive procedures was on average 24 per patient: this included IV perfusion (direct or via central access port) for chemotherapy (87%, 15 procedures/patient), blood tests (86%, 10/patient), IV injections for CT scan (61%, 1.9/patient) and others (bone marrow and skin biopsies, lumbar or pleural puncture – 31%, 2.6/patient). For 25% of patients and 80% of physicians and nurses pain related to the repeat of invasive procedures was considered as very disturbing. For 29% of patients this interfered with their psychological status and was correlated with the duration of chemotherapy.

90% of physicians claimed to inform patients about invasive procedures but only 50% of patients declared to be informed. The major differences between 1998 and 2004 concern the more frequent use of local or general anaesthesia (injection or anaesthetic cream) – 15% vs 46%, the possibility for patients to get informations about invasive procedures, a better communication between physicians and nurses and more involvement of the physicians in pain care.

This survey shows that invasive procedures are an issue in cancer patients even when the pain induced is low because of their repetition. Perception of distress induced is very different between patients and caregivers.

Even if the management of patients undergoing invasive procedures has improved since 1998, a more systematic evaluation and use of formal protocols especially for pain are needed.

## 1313

## PUBLICATION

#### Impact of the G1691A Factor V, G20210A Prothrombin Gene Mutations and acquired risk factors on thrombosis risk in patients with gastrointestinal carcinoma

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Venous thromboembolism (VTE) is one of the most important cause of morbidity and mortality in cancer patients. To date few and conflicting data are available on acquired and genetic risk in these patients. We investigated the influence of the prothrombotic gene mutation factor V G1691A (factor V Leiden), prothrombin G20210A, and acquired predisposing factors on the risk of a first episode of venous thromboembolism in gastrointestinal cancer patients treated and/or followed up in a single institution.

Between December 2001 and December 2004, the occurrence of a first symptomatic Venous thromboembolism (VTE) was investigated in a cohort of 327 gastrointestinal cancer patients. For each patient the clinical history, the kind of malignancy and chemotherapeutic treatment were recorded, as was the date of treatment. A multiple logistic regression model was developed to assess the effect of age, gender, chemotherapy, and extension of disease on the risk of VTE. In addition we performed a nested case-control study including 30 patients (cases) with venous thromboembolism and 60 controls without DVT matched with cases for age, identical chemotherapy, stage of disease and prognostic features. For these patients the G1691A factor V and G20210A prothrombin mutation genotypes were analyzed. Thirty out of 327 patients (9.2%) had a first VTE episode. Twentyfive out of 30 (83.3%) subjects with TVP had metastatic disease, and the event occurred during chemotherapy for 25/30, 22 with advanced and 3 with limited disease. The median time from start of chemotherapy to thrombosis was 61 days (interquartile range from 28 to 141).

The nested case-control study showed that 1 out of 30 cases (3%) and 2 out of 60 controls (3.5%) were heterozygous carriers of the G1691A mutation [Odds ratio 0.97, 95% CI 0.08–12.58 ( $p = 0.984$ )], and 2 cases (6.6%) and 5 controls (8.7%) were heterozygous for the G20210A mutation [OR 0.81, 95% CI 0.15–4.36 ( $p = 0.806$ )]. At multivariate analysis, among general and disease-related factors the presence of metastatic disease is the only significant prognostic factor detected, associated with an increased risk of developing VTE [Odds Ratio 4.97, 95% CI 1.97–12.51 ( $p = 0.0007$ )]. Our data show the lack of an association between the two genetic thrombophilic polymorphisms here investigated and the risk of VTE in GI cancer patients. Instead, the advanced disease stage was strongly related to VTE development.

## 1314

## PUBLICATION

#### "Supportive friend" – a web-based service for relatives/friends to cancer patients

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A special website for relatives/friends to cancer patients was developed by the Swedish Cancer Society (SCS) in January 2002. The purpose was to focus on the relatives/friends and their situation. Included in the website was "Supportive-friend", a web-based service aiming at creating supportive contacts between relatives/friends. The site is presented at the SCS website, [www.cancerfonden.se/anhorig](http://www.cancerfonden.se/anhorig)

**Purpose:** To describe the users in terms of gender and age. The number of "supportive-friends" registered, number of "supportive-friends" connected to each registered friend, duration of contact, reason for being a "supportive-friend" and use of other psychosocial support will be presented, as well as accessibility to the web site.

**Methods:** Gender, age and the relatives/friends' cancer diagnosis are registered at application to become a "supportive-friend". A questionnaire was sent by e-mail in February 2004 to all registered "supportive-friends". Responses were recorded anonymously for ethical reason, thus no reminders were sent.

**Results:** By March 2005, 435 individuals had registered to become a "supportive-friend", 81% women. About 50% were 30 years or younger. 9% were older than 50 years. The diagnosis of the relative was reported by 13% to be breast cancer, 12% lung cancer, 10% brain tumor, and <10% for other diagnoses. 21% did not report any diagnosis. There were no differences with respect to age, gender and diagnosis of relative between those who responded to the questionnaire and the total sample of registered "supportive friends". The results from the web-based questionnaires will be presented.

**Conclusion:** "Supportive-friend" attracts a large number of relatives/friends of both sexes, primarily young people. Relatives/friends who have experience of diseases associated with a bad prognosis, are frequent users of this service. "To help others" is a strong motive to be a "supportive friend".

## 1315

## PUBLICATION

#### Patient-specific risk factors of chemotherapy-induced neutropenia

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**Objective:** To evaluate patient-specific risk factors of chemotherapy-induced neutropenia.

**Methods:** 92 cases of cancer patients with neutropenia after chemotherapy were retrospectively analyzed and Logistic regression analysis was used to select the significant patient-specific risk factors.

**Results:** Among 92 patients, 138 episodes of 63 patients experienced neutropenic events, grade 3 and 4 neutropenia was 22.0%, 12.4, respectively. Patients who experienced one neutropenic event had a higher risk of a second event,  $P = 0.05$ . Anorexia, poor staging and advanced age were associated with greater risk of neutropenia,  $P = 0.01$ , multiple logistic regression analysis indicated that anorexia, poor staging were the most significant risk factors of grade 3 and 4 neutropenia, anorexia was the most significant risk factor of grade 1 and 2 neutropenia.

**Conclusion:** Anorexia, poor disease stage and advanced age may be patient-specific risk factors of neutropenia, anorexia may play a important role in chemotherapy-induced neutropenia.

## 1316

## PUBLICATION

#### Evaluation of anxiety level during intracavitary brachytherapy applications in patients with gynecologic malignancy

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**Purpose:** Anxiety level among the patients with gynecologic malignancy during intracavitary brachytherapy applications were evaluated and the factors influencing the scores were assessed.

**Material and methods:** Anxiety level during intracavitary brachytherapy applications and factors influencing the anxiety level were evaluated in 146 patients with gynecologic malignancy. The patients were evaluated in terms of quality of life and psychological status before each brachytherapy application using Hospital Anxiety and Depression Scale (HADS). The total score was 21. The scores were grouped as follows: 0-7: Normal, 8-10: Borderline, 11-21: Abnormal. The patients were also questioned