incorporation of a VAS in the nursing file. In addition, it was shown that a pain protocol based on the guidelines of the World Health Organisation could be implemented in a controlled setting.
The aim of this project was to improve the attitudes towards pain control in cancer patients, hospitalized at the departments of Hemato-oncology, Pneumology and Internal medicine; and to implement the pain guidelines in the different departments. The project was funded by the "Vlaamse Liga tegen Kanker".
The project was developed in different phases, which consisted of a sensibilization of the professional health caregiver and patient and family, each followed by a registration period in the participating departments. The project ran from 1/07/2007 until 30/06/2009. The first part aiming at training the nurses to use the VAS consisted out of 2 interactive training sessions (26/02/2008; 04/03/2009). This session was attended by the head nurses of the 3 departments and 16 and 21 nurses respectively. The training on pain control for all professional health caregivers was given 2 times (19/03/2009, 09/04/2009) and was attended by 64 and 31 participants, respectively. A separate session for residents and physicians was attended by 25 participants. The information session for the patients and family were given once (25/10/2008) and was attended by 75.participants.
There were 3 registration periods at the different departments: registration period 1 run from 21/01/2008 until 15/02/2008 (25 days), registration period 2 from 1/04/2008 until 28/04/2008 (28 days) and registration period 3 from 1/02/2009 until 28/02/2009 (28 days).
The number of patients, patient characteristics and information on pain is given in Table 1.

Table 1.

	Period 1	Period 2	Period 3
Number of pts	43	41	61
Male/female	23/20	31/10	43/18
Age (years)			
eremsp;Median	73	71	70
eremsp;Range	25−92	36−84	20−90
Registered days per patient			
eremsp;Median	6	6	6
eremsp;Range	1−17	1−25	1−28
Nº pts without pain (%)	18 (42)	25 (61)	18 (29.5)
Nº patients with pain (%)			
eremsp;1−3	8 (19)	6 (14.6)	13 (21.3)
eremsp;4−6	9 (22)	8 (19.5)	19 (31.1)
eremsp;7−10	8 (19)	2 (4.9)	11 (18)

Pain is prevalent in hospitalized cancer patients and between 5−19% are experiencing severe pain. This project increased the awareness of pain among both patients and professional caregivers.

3016 POSTER

Evaluating the satisfaction of the Spanish online breast cancer consulting service

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Background: Cancer information on Internet is an increasingly demanded service. There are few reliable qualified cancer information websites in Spanish. 4 years ago AECC launched www.muchoxvivir.org with the HONcode backing and offered consultancy *online* service for breast cancer patients, relatives or friends. Number of visitors and consultants has increased every year. Thus, in 2008, 1,095,743 visits and 714 consultations were registered. A survey of user satisfaction was conducted concerning the service provided in order to look for areas of improvement.
Methods: A link to an online anonymous questionnaire with 5 items, time to response, amount of information, information content, satisfaction and impact on overall quality of life, was e-mailed. Response were categorized into 5 degrees (1 = very dissatisfied to 5 = very satisfied). Other questions evaluated were as follows: age, sex, breast cancer diagnosed versus undiagnosed patients or relatives and, finally, type of query (medical, psychological, social resources, or other). Participants were also asked for suggestions to improve the service.
Results: In 2008, 621 questionnaires were e-mailed to users who gave their permission. 249 users (40%) answered within 2 weeks, most of them in only 1 to 3 days. Mean age was 39.9 (18 to 68). 94.4% of participants were women. Most of them were breast cancer patients (60.2%), followed by relatives or friends (32.5%) and women not diagnosed (72%). Most questions were medical (84.3%) or psychological (17.7%) issues. 76.3% of users were satisfied or very satisfied with the response time; 70.3% were satisfied or very satisfied with amount of information; 71.5% were satisfied or very satisfied with information content; 70.7% got the answer they expected and 46.2% achieved a positive impact on their quality of life. Some important suggestions received were more detailed answers, some kind of follow-up and the possibility to organize "patient forums" or "group therapies".
Conclusions: Our o*nline* breast cancer consultation service is highly appreciated by users, particularly in terms of short time to response and contents. To monitor every consultation and to offer *online* discussion boards or group therapy would be welcome.

3017 POSTER

Dolichol dependent hypersensitivity reactions to chemotherapy in breast cancer: the approach for prevention and management

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Background: Skin reactions caused by chemotherapeutic agents are not rare. In breast cancer they can mimic metastases and infections. The resent results are in favour of the idea that N-glycoprotein synthesis is limited by Dolichyl Phosphate Cycle (DPC), which is a target for chemotherapy and essential in maintaining mucocutaneous resistance and immunity. This dual role is very important in prediction and prevention of chemotherapy-induced skin disoders. With focus on a risk group marker for cutaneous side effects of cancer chemotherapy, the present study was carried out to estimate Dolichol (Dol) metabolism in patients with breast cancer treated with cytostatic agents.
Materials and Methods: The samples obtained from 412 patients with breast cancer before and during treatment with cisplatin, cyclophosphamide, docetaxel, doxorubicin and trastuzumab. Dol in urine was assayed by HPLC method, dolichol phosphate N-acetyl-glucosamine-1 levels. phosphate transferase (GPT) activity was defined in dermal fibroblasts by metaboling labeling (ML) method with [2-(3)H]-mannose.
Results: The normal amounts of Dol in healthy donors urine (n = 250) are 6.0−10.0 mkg/mmol. During the period of observation 90 (21.9%) of cancer patients were presented with different skin reactions, including flushing, urticaria, dermatitis, erythema, pruritus and acne. From this group of patients 74 (82.6%) have had elevated urinal Dol excretion (>20.8 mkg/mmol) 2 weeks before chemotherapy and 85 (94.6%) during and 2 weeks after chemotherapy. ML of cultured dermal fibroblasts from these patients revealed lowered incorporation of radiolabel into full-length dolichol-linked allele oligosaccharides and glycoproteins. sGPT activity was reduced to approximately 85.4−98.4% of normal levels.
Conclusion: There is a reason to suggest that reduced GPT activity, lowered N-glycoprotein synthesis and elevated urinary Dol detected in this group of patients may evidence of the disorders of DPC and possible susceptibility to the development of chemotherapy-induced cutaneous reactions. Elevated urinary Dol is one of the first manifestations of this disorder which could be prevented by breast cancer patients selection and DPC regulation.

3018 POSTER

The patient-perception fatigue PERFORM questionnaire is able to detect improvements of ⩾1gr/dl in hemoglobin level, among cancer patients with anaemia

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Background: Cancer-related fatigue (CRF) is one of the cancer symptoms with greatest impact in the patients' daily lives, and it is gaining importance as outcome measure. PERFORM Questionnaire is a recently developed and validated scale for the assessment of perceptions and beliefs about CRF (Rodriguez CA et al., ASCO 2007). This analysis has been carried out to better know the longitudinal association between the improvement in hemoglobin (Hb) level (⩾1 gr/dl) and the self-perceived health-related quality of life (HRQoL), in anemic patients.

Methods: An observational and longitudinal multi-centre study was carried out on a sample of anemic cancer patients (defined as Hb $\leqslant$ 11 g/dl according to EORTC guidelines). Sociodemographics, clinical indicators as Hb, and HRQoL measures as PERFORM questionnaire, LASA questionnaire and a visual analogue scale (VAS) were collected at inclusion and 3 months later. Anemic patients were classified as Hb responders (HR) if they improved $\geqslant$1 g/dL in Hb value at the end of follow-up. The mean score in HRQoL was compared among visits and the effect sizes (ES) for the aforementioned scores were obtained.
Results: A total of 292 patients in the study were HR: 58.9% women; 60 years old; 84.3 mean baseline Karnofsky score; 2.1 years from diagnosis. Lung (19.9%), breast (19.5%) and ovarian (10.3%) were the most common tumor types. Laboratory values and self-perceived HRQoL values are shown in table 1. HR patients showed a statistically significant improvement in PERFORM overall/dimension scores and ES ranging from 0.1 to 0.2. HR patients showed a statistically significant improvement in LASA scores and ES ranging from 0.2 to 0.3.

Table 1.

	Visit 1		Visit 2			
	mean	SD	mean	SD	p-value	ES
Laboratory values						
Hemoglobin, g/dl	10.0	,8	12.1	1.2	<0.001	2.6
Hematocrite, %	30.0	2.8	36.1	3.7	<0.001	2.2
Self-perceived HRQoL*						
Perform overall score	31.7	12.2	29.5	12.5	0.001	0.2
Perform ADL score	10.8	4.1	10.0	4.3	0.001	0.2
Perform beliefs score	11.1	4.5	10.1	4.5	0.001	0.2
Perform PL score	10.2	4.7	9.6	4.8	0.008	0.1
VAS** fatigue, mm	42.9	26.9	41.7	28.1	0.241	<0.1
LASA*** energy scale, mm	54.5	23.8	60.2	23.4	<0.001	0.2
LASA ADL scale, mm	55.7	27.4	62.4	25.8	<0.001	0.2
LASA overall QoL scale, mm	59.2	23.5	65.1	23.1	<0.001	0.3

ES: Effect size; SD: standard deviation; VAS: visual analogue scale; ADL: activities of daily living; PL: physical limitations; QoL: quality of life. Test Wilcoxon. *Low scores in Perform indicate better patient perception of cancer-related fatigue. Low scores in VAS and LASA scores indicates worse HRQoL.

Conclusions: Minimal Hb improvements of $\geqslant$1gr/dl were found associated with meaningful improvements in overall fatigue perceptions when assessed by means of PERFORM questionnaire. These results represent new evidences of the potential usefulness of PERFORM questionnaire for monitoring anemic cancer patients.

3019 POSTER

Current practice of prophylaxis with granulocyte colony-stimulating factors for preventing chemotherapy-induced neutropenia in breast cancer patients in Spain

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Background: Current guidelines recommend primary prophylaxis with granulocyte colony-stimulating factors (G-CSF) in all patients (pts) at high risk of chemotherapy (CT)-induced febrile neutropenia (FN).
Aims: To evaluate the incidence of neutropenia over the first 4 cycles of CT in breast cancer pts, and to describe G-CSF prophylaxis in clinical practice.
Methods: Multicentre, prospective, observational study including breast cancer pts initiating a CT regimen ($\geqslant$10% FN risk). Main outcome measures were: incidence of grade 3−4 neutropenia (G3−4N, neutrophil count (NC) $<1.0\times10^9$/L) and FN (NC $<0.5\times10^9$/L and fever $\geqslant$38ºC), number of pts receiving full dose on schedule (FDOS, $\leqslant$15% dose reduction and $\leqslant$3 days delay) and FN-related hospitalizations.
Results: The study included 735 pts [99.6% women, median age 51 y (range: 21−87), 99.1% ECOG 0−1, 34.8% stage III-IV]. At least 4 CT cycles were completed by 97.4% of pts (median cycle duration: 21 days). Most pts received docetaxel- (65.2%) or paclitaxel-containing (28.4%) regimens. G-CSF prophylaxis was used in 69.9% of pts [of which 86.6% was primary prophylaxis (PP) and 13.4% secondary prophylaxis (SP); 47.4% filgrastim (FLG) (88.6% PP) and 52.6% pegfilgrastim (PEG) (84.8% PP)]. In pts with G-CSF, prophylaxis the incidences of G3−4N and FN were 12.1% and 5.6%, respectively. Pts treated with PP had a lower incidence of G3−4N (7.8%) than pts with SP (40.9%, $p < 0.001$), irrespective of whether they received FLG or PEG. The incidence of G3−4N with FLG or PEG was similar (9.4% vs 12.1%, $p = 0.35$), but in FLG pts, a higher incidence of G3−4N was observed when treatment duration was <7 days/cycle (13.6% vs 3.7% for $\geqslant$7 days, $p = 0.018$). In pts receiving FLG, achievement of FDOS was less frequent with SP vs PP (54.2% vs 73.7%, $p = 0.045$), whereas no difference was observed for pts receiving PEG SP vs PP (70.3% vs 81.1%, $p = 0.13$). In total, 5.6% of pts with G-CSF were hospitalized due to FN for a mean (SD) of 6.6 (3.5) days. There were no differences in FN hospitalization between pts receiving PP vs SP, or FLG vs PEG prophylaxis.
Conclusions: Approximately one in ten breast cancer pts at high or intermediate FN risk developed grade 3−4 CT-induced neutropenia. Primary prophylaxis with G-CSF reduced neutropenia incidence compared with SP and, for FLG treated patients, improved CT delivery. Patients treated with less than 7 days of FLG experienced an increase in G3−4N.

3020 POSTER

Shorter post-infusion cooling time of scalp cooling in the prevention of docetaxel-induced hair loss

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Background: Alopecia is a common and distressing side effect of chemotherapy. Scalp cooling is practiced to reduce hair loss in patients receiving chemotherapy. The scalp is cooled before, during and after chemotherapy infusion. In general, positive outcomes of scalp cooling are reported, but it is unknown how the clinical outcomes in several chemotherapy regimens are related to cooling times, especially after infusion. An optimal pre-infusion cooling time proved to be 30 minutes; within this interval the temperature curve of the scalp skin had reached a horizontal level. In clinical practise post-infusion cooling times vary from 15 minutes to 3 hours in several chemotherapy schedules, based on clinical impressions and farmacokinetic considerations.
Patients/Methods: The objective of this multicentre trial (SCALP-study, ISRCTN 00283877) was to determine the impact of post-infusion cooling times on the preservation of hair in the 3-weekly docetaxel regimen, in mono- or combination therapy. In the first part of the study the post-infusion cooling time was 90 minutes (n = 65). In the second part patients were randomised between post-infusion cooling times of 45 (n = 54) and 90 (n = 51) minutes. Pre-infusion cooling time was 30 minutes. Scalp cooling was performed using the Paxman system.
Results: In this study, 190 patients with various kinds of cancer were included, among whom 69 men (36%). In the first part of the study, 90 minutes post-infusion cooling time resulted in 85% of patients not requiring a wig. The follow up is completed for 92% of the patients in the second, randomised, part. Hair was preserved in 85% with 45 minutes and 75% with 90 minutes post-infusion cooling time. Status: The inclusion of patients stopped at January 1st 2009, follow-up will be completed in September 2009. Final data on hair preservation will be presented as well as data on the number of patients that were eligible and the proportion that choose scalp cooling, data on tolerance and data on the impact on hair preservation of previous chemotherapy and personal characteristics, as type of hair and liver and kidney function.
Conclusion: Good hair preservation was observed in 45 as well as 90 minutes post-infusion scalp cooling time. The shorter cooling time declines the burden of scalp cooling in patients and is a great advantage in the time schedules of day care units.
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