of the patients experienced a fracture on study with a hazard ratio of 1.455 (95% CI = 0.944, 2.244; P = 0.09), suggesting a negative impact of fractures on survival. In patients with lung cancer, 17% experienced a fracture on study, and the impact on survival appears to be much less compared with other tumor types (hazard ratio = 1.129; 95% CI = 0.767, 1.663; P = 0.54), perhaps due to the very short median overall survival time (approximately 6 months) of these patients.
Conclusions: These exploratory analyses suggest that fractures appear to be associated with shorter survival in patients with multiple myeloma or bone metastases from prostate cancer or lung cancer and other solid tumors.

1266 POSTER

Euthanasia: evaluation of a protocol

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Euthanasia is allowed within the Belgian Law in certain situations. A procedure of euthanasia that could guarantee a serene and effective method of ending a patient's life and that was acceptable for patient, family and health care professional was tested in the "Ziekenhuis Netwerk Middelheim" (ZNA), a 650-bed community hospital in Antwerp, Belgium.
The procedure included all the legal requirements: patients had a terminal disease and were expected to die soon; they were suffering despite optimal palliative care and their situation was considered hopeless; there was a written request stating the reason for euthanasia. An independent physician evaluated the situation and the validity of the request. In case of a positive evaluation, the family doctor was contacted and informed about the wish of the patient. If the patient agreed, the family was informed of the patient's request. The timing of euthanasia was discussed with the patient and if needed with the family and a date and hour was set. The nursing team or the members of the palliative support team were consulted in advance if this time was feasible in relation to availability of staff. The morning of euthanasia, the medication was ordered from the pharmacy so that the material and medication were available at the time of euthanasia. Euthanasia was performed by first administering midazolam 60 mg in 5–10 minutes to induce sleep followed by natriumpenthotal 4000 mg and atracuriumbesilate 50 mg intravenously by bolus injection.
From 25/02/2003 until 01/05/2005, 35 patients died by euthanasia. There were 17 men and 18 women with a median age of 68 years (range 39–90 years). All patients had terminal cancer. In all cases, the family of the patient was present during the administration of the lethal drugs.
All patients died due to euthanasia. Twenty patients fell into a coma and died without any disturbing symptoms. After the injection of midazolam, two patients had non-disturbing rales, eleven patients coughed and one patient developed rales and heavy breathing disturbing for the family. One patient already on high dose of benzodiazepines did not go into a coma after midazolam. After administration of natriumpenthotal he went into a coma and died peacefully.
This procedure assures that euthanasia is effective and is done in a serene atmosphere.

1267 POSTER

Dose-response relationship: review of the past to improve the future of chemotherapy

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Background: Chemotherapy can improve survival rates in patients (pts) with solid tumors and hematological malignancies. The administered dose of chemotherapy is crucial to maintain treatment efficacy. The availability of the colony-stimulating factors (G-CSF), such as *filgrastim* and the long-acting *pegfilgrastim* (PGF), can allow the administration of the planned doses by preventing severe myelosuppression and its life-threatening complications. We reviewed data of trials evaluating the impact of the maintenance of the planned dose intensity on outcome in several types of chemosensitive tumors.
Material and methods: The principal databases (PubMed, CancerLit, Medline) have been checked using keywords relative to dose-intensity, CT and myelotoxicity, and considered only for the most representative papers on breast cancer, soft tissue sarcomas, germ cell tumors and malignant lymphomas were considered. All papers have been reviewed focusing on a) if myelotoxicity is an unavoidable adverse event b) if the reduction of dose-intensity is detrimental for the outcome and c) if the use of G-CSF or PGF contributes to the cure of tumors by reducing myelotoxicity and maintaining dose-intensity.
Results: *Breast cancer*: A recent survey on more that 20,000 pts with early-stage breast cancer treated with adjuvant CT showed that 35% of the pts had dose reductions >15%, and 25% had treatment delay > 7 days. Overall 56% of the pts were treated with a relative dose intensity <85%. Moreover several trials have shown that maintaining optimal planned dose is associated with better clinical outcome. In advanced disease a significant relationship between the dose intensities of CT and response rate was observed. A meta-analysis of 8 randomised controlled trials of G-CSF vs placebo found that chemotherapy dose reductions or delay were greater in patients receiving placebo.
Soft Tissue Sarcoma: Studies that used high doses of doxorubicin, epirubicin or ifosfamide in combination, with G-CSF support, resulted in higher response rate (RR) (range 42–67%) and a lower neutropenia rate.
Germ Cell Tumours: All regimens used are characterized by a significant myelotoxicity which often interferes with treatments. The ASCO 2000 recommendations suggest the use of G-CSF after a previous episode of febrile neutropenia, and discourage the reduction of the cytotoxic drugs.
Non-Hodgkin Lymphoma: The prognosis of pts treated with CHOP depends on the relative dose intensity during the first cycle: the five-year survival was 80% in pts treated with >70% of relative dose intensity and 32% in pts having been treated with <70%. The addition of G-CSF to CHOP resulted in a higher delivered dose intensity without affecting the survival outcome.
Conclusions: Myelosuppression is often responsible for dose-intensity reduction. The use of G-CSF, such as PGF, is useful for maintaining the CT dose intensity, and for NHL it is highly recommended.

1268 POSTER

Quality of life (QoL) with capecitabine in patients with metastatic colorectal cancer (MCRC)

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Background: The oral fluoropyrimidine capecitabine has superior efficacy and improved safety compared with 5-FU/LV in MCRC and early-stage colon cancer. Consequently, capecitabine is replacing 5-FU/LV as the backbone of MCRC therapy and is now moving into the adjuvant setting. The QoL benefits of oral agents, like capecitabine, over traditional i.v. drugs are becoming increasingly important in MCRC alongside well-established measures of treatment response.
Materials and methods: Patients with MCRC who received oral capecitabine (1250 mg/m^2 twice daily on days 1–14, every 3 weeks) completed EORTC QLQ C-30 (v3.0) and CR-38 questionnaires before cycle 1, at weeks 7 and 13, and at treatment end. Linear models for repeated measures were used to analyse least square mean QoL data over time. Improvement was defined as a $\geqslant$10-point improvement and maintenance as a <10-point improvement/worsening from baseline in domain scores at one or more visits.
Results: Baseline characteristics of 894 evaluable patients were: male/female (50%/50%); median age 60 (20–91) yrs; ECOG performance status 0–1 (81%); Caucasian (81%). Almost half of patients completed QoL questionnaires through to treatment end. In women, significant improvements were observed in global health status ($p = 0.0208$), emotional functioning ($p < 0.0001$), pain ($p < 0.0001$), appetite loss ($p = 0.0403$), future perspective ($p < 0.0001$), micturition problems ($p = 0.0257$), stoma-related problems ($p = 0.0051$), and weight loss ($p < 0.0001$). In men, significant improvements were observed in global health status ($p = 0.0002$), social functioning ($p = 0.0124$), nausea/vomiting ($p = 0.0223$), constipation ($p < 0.0001$), financial problems ($p = 0.0072$), future perspective ($p = 0.0005$), micturition problems ($p = 0.0431$), and weight loss ($p < 0.0001$). Global health status score was improved or maintained in 70% and 71% of women and men, respectively.
Conclusions: Treatment with capecitabine led to improvements or maintenance of QoL in most patients. These data support its increasing use in the first-line and adjuvant settings. The efficacy, safety and convenience benefits of capecitabine as reported previously allow patients with MCRC to maintain a normal lifestyle and have a direct impact on QoL.