enrolled in ACAS. Although the majority of MEWACAS pts (79.6%) and ACAS (85.4%) had WHO Performance scores of 0 or 1, low Hb levels were associated with poor WHO scores (2–4). Of the 858 MEWACAS pts with Hb values for analysis, 79.0% were anemic at some time during the survey. Anemia was most frequently reported in pts who received CT (81.3%), while anemia occurred in 74.6% of pts who did not receive cancer treatment at any time during the survey. Of the 602 ACAS pts with Hb values for analysis, 58% were anemic at some time, including 86% CT pts and 55% with no cancer therapy. Of the ever anemic pts, 66% MEWACAS, 77% ACAS and 61% ECAS pts did not receive anemia treatment. Of those who were treated, 16% MEWACAS, 7% ACAS and 3% ECAS received iron; 10% MEWACAS, 19% ACAS, and 15% ECAS were transfused; and 8% MEWACAS, 1% ACAS and 17% ECAS received epoetin. Hb at first transfusion was 8.7 g/dL MEWACAS, 8.8 g/dL ACAS and 8.6 g/dL ECAS and Hb at epoetin initiation was 8.9 g/dL MEWACAS, 9.7 g/dL ACAS and 9.9 g/dL ECAS

Comparisons among ECAS, MEWACAS and ACAS demographics

Variable	ECAS	MEWACAS	ACAS
Mean age (yrs)	57.8	50.9	59.7
Males	44%	38%	39%
% on CT	40%	44%	64%
Mean Hb level at enrolment	12.3 g/dL	11.5 g/dL	12.5 g/dL
% anemic at enrollment	39%	54%	35%
% Solid/% Hem tumors	79%/21%	83%/17%	72%/28%
Breast pts (%)	22	37	26
Lung pts (%)	14	9	8
Gynecological pts (%)	12	5	6
GI/colorectal pts (%)	17		

Conclusions: Data analyses from MEWACAS, ACAS and ECAS, although somewhat different in absolute numbers, produced similar conclusions: the prevalence and incidence of anemia are high and correlate significantly with poor performance status. Importantly, treatment for anemia is not optimized; only a minority of anemic pts is receiving treatment, despite accepted anemia treatment guidelines. Understanding these results may lead to better management of anemia in cancer pts with the goal of optimizing pt quality of life.

1285 POSTER

High incidence of hypocalcemia in patients with bone metastases from different kinds of neoplasms, treated with pamidronate and zoledronate

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Background: Pamidronate and zoledronate are generally used for the treatment of bone metastases from different kind of neoplasms. Hypocalcemia and elevation of serum creatinine are expected adverse events during these therapies, although their actual incidence is unknown. The use of serum calcium and creatinine is therefore recommended. The aim of this retrospective study was to verify the real incidence of hypocalcemia and the elevation of serum creatinine during bisphosphonate treatment in patients with normal calcium and creatinine levels at baseline.
Patients and methods: We reviewed data from 187 consecutive patients (72 males, 115 females, mean age 61 years, range 32–88 years) affected by metastatic osteolitic (36.9%), osteoblastic (4.3%) and mixed (38.5%) bone lesions from different kinds of solid tumors (breast 44.4%, lung 26.2% prostate 4.3%, others 20.3%) and multiple myeloma (4.8%). Seventy-seven patients (41.2%) were treated with pamidronate (median numbers of cycles 6, range 1–26), 79 patients (42.2%) with zoledronate and daily calcium supplementation (median number of cycles 7, range 1–42) and 31 patients (16.6%) with both sequentially (pamidronate followed by zoledronate+calcium supplement). The normal ranges for calcium and creatinine were 2.10–2.60 mmol/l and 0.60–1.20 mg/dl respectively. Abnormal values were assessed according to the CTC Version 2.0.
Results: Overall, 92/187 patients (49.1%) had hypocalcemia: grade 1 in 43 patients (46.7%), grade 2 in 37 patients (40.2%), grade 3 in 11 patients (11.9%), grade 4 in 1 patient (1.1%); 17/172 patients (9.9%) had increased serum creatinine: grade 1 in 13 patients (76.5%), grade 2 in 4 patients (23.5%). All patients were asymptomatic. No significant correlation was found between serum abnormalities and type of primary tumor, type of bone metastases or type of bisphosphonate administered.
Conclusions: Our retrospective analysis shows a high incidence of grade 3–4 hypocalcemia. These results are significantly worse than expected and strongly support the need for monitoring plasmatic calcium and creatinine levels.

1286 POSTER

Living alopecia: Study on the impact of chemotherapy-associated alopecia in quality of life and daily activities in women with breast cancer

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Background: Alopecia has been cited as one of the most disturbing anticipated side effect by women preparing for chemotherapy. The aim of this study was to evaluate the impact of chemotherapy-associated alopecia in quality of life (QoL) and daily activities in women with breast cancer (BC).
Methods: Consecutive BC patients (pts) under chemotherapy (at least 2 sessions) were enrolled in eight Portuguese oncology services between 2004 and 2005. The pts were asked to fulfil a questionnaire about chemotherapy side effects and alopecia impact on their QoL. Social support was also evaluated trough Lubben Social Network Scale.
Results: 463 pts were included. Mean age was 53.9±11 years, 10% had less than 40 years. Mean age at diagnosis was 50.5±11 years. 87% underwent different variants of mastectomy (66% performed radical mastectomy). The majority (88%) had a high social support level with a low risk for isolation, according with Lubben Social Network Scale. Since the beginning of chemotherapy 98.5% had at least one adverse effect (AE). 91.4% had alopecia, 79.9% fatigue, 74.5% nausea and 67.2% vomiting. The most distressing anticipated AE was alopecia, referred by 56% of the pts (followed by nausea, referred by 9% and vomiting 12%). 13% of the pts that anticipated alopecia as the most distressing adverse event considered not to do chemotherapy due to this effect. The mean age of those who considered alopecia as the most distressing AE was 52.8 vs 55.1 years (considering other AEs), $p = 0.02$. The groups were not significantly different in what concerns to marital status, educational level or surgery. When asked about what AE they would avoid, if possible, alopecia was referred by 48%. These pts considered that, in the family the ones that attribute greater importance to their physical aspect (alopecia) are their children. 66% of the pts considered the hypothesis of using a wig and 72% considered the use of a headscarf. 55% felt depressed and 45% took medication. Despite 12% of these pts mentioned that alopecia is worst than the cancer itself, 90% would chose a very effective treatment that provokes alopecia instead of a less effective treatment that not causes alopecia.
Conclusion: This study confirms that alopecia is one of the most important chemotherapy associated adverse effect with major impact in patients' quality of life.

1287 POSTER

Palonosetron plus aprepitant and dexamethasone is a highly effective combination to prevent chemotherapy-induced nausea & vomiting after emetogenic chemotherapy

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Background: Palonosetron (PALO) is a pharmacologically distinct, second-generation 5-HT_3 receptor antagonist (RA) approved for prevention of chemotherapy-induced nausea & vomiting (CINV) after moderately and highly emetogenic CT. Aprepitant (APREP) is a NK_1 RA approved for prevention of CINV after highly-emetogenic chemotherapy (CT) when used with a 5-HT_3 RA & dexamethasone (DEX). The effect of the combination of this highly effective 5-HT_3 RA and APREP + DEX in patients receiving a variety of moderately to moderate-highly emetogenic chemotherapy is reported.
Methods: This multicenter, open-label pilot study evaluated the safety and efficacy of a single IV dose of PALO (0.25 mg on Day 1) in combination with 3 consecutive daily oral doses of APREP (125 mg on Day 1 and 80 mg on Days 2 and 3) and 3 consecutive daily oral doses of DEX (12 mg on Day 1 and 8 mg on Days 2 and 3) in the prevention of moderately emetogenic chemotherapy-induced nausea and vomiting. Complete response (CR; no emetic episodes, no rescue medication), patients with no emetic episodes

(EE), and those with no nausea were evaluated. Adverse events (AEs) were collected to assess safety.
Results: A total of 58 patients were included in the study; almost 80% (45/58) were women. Breast cancer was the predominant tumor type, followed by colorectal cancer and lymphoma. Approximately half of patients were chemotherapy-naive at study entry. All patients received a variety of moderately to highly emetic regimens on Day 1. Twenty-four of the 58 patients enrolled (41.4%) received anthracycline/cyclophosphamide combination chemotherapy.

PALO+APREP+DEX (n = 58)	Acute (0–24 hr)	Delayed (24–120 hr)	Overall (0–120 hr)
Patients with CR	88%	78%	78%
Patients with no EE	93%	93%	91%
Patients with no nausea	71%	53%	52%

The most common treatment-emergent AEs (incidence ⩾10%), regardless of causality, were constipation, diarrhea, fatigue, insomnia and thrombocytopenia.
Conclusion: Results from this study demonstrate that the combination of a single dose of PALO 0.25 mg with a 3-day regimen of APREP and DEX offers remarkable 5-day protection from nausea and vomiting in patients receiving emetogenic chemotherapy. The triplet combination was shown to be safe, with an expected safety profile for patients under these regimens. This combination of antiemetic agents seems to offer a very effective treatment option to reduce incidence of acute and delayed CINV.

1288 POSTER

Results of a cross-over study on injection-site pain comparing subcutaneous epoetin beta and darbepoetin alfa in healthy volunteers

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Background: In anaemic patients with cancer, erythropoietic proteins are normally administered by subcutaneous (SC) injection. Whether therapy is administered in the clinic or self-administered by the patient, pain at the injection site may contribute to a lack of compliance in patients receiving erythropoietic proteins for cancer-related anaemia. The aim of this study was to ascertain whether differences exist in local pain at injection site between epoetin beta (NeoRecormon®) and darbepoetin alfa (Aranesp®).
Methods: This was a single-blind, randomised, cross-over study. After receiving placebo (0.9% saline SC injection [0.3 ml]), subjects were randomised to receive identical volumes (0.3 ml) and equivalent doses of either epoetin beta (6000 IU) or darbepoetin alfa (30 μg). Following a one-week washout period, subjects received the other study drug. To assess pain on injection a 10 cm ungraduated visual analogue scale (VAS) (0 = no pain, 10 = maximal pain) and a six-item verbal pain scale (VPS) (no pain = 0, very painful = 5) were used. Pain was assessed immediately after injection (T_0) and at 1-hour post-injection (T_{1h}).

Table 1

	Epoetin beta, overall (n = 37)	Darbepoetin alfa, overall (n = 37)
Median VAS score (T_0)	1.2	2.9
Interquartile range, Q1; Q3	0.0;1.5	1.3;3.9
95% CI	0.7–2.0	2.1–4.0
Median VAS score (T_{1h})	0.0	0.0
Interquartile range, Q1; Q3	0.0; 0.1	0.0; 0.2

Results: of the 40 healthy volunteers included (mean age 28.9±10.5yrs; men 47.5%), 37 completed the study. Data from the per-protocol population were analysed. Overall median values for VAS revealed that subjects experienced significantly ($p < 0.05$) less pain immediately after injection with epoetin beta than those injected with darbepoetin alfa (Table 1). Compared with placebo, median value differences were −0.2 (95% CI: −0.7–0.2) and 1.4 (95% CI: 0.8–1.9) for epoetin beta and darbepoetin alfa, respectively. Similarly by VPS, subjects experienced less pain immediately after injection with epoetin beta (1.5 [95% CI: 1.0–2.0]) than those injected with darbepoetin alfa (2.5 [95% CI: 2.0–2.5]). A greater proportion of subjects injected with darbepoetin alfa (32.4%) and placebo (13.5%) reported injections as moderately-to-very painful immediately after injection compared with those who received epoetin beta (5.4%) ($p = 0.0005$ darbepoetin alfa vs epoetin beta). In subjects injected with epoetin beta, none reported that injections were very painful. No significant differences were observed for any of the injections one hour after administration (Table 1). SC injections of epoetin beta, darbepoetin alfa and placebo were generally well tolerated in the subjects completing the study.
Conclusions: Epoetin beta by SC injection provides minimum discomfort, is as pain free as placebo (physiological saline) and is significantly less painful than SC injection of darbepoetin alpha.

1289 POSTER

Ibandronate: an effective treatment for colorectal carcinoma patients with bone metastases

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Background: Metastatic bone disease occurs in a high number of patients with various primary cancers and carries a high risk of complications. Ibandronate is a single-nitrogen, non-cyclic bisphosphonate that effectively prevents skeletal complications in patients with metastatic breast cancer. This study reports efficacy data from colorectal carcinoma patients with bone metastases treated with intravenous ibandronate.
Materials and methods: A randomized, placebo-controlled trial was conducted to evaluate the efficacy and safety of intravenous ibandronate. Fifty-two patients with metastatic bone disease received intravenous ibandronate 6mg or placebo administered via 15-minute infusion every 4 weeks. The primary efficacy endpoint was the proportion of patients with skeletal-related events (defined as pathologic fracture, spinal cord compression, radiation therapy or surgery to bone, or change in antineoplastic therapy). Secondary endpoints included time to first skeletal event, skeletal morbidity rate (events/year) and bone lesion progression time.
Results: Intravenous ibandronate 6mg significantly reduced the proportion of colorectal carcinoma patients with skeletal events (37% versus 80% with placebo; $p = 0.018$) and prolonged the time to first event by at least 6 months (median >279 versus 93 days with placebo; $p = 0.007$). Ibandronate also significantly reduced the skeletal morbidity rate (mean 2.35 versus 3.15 with placebo; $p = 0.018$) and prolonged time to progression of bone lesions (214 days versus 81 days with placebo; $p = 0.018$). Ibandronate was well tolerated with a safety profile comparable to placebo. No clinically-relevant changes were observed in serum creatinine levels.
Conclusions: Intravenous ibandronate provided significant clinical benefits for patients with bone metastases secondary to colorectal carcinoma. This suggests that ibandronate may be effective for patients with bone metastases following primary cancers other than breast cancer. Larger studies are required in these patient groups.

1290 POSTER

Bisphosphonates and jaw osteonecrosis: experience with ibandronate

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Background: A causal association between bisphosphonates (BP) and osteonecrosis of the jaw (ONJ) was highlighted by the recent Publication onlyn of a case series. Most patients were being treated for oncology indications and had undergone dental work (Ruggiero SL, et al. J Oral Maxillofac Surg 2004;62:527–34). Documents published by the FDA this year describe 610 spontaneous reports in detail, for 374 patients who received intravenous (i.v.) zoledronate only (mean time to ONJ onset: 18 months), and 120 patients who received i.v. pamidronate only (mean time to onset: 72 months). The remainder received at least two BPs sequentially. Patients switching from pamidronate to zoledronate had a higher risk of ONJ than those who received pamidronate alone (*http://www.fda.gov/ohrms/dockets/ac/cder05.html#OncologicDrugs*).
The underlying pathological mechanism for ONJ is uncertain. We investigated the incidence of ONJ following treatment with i.v. and oral ibandronate, a single-nitrogen, non-cyclic bisphosphonate, for the treatment of bone metastases.
Methods: An electronic database search was conducted of all ONJ events reported cumulatively to Roche by 15 May 2005. Cases were included if ONJ or surgical intervention for osteomyelitis was documented.
Results: See Table 1.
Discussion: Both case reports with oral ibandronate were confounded by prior exposure with zoledronate. As with other BPs, the time to ONJ onset after ibandronate exposure varied from a few months to a few years. ONJ associated with ibandronate is a serious, though rare adverse reaction.