treatment were predictive factors in a multivariate analysis. The 2 years incidence of brain metastasis in patients with visceral metastasis treated by trastuzumab as frontline therapy was 45%.
Conclusions: This study suggests that patients with Her2-overexpressing metastatic breast cancer with visceral involvement treated with trastuzumab present a high risk of brain metastasis.

426 POSTER

Value of tumour markers CA 15–3 and CEA in predicting response and progression during fulvestrant treatment

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Background: Tumour markers are often used to monitor response to therapy in patients with metastatic breast cancer (MBC) and an increase in tumour markers after 3 months of treatment may be a sign of *de novo* disease progression (PD). Here we assessed the prognostic value of tumour markers at predicting response and secondary PD in patients receiving fulvestrant ('Faslodex') therapy.
Methods: Postmenopausal women who had received prior endocrine therapy for MBC were treated with fulvestrant 250 mg/month as part of a Compassionate Use Programme (CUP). Changes in cancer antigen 15–3 (CA 15–3) and carcinoembryonic antigen (CEA) were prospectively monitored on a monthly basis in patients experiencing a partial response (PR), stable disease (SD) $\geqslant$ 6 months and *de novo* PD. Levels of these markers were also evaluated for the 3 months preceding secondary PD in patients who had previously experienced clinical benefit (CB) with fulvestrant.
Results: Tumour marker data from 67 patients participating in the CUP were analysed; seven patients (10.4%) had a PR, 28 patients (41.8%) had SD $\geqslant$ 6 months and 32 patients (47.8%) had *de novo* PD. Tumour marker data for the first 4 months of treatment are presented in the table.

Patients response	Median marker levels				P-value
	Month 1	Month 2	Month 3	Month 4	
PR (n = 7)					
CA 15–3 (U/mL)	67.0	83.0	84.0	84.0	NS
CEA (ng/L)	5.5	4.0	4.0	4.1	NS
SD $\geqslant$ 6 months (n = 28)					
CA 15–3 (U/mL)	110.0	109.0	143.0	147.0	0.0023
CEA (ng/L)	7.2	7.0	7.4	6.3	NS
De novo PD (n = 32)					
CA 15–3 (U/mL)	95.5	103.5	139.0	191.0	0.0214
CEA (ng/L)	10.6	12.7	15.5	17.0	NS
Secondary PD (n = 28)					
CA 15–3 (U/mL)	258.5[a]	311.5[b]	389.0[c]	388.5[d]	0.0016
CEA (ng/L)	6.6[a]	7.4[b]	7.3[c]	8.1[d]	NS

[a]2 months before PD; [b]1 month before PD; [c]PD; [d]1 month after PD

Conclusions: Patients experiencing *de novo* PD or secondary PD with fulvestrant show significantly increasing CA 15–3 levels. However, those experiencing SD $\geqslant$ 6 months and even those with a PR may also show an initial increase in CA 15–3 levels; this should not be taken as a sign of PD without radiological verification. CEA was a poor prognostic marker for response in patients receiving fulvestrant.

427 POSTER

The TEXAS trial – mature results of activity/toxicity of Taxotere given with anthracyclines in a community setting, as first line therapy for metastatic breast cancer

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The TAX 306 Phase III study demonstrated that doxorubicin plus docetaxel (AT) is more effective than doxorubicin plus cyclophosphamide. Between 1999 and 2001, 470 patients were registered in an open evaluation study at UK Cancer Centres.136 patients had 3 weekly AT (A – 50 mg/m^2), 333 ET (E – 75 mg/m^2), each with T – 75 mg/m^2. Median cumulative dose of T was 420 mg/m^2. 152 patients discontinued treatment, for disease progression (67, 14%), adverse events (63, 13%) and withdrawal of consent (11, 2%). ORR (ITT), was 61% (n = 66) for AT, and 62% (n = 182) ET, similar to AT in TAX 306 (ORR 59%).
At a median follow up of 72 weeks, 433 (92%) had progressed following first line therapy and 401 (85.5%) had died. Overall median time to progression was nearly 37 weeks, (37.8 weeks ET, 35.4 AT). Both groups in TAX306 and in TEXAS compared favourably, in terms of response rates and TTP, with single-agent chemotherapy.
The main toxicity was neutropenia, with 75 patients (55%) on AT and 203 (61%) on ET with NCI grade 3/4 neutropenia. Febrile neutropenia or neutropenic sepsis was reported for 32 (24%) of the AT arm and 78 (23%) of the ET arm. There were 3 (0.9%) deaths from neutropenic sepsis in the ET arm and 2 (1.5%) in the AT arm, non-hematologic toxicities were diarrhea, nausea, vomiting, and pyrexia. 38 (11%) of patients on ET and 22 (16%) on AT withdrew from the treatment due to an adverse event. One patient in the ET arm had CHF after 6 cycles and 3 patients were withdrawn after cycle 1 or 2 due to cardiac dysrhythmia.
AT or ET are effective for patients with rapidly progressive visceral disease. Myelosuppression is manageable and long-term toxicity not a major issue. AT or ET represent useful options for first-line therapy for MBC.

428 POSTER

Application of the rough sets theory to evaluate prognostic factors in breast cancer patients subjected to mastectomy

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Background: the paper presents analysis of relationship between variables describing breast cancer patients and therapy results. The method based on the rough sets theory and induction of decision rules is applied to perform the analysis. Rough sets are a method of dealing with domains characterized by inconsistent and incomplete information. Proceeding in this way, they formulate some indications, which may be helpful in making decisions referring to the treatment of breast cancer patients.
Material and methods: the data set contains 718 breast cancer patients described by 21 variables (factors) and divided into two classes: patients who did not experience cancer recurrence and patients who had cancer recurrence. In the years 1992–1994, those patients were subjected to mastectomy and underwent chemotherapy at the Chemotherapy Ward of the Wielkopolska Oncology Centre in Poznan. The observation period was equal to 10 years (2002–2004). The whole group of patients was divided into two sets: a learning set and a testing one.
Results: in the first phase of the analysis, the rough sets based approach was applied to determine variable importance for the patients' classification. The set of selected variables, which ensured high quality of the classification, was obtained. Then, the decision rules were generated from the learning set by means of the algorithm inducting the minimal cover of the learning examples. The testing set was a base to evaluate prognostic potential of the generated decision rules. Total accuracy of prognosis (classification) for the decision rules was equal to 70.3%. In the case of the patients who had had cancer recurrence the prognosis accuracy was 76.3%, and for the patients who had had no recurrence of cancer it was 60.7%. The prognosis accuracy is described as a ratio of number of test cases for which the rules correctly indicated cancer recurrence or lack of recurrence to the total number of test cases.
Conclusions: the obtained decision rules provide guidelines which may be helpful in making decisions referring to treatment of breast cancer patients as well as evaluating their prognosis.
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429 POSTER

Advanced stage breast cancer treatment: a survey of European opinion leaders

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Background: The purpose of this study was to determine physician preferences for treatment of women with advanced stage breast cancer.
Material and methods: The study was conducted in 5 countries. A patient scenario was used to guide the reader throughout the survey: postmenopausal woman diagnosed with stage IV breast cancer, with a

2.5 cm mass, grade 1–2, estrogen/progesterone receptor positive, HER-2 not over-expressed and excellent performance status. The survey (over the World Wide Web) was designed after reviewing country-specific and international guidelines on breast carcinoma management and consulting with experts to identify areas of controversy.
Results: 39 of 49 breast cancer specialists contacted completed the web-based survey. Seven of the respondents were from England, 11 from France, 9 from Italy, 1 from Germany (excluded for result report) and 12 from Spain. For initial therapy, 36% recommended mastectomy or wide local excision ±cosmetic reconstruction or node biopsy, 44% radiation to primary tumor ±lymph nodes or other sites, 74% chemotherapy, 97% hormone therapy, and 95% palliative care. The most commonly chosen first-line chemotherapy regimens were cyclophosphamide+epirubicin+fluorouracil (39%), docetaxel+capecitabine (21%), single agent paclitaxel (21%), and docetaxel+epirubicin (21%). The majority of respondents chose at least one anthracycline (96%) or taxane (82%) based regimen, either alone or in combination as first-line therapy. The most commonly selected second-line therapies included single agent treatment with docetaxel (50%), capecitabine (54%) or vinorelbine (35%). Single agent therapies with capecitabine (48%) or vinorelbine (43%) were the preferred third-line treatments. For hormonal therapy, anastrozole (25%) and exemestane (28%) were the most commonly chosen first and second-line hormone agent respectively. Ninety five percent of respondents recommended palliative care therapies, including counseling (85%), pain specialist (76%), counseling for family/friends (73%), palliative care specialist (64%), and lymphoedema support (61%).
Conclusions: This web-based survey of physicians from five European countries found substantial variability in treatment and palliative care preferences for a highly functional, postmenopausal woman who presents with stage IV breast cancer. Participants largely favored aggressive, multimodal treatment, although most indicated that palliative care should be pursued simultaneously.

430 POSTER

Efficacy of ibandronate for the prevention of skeletal-related events in breast cancer patients with metastatic bone disease

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Background: A high proportion of breast cancer patients develop bone metastases that carry a high risk of complications. Ibandronate is a single-nitrogen, non-cyclic bisphosphonate with proven efficacy for reducing the risk of skeletal-related events (SREs). Here, we describe the results of a randomized, placebo-controlled trial to evaluate the efficacy and safety of ibandronate in patients with metastatic bone disease following breast cancer.
Materials and methods: Patients were treated with intravenous ibandronate 6 mg or placebo infused over 15 minutes every 4 weeks for 24 months. The primary efficacy endpoint of the study was the proportion of patients who developed SREs (defined as pathologic fracture, spinal cord compression, radiation therapy or surgery to bone, or change in antineoplastic therapy).
Results: In a group of 150 women with breast cancer and bone metastases, intravenous ibandronate significantly reduced the proportion of patients who experienced an SRE compared with placebo (38% versus 49%; $p = 0.028$). Time to first SRE was also delayed significantly (median 459 versus 306 days; $p = 0.008$). A multiple-event analysis showed that ibandronate reduced the risk of developing an SRE by 32% (hazard ratio=0.69; 93% confidence interval 0.42–0.79; $p = 0.003$). In general, ibandronate was well tolerated, with a renal adverse event profile comparable to placebo and no clinically-relevant changes in serum creatinine levels.
Conclusions: Compared with placebo, ibandronate was associated with significant reductions in the proportion of patients with an SRE, the median time to first SRE, and the SRE risk. The safety profile of ibandronate infused over 15 minutes was similar to placebo, with no evidence of renal toxicity. This study therefore supports previous Phase III trial data for intravenous ibandronate and underlines the efficacy of this treatment for patients with metastatic breast cancer.

431 POSTER

Breast cancer patients with persistently increased bone resorption

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Background: Across all tumor types elevated baseline N-telopeptide (NTX) increases the relative risk of skeletal-related events (SREs), disease progression, and death (Brown JE, et al. *J Natl Cancer Inst*. 2005; 97: 59–69 and Coleman RE, et al. *J Clin Oncol*. in press) in patients with bone metastases from advanced cancer.
Material and methods: Urinary NTX was measured at baseline and at month 3 in 328 breast cancer patients with bone metastases who were treated with monthly 4 mg or 8/4 mg zoledronic acid for up to 24 months (Rosen LS, et al. *Cancer*. 2003; 98: 1735–1744).
Results: At baseline, 132 patients had a urinary NTX ⩽ 64 nmol/mmol creatinine (upper limit of normal for premenopausal women) and 196 had elevated baseline NTX (>64 nmol/mmol creatinine). At month 3 of zoledronic acid treatment, 149/196 (76%) of patients who began treatment with elevated NTX had normal NTX (A-N group), 31/196 (15.8%) had persistent elevation of NTX (A-A group) and 16/196 (8.2%) died. Normalization of elevated urinary NTX at 3 months by zoledronic acid (A-N group) was a significant predictor of favorable outcome as measured by total SREs, fracture, and the need for radiation therapy (Lipton A, et al. *Proc Am Soc Clin Oncol*. 2005). By univariate analysis, high baseline Brief Pain Inventory (BPI) scores, Functional Assessment of Cancer Therapy-General scale (FACT-G) total scores, use of narcotics, and a baseline NTX > 150 nmol/mmol creatinine were all predictive of persistent elevation of baseline NTX levels. Time since cancer diagnosis, prior SREs, antineoplastic therapy, and predominant type of bone metastases (lytic, blastic, or mixed) were not associated with failure to normalize elevated baseline NTX levels. By multivariate analysis, only baseline NTX > 150 nmol/mmol creatinine ($P = 0.0036$) and use of narcotics ($P = 0.011$) were independently associated with failure to normalize elevated baseline NTX levels.
Conclusions: After 3 months of treatment with zoledronic acid, 15.8% of breast cancer patients with bone metastases and high NTX at study entry had persistently elevated urinary NTX at 3 months. These patients were at higher risk for SREs compared with those whose urinary NTX was normalized by zoledronic acid treatment. New treatment strategies with zoledronic acid should be investigated in these patients.

Publication
Breast cancer – advanced disease

432 PUBLICATION

Consequences of axillary recurrence after radical breast surgery

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Background: Optimal management for axillary recurrence is poorly understood. The aim of this study was to evaluate the risk factors for overall survival in the patients with axillary recurrence.
Methods: Data of 1098 patients were collected from breast cancer registers from Clinic for Oncology Nis during the 5-years period (1990–1995). The medical data of patients with axillary recurence were reviewed utilizing a standard coding sistem.
Results: All patients underwent modified radical mastectomy. Axillary recurence was diganosed in 43(3.92%) patients. Most patients were presented with a localized, palpable axillary mass 30(69.77%). Cox multivariate analysis of prognostic factors for breast cancer-specific survival showed that node status HR 4.69 (1.50 to 14.72), tumor size HR 3.18 (0.90 to 11.26) and axillary radiotherapy HR 1.99 (0.69 to 5.75) had statistically significant effect on breast cancer mortality. Log-rank (54.21 $p < 0.001$) analysis showed significant difference for overall survival among women with a axillary recurrence based on different cancer stages.
Conclusions: Tumor size and node status were the most important prognostic factors in women with axillary recurrence.