combined with other chemotherapy (CT) agents was demonstrated in AVADO and RIBBON-1. Subgroup analyses of all 3 trials suggest similar benefit with Bev in pts aged ⩾65 y. Data from the ATHENA study give insight into the tolerability of Bev with standard first-line CT in pts ⩾70 y. To understand better the safety and efficacy of first-line Bev–pac in older pts treated in routine oncology practice, we analysed data in pts ⩾65 y in a German non-interventional study.

Materials and Methods: Pts who had received no prior CT for their mBC received Bev–pac per the European label. Efficacy and safety were documented for up to 1 y (or until progression, death or Bev discontinuation if earlier) with additional long-term follow-up.

Results: By Jan 2011, data were available for 818 pts, of whom 262 (32%) were aged ⩾65 y and 133 (16%) were ⩾70 y. Among those aged ⩾65 y, 16% had mBC at diagnosis, 15% had triple-negative mBC, 29% had ⩾3 metastatic sites, 45% had liver metastases and 36% had lung metastases. Prior therapy included (neo)adjuvant CT in 55% and endocrine therapy for mBC in 26%. ECOG performance status was ⩾2 in 10% of pts. The overall RR in pts ⩾65 y was 57% (complete response in 10%); only 9% had progressive disease as best response. The RR in pts aged ⩾70 y was 57%. Median PFS was 9.2 and 9.3 months in pts aged ⩾65 and ⩾70 y, respectively. Key grade ⩾3 adverse events in pts ⩾65 y were: hypertension in 7% of pts (1% grade 4); cardiac toxicity in 1%, arterial thromboembolic events (ATEs) considered Bev related in 1% and GI perforation in <1%. Further CT lines were reported in at least 37% of pts.

Conclusion: The efficacy and safety of Bev–pac in pts ⩾65 y treated in routine practice is consistent with subgroup analyses of E2100, AVADO, RIBBON-1 and ATHENA. ATEs and cardiac toxicity were infrequent; hypertension was manageable and rarely grade 4. Efficacy data are similar to those reported in the whole population. First-line Bev–pac offers an active, well-tolerated therapy, even in elderly pts who may not be candidates for combination CT. ML21165, sponsored by Roche, is fully accrued.

5073 POSTER

Bevacizumab (Bev) Combined With Paclitaxel (Pac) as First-line Therapy for Metastatic Triple-negative Breast Cancer (TNBC) − Analysis of 147 Patients (pts) Treated in Routine Oncology Practice in Germany

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Background: Both progression-free survival (PFS) and response rate (RR) are significantly improved when Bev is combined with 1st-line chemotherapy for metastatic breast cancer (mBC), as shown in three randomised phase III trials (E2100, AVADO, RIBBON-1). Subpopulation analyses suggest meaningful benefit in pts with TNBC (median PFS 10.6 months with Bev–Pac vs 5.3 months with Pac in E2100; hazard ratio 0.49). To further evaluate the efficacy of first-line Bev–Pac in this setting, we analysed efficacy in the subgroup of pts with TNBC treated in a large German observational study of Bev–Pac in routine oncology practice.

Materials and Methods: Pts with HER2-negative mBC received first-line Bev–Pac according to the European label. Safety and efficacy data were collected for up to 1 year (or until progression, death, or Bev discontinuation if earlier). Study endpoints were safety and efficacy. We conducted an exploratory analysis in the subset of pts with TNBC.

Results: Of the 786 pts with complete data at the time of analysis, 147 (19%) had TNBC. Baseline characteristics and efficacy are shown in the table.

Conclusions: In this ongoing study, first-line Bev–Pac demonstrated a 50% RR, median PFS of 7.9 months, and median OS of 15.2 months in pts with TNBC. This compares favourably with efficacy reported for chemotherapy and/or investigational agents, suggesting that Bev–Pac is an effective first-line option in this difficult to treat population. ML21165, sponsored by Roche, has completed accrual.

	TNBC (n = 147)	Non-TNBC (n = 639)[a]
Median age, years (range)	53 (26−79)	59 (28−87)
Age <40 years, %	9	5
Metastatic at first diagnosis, %	15	20
Disease-free interval <1 year, %	53	17
Tumour grade, %		
1/2	27	57
3	66	32
Unknown	7	11
Metastatic sites, %		
Bone	35	59
Liver	24	48
Lung	46	32
CNS	3	2
Prior (neo)adjuvant chemotherapy, %	79	62
(Neo)adjuvant taxane	38	21
RR, %	50	65
Complete response	12	10
Partial response	39	54
PFS		
Events, n (%)	113 (77)	416 (65)
Median, months (95% CI)	7.9 (7.2−9.0)	10.0 (9.1–10.8)
6-month PFS rate, % (95% CI)	65 (58−74)	75 (72−79)
Overall survival (OS)		
Events, n (%)	81 (55)	224 (35)
Median, months (95% CI)	15.2 (13.8–18.5)	Immature
1-year OS rate, % (95% CI)	65 (57−75)	75 (71−79)

[a]ER, PgR, and/or HER2 status positive/unknown.

5074 POSTER

Evaluation of Serum Testosterone and Dehydroepiandrosterone (DHEA) in Indian Women With Breast Cancer

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Background: Among the endogenous sex steroid hormones, estrogens have been implicated in breast carcinogenesis. However, there have been reports of positive association between serum testosterone levels and pre-menopausal and postmenopausal breast cancer. The hyperandrogenism is usually of an ovarian origin but dehydroepiandrosterone (DHEA) and its sulfate (DHEAS) are major androgens of adrenal origin. The aim of this study was to determine serum testosterone and dehydroepiandrosterone levels in female breast cancer patients and study their relationship with menstrual status, parity, early menarche, late menopause and body mass index.

Materials & Methods: 40 patients with histologically proven, untreated, invasive breast cancer and 50 age matched normal healthy females (controls) were studied. Women who had either received hormone replacement therapy or were on oral contraceptive pills were excluded. All women were consented and the study was approved by the Institute Ethical committee. Blood samples were collected after an overnight fast between 8.00–9.00 AM. Serum was separated and stored. Estimation of serum testosterone and DHEA was done by I^{125} radioimmunoassay. Early menarche was defined as onset of menarche before 12 years, late menopause was described as onset of menopause at the age of 50 or more. Body mass index was calculated by the formula Weight (in kg)/[Height (in m)]^2.

Results: The mean serum testosterone levels were significantly higher ($p = 0.01$) in breast cancer patients (0.37 ng/ml) as compared to controls (0.28 ng/ml). This difference was seen in both premenopausal and postmenopausal women. Serum DHEA levels were higher only in post-menopausal breast cancer patients. Postmenopausal breast cancer patients had higher serum testosterone and DHEA levels than premenopausal breast cancer patients ($p < 0.05$). There was no statistically significant difference in serum testosterone levels between nulliparous and parous women but the serum DHEA levels were higher in nulliparous women as compared to parous women ($p < 0.05$). There was no relationship between serum testosterone and DHEA levels and early menarche, late menopause and body mass index.

Conclusion: The serum testosterone and DHEA levels in Indian women with breast cancer indicate significant differences from their Caucasian

counterparts. Higher levels of androgenic hormones in Indian breast cancer patients may have etiological and therapeutic implications.

5075 POSTER

Non-pegylated Liposomal Doxorubicin (Myocet ®) Plus Docetaxel (Taxotere ®) (MYTAX), as First-line Chemotherapy (CHT), in Metastatic Breast Cancer (MBC): Results of a Phase II Study

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Background: The combination of anthracyclines and taxanes is considered among the most effective treatments in MBC. The main limitation of these regimens is the cumulative cardiotoxicity of anthracyclines.
The liposomal doxorubicins have been demonstrated to be less toxic for myocardial tissue, resulting in a better cardiac safety profile.
Purpose: We report our experience regarding efficacy and safety of the combination of Myocet ® with Taxotere ® in first-line treatment of MBC patients (PTS).
Patients and Methods: All 16 PTS with median age of 61 years (range 54−75), had histologically confirmed MBC. Anti-allergic premedication with steroids and H1/H2 receptor antagonists was administered to all PTS 12 hours before Taxotere ®.
Treatment plan was: Myocet ® (60 mg/m^2, i.v. on day 1) followed by Taxotere ® (35 mg/m^2 i.v. on days 2 and 9), every 3 weeks.
A total of 92 cycles of CHT were delivered. Mean number was 5.75 (range 2−8). Seventy-six percent of PTS received at least 6 cycles of CHT.
The primary endpoint was overall response rate (ORR), whilst time to progression (TTP) and safety were considered as secondary end points.
Results: According to the WHO criteria, 3 PTS (18.5%) achieved a complete remission and 4 (25%) a partial remission for an ORR of 44%. We report a median TTP of 9.5 months. Two patients who achieved RC had lymph nodal disease, one patient had liver disease. None of the PTS experienced severe cardiac toxicity. The most common hematological toxicity was grade 3−4 neutropenia, according to WHO criteria, detected in 68% of PTS. Use of G-CSF, in 55% PTS, for treatment and prophylaxis of severe neutropenia allowed to maintain adequate dose-intensity. Stomatitis occurred in 25% of PTS, while grade 3 neurological toxicity in 12.5%.
Conclusions: Our report confirms the effectiveness of the Myocet ®-Taxotere ® combination administered in MBC according to the schedule described above. Moreover the substitution of conventional doxorubicin with Myocet ® probably reduced cardiotoxicity. Myelotoxicity rate is in line with other similar reports.

5076 POSTER

Phase II Study of Vinorelbine Plus Trastuzumab in HER-2 Overexpressing Metastatic Breast Cancer Pretreated With Anthracyclines and Taxanes

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Background: The role of first-line trastuzumab-based therapy has been firmly established in HER-2 positive metastatic breast cancer patients. In this trial, we evaluated the efficacy and safety of a vinorelbine and trastuzumab combination chemotherapy failed to anthracyclines and taxanes.
Methods: Thirty-three patients with HER-2 overexpressing metastatic breast cancer, all of whom had previously been treated with anthracyclines and taxanes, were included in this study. The patients were treated with 25 mg/m^2 of vinorelbine (over a 15-minute infusion) on days 1 and 8 every 3 weeks. Additionally, trastuzumab was administered at an initial dose of 4 mg/kg over 90 minutes, and was subsequently administered at weekly doses of 2 mg/kg (over 30 minutes).
Results: The median age of the patients was 53 years (range: 39−72 years). The overall response rate was 30.3% (10 patients, 95% confidence interval [CI]: 23−57%). The median time to progression was 6.8 months (95% CI: 5.3−8.2 months). The median overall survival was 12.4 months (95% CI: 10.3–14.6 months). In the 194 cycles of treatment, the incidence rates of grade $\geqslant$ 3 neutropenia and anemia were 7.2% and 1.0%, respectively. Neutropenic fever was detected in 3 cycles (1.5%). The non-hematological toxicities were not severe: grade 1 or 2 nausea or vomiting was detected in 15.2%, and grade 2 neuropathy was noted in 6.1% of the patients. None of the patients experienced any serious cardiac toxicity, and no treatment-related deaths occurred.
Conclusions: These results show that a combination chemotherapy consisting of vinorelbine and trastuzumab is useful in HER-2-overexpressing metastatic breast cancer patients failed to anthracyclines and taxanes, with a favorable toxicity profile.

5077 POSTER

Inflammatory Breast Cancer (IBC): Does the Confirmation of Dermal Lymphatic Invasion (DLI) Predict the Worst Outcome?

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Background: IBC presents the most aggressive form of BC, with poor prognosis and low rate of complete remission to induction chemotherapy (iCT). Dermal lymphatic invasion (DLI), although not necessary for IBC diagnosis, is identified in fewer than 75% patients, mainly because of sampling heterogeneity. The aim of this retrospective analysis is to evaluate if DLI is related to poorer prognosis, by comparing two groups of IBC patients: with and without confirmed DLI.
Materials and Methods: At Institute for oncology and radiology of Serbia (IORS), in period 2008–2010, we have registered 98 female pts with IBC stage III. 85 medical records were available for evaluation. IBC is defined as BC with typical clinical signs of cancer-mastitis, with or without pathologically confirmed skin lymphangiosis and with or without underlying tumour.
Results: The incidence of IBC at IORS is 2.8%. There were 40pts (47%) with confirmed DLI and 45pts (53%) without DLI at skin biopsy.

	Pts, % (n)	CR/PR to iCT	PD to iCT	PD (pts)	TTP	Died	OS
With DLI	47% (40)	55%	35%	40%	12.8 mo	10%	12.5 mo
Without DLI	53% (45)	75%	13%	22%	14.8 mo	4%	20 mo

In these two groups the median age at diagnosis was 54.7 years (range 34−76) and 56.8 years (range 28−77), respectively. Pathohistological analysis confirmed ductal carcinoma in 35% (14pts) and 64.5% (29pts); underlying tumour in 72.5% (29pts) and 93.5% (42pts); ER+ 57.5% (23pts) and 31% (14pts); HER2+ 50% (20pts) and 46.5% (21pts). Good clinical response to induction chemotherapy, estimated as complete (CR) or partial response (PR) was registered in 55% (22 pts) and 75% (34pts); stable disease (SD) in 10% (4pts) and 11% (5pts), while 35% (14pts) and 13% (6pts) failed to respond to iCT (PD), all respectively. Median time to progression (TTP) was 12.8 and 14.8 months, registered in 40% (16pts) and 22% (10pts). In a group of pts with confirmed DLI 4pts (10%) died, compared to 2pts (4%) in group without confirmed DLI, with overall survival (OS) respectively12.5 and 20 months.
Conclusions: In this study we showed that IBC pts with confirmed DLI have worse outcome, including lower response rate to iCT (55% vs. 75%) and more common disease progression (40% vs. 22%) with shorter TTP (12.8 vs. 14.8 months) and OS (12.5 vs. 20 months). We also found that DLI in IBC is associated with more frequent ER positivity (57.5% vs. 31%) and absence of underlying tumour (27.5% vs. 6.5%).

5078 POSTER

Polymorphisms in Genes Involved in Drug Detoxification and Response to Anthracyclines Chemotherapy in Chinese Han Breast Cancer Patients

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Background: Chemotherapy drug efficacy is complex and can be influenced by cellular detoxification mechanisms involving drug metabolism and transport pathways. This study aimed to assess whether the known polymorphisms in genes related to metabolizing enzymes (MnSOD, CAT and GSTs) and transporter MDR1 are associated with response to anthracycline-based chemotherapy in Chinese Han breast cancer patients.
Materials and Methods: Genotyping was performed by allele-specific oligonucleotide ligation reaction (*MnSOD*, *CAT*, *GSTP1*), multiplex PCR (*GSTM1*, *GSTT1*), and PCR-RFLP (*MDR1*). Based on 153 evaluable patients received anthracycline-based neoadjuvant chemotherapy, the associations of these genotypes, their combinations or their haplotypes with clinical responses were analyzed.
Results: Patients with *GSTP1* 313 AA genotype had inferior response rates relative to those with AG or GG (58.4% *vs* 77.8% or 100.0%; χ^2=4.922, P = 0.027); Moreover, the response rate of the combination of *GSTP1* AA with both *GSTT1* and *GSTM1* present was 44%, which was also lower comparing with the other groups (70.3%; χ^2=6.454, P = 0.011). A similar result was noticed for *MDR1* 3435 TT genotype, which had a significantly worse chemotherapy response compared with wild-type C allele carrier (33.3% *vs* 71.2%; χ^2=11.586, P = 0.001); Further, the