

metastases from patients with breast cancer is significantly increased comparing to the MVD in non-malignant bone tissue when areas of low, medium and highest vascular density were examined ( $1.8 \pm 0.71$  versus  $24.12 \pm 1.97$ ). Not surprisingly, this difference is even greater, when only hot spots are evaluated.

**Conclusions:** There is now for the first time evidence of increased microvessel density in bone metastases of patients with breast cancer, which supports the hypothesis of an important role of angiogenesis in bone metastasis. Furthermore, this study suggests, that an antiangiogenic therapy might be an efficacious treatment. Further studies, clarifying the role of angiogenic factors and their receptors in bone metastasis are underway.

## Supportive care & quality of life

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POSTER DISCUSSION

### Use and complications of subcutaneous infusion ports. A retrospective study to identify risk factors

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Subcutaneous infusion ports have become important tools in oncological patient care and its use has become standard procedure for long term venous access. However different complications may arise with its use. The identification of different risk factors may help to reduce their incidence.

We performed a retrospective study on 437 patients, followed at the department of medical oncology and haematology of our institution, in whom an infusion port was inserted between October 1993 and October 1998. All complications were recorded and a statistical analysis was performed to look for possible predisposing factors.

The main complications were thrombosis (8.46%) and catheter dysfunction (4.86%). Pocket infection and catheter related bacteremia occurred in 4.36% of the cases. Rare complications were: port rotation, catheter disconnection, catheter rupture or kinking, and extravasation.

There was a strong correlation between the anatomical position of the catheter and the incidence of thrombosis and dysfunction. Of those patients in whom the catheter tip was located in the brachiocephalic vein, 45% experienced a thrombotic complication ( $p < 0.001$ ). Patients in whom the catheter tip was located in the upper third part of the superior caval vein had thrombosis in 19% of cases ( $p < 0.01$ ). In this latter group, port dysfunction rate was 16.7% ( $p < 0.01$ ).

This study emphasizes the importance of careful catheter tip positioning in patients with a subcutaneous infusion port. Tightened guidelines and rigorous radiological control after insertion are warranted. A classification in different risk groups according to radiological criteria was proposed. It might serve to select high-risk patients, who could benefit from a prophylactic antithrombotic treatment.

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POSTER DISCUSSION

### Quality of life influenced by primary surgical treatment for stage I-III breast cancer - long-term follow-up of a matched-pair analysis

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Breast conserving therapy has been demonstrated to be just as safe and a less disruptive experience compared to mastectomy for surgically manageable breast cancer. There is, however, no agreement in the literature about the impact of these procedures on several important aspects of quality of life (QoL). The purpose of the present study is to compare the long-term impact of these two surgical approaches on QoL in patients with identical tumor stages and to suggest possible shortcomings of the standard QoL questionnaires.

Between August 1999 and May 2000, QoL questionnaires were answered by 152 pair-matched patients at the I. Frauenklinik, Ludwig-Maximilians University Munich, as part of routine follow-up examinations. The pairs of patients, each consisting of one patient after mastectomy and one after breast conservation, were selected according to the highest degree of equivalence in tumor stage. All patients had been initially treated for stage I-III breast cancer without evidence of distant metastases. The QoL was evaluated by using the QLQ-C30 questionnaire version 2.0 of the EORTC Study Group on Quality of Life. We formulated seven additional questions about the patients' satisfaction with the primary surgical treatment modality

as viewed from their current perspective. The QoL questionnaires were answered after a median interval of 46 months following primary treatment.

Tumor stage, prognostic factors, and adjuvant systemic treatment were well balanced between the two groups. No differences between the two groups were observed in terms of all QoL items measured by the QLQ-C30. Our additional questions, however, revealed that patients in the mastectomy group were less satisfied with the cosmetic result of their primary operation ( $P < 0.0001$ ), were more likely to feel basic changes in their appearance ( $P < 0.0001$ ), and were more likely to be emotionally stressed by these facts ( $P < 0.0001$ ). From their perspective at the time of completing the questionnaires, 11 patients in the mastectomy group (15%) would decide differently about the surgical treatment modality, compared to only 3 patients (4%) in the breast conservation group ( $P = .025$ ).

While the primary surgical treatment modality seems to have no long-term impact on the general QoL, certain body image related problems may be caused by mastectomy. Standard measuring instruments for QoL may fail to detect differences in satisfaction and adaptation with the primary surgical treatment modality.

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POSTER DISCUSSION

### Early intervention with epoetin alfa treats anaemia and improves quality of life in ovarian cancer patients undergoing chemotherapy

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**Purpose:** Anaemia occurs in up to 60% of ovarian cancer patients treated with platinum-based chemotherapy (CT). This randomised, multicentre study investigated the effect of early intervention (haemoglobin (Hb) level:  $10-12\text{g/dL}$ ) with epoetin alfa during CT to treat and prevent anaemia.

**Patients and Methods:** 182 patients were randomised 2:1 to receive 10,000 IU epoetin alfa (EPREX/ERYPO, Ortho Biotech/Janssen Cilag) thrice weekly or best standard of care (BST). Patients had confirmed ovarian cancer and a Hb level of  $\leq 12.0\text{g/dL}$  (mean  $\pm$  SD:  $10.69 \pm 0.91\text{g/dL}$ ). Patients were assessed at six time points during chemotherapy (baseline; 4-6, 8-9, 12, 16-18 and up to 28 weeks) for Hb, Quality of Life (QoL; Functional Assessment of Cancer Treatment - Anaemia (FACT-An), Cancer Linear Analogue Scale (CLAS) and blood transfusion requirements.

**Results:** Results are presented on 160 patients (mean age  $\pm$  SD:  $59.4 \pm 11.6$  years). At baseline, the groups were balanced for demographic, treatment and disease-related variables (mean Hb  $\pm$  SD:  $10.72 \pm 0.94\text{g/dL}$  vs  $10.63 \pm 0.85\text{g/dL}$ , EPO vs BST). Changes in Hb from baseline were significantly greater in the epoetin alfa group than in the BST group at all time points ( $p < 0.001$ ). The differences between groups were most marked at 8-9 and 12 weeks (mean  $\pm$  SD:  $2.03 \pm 1.45\text{g/dL}$  and  $2.01 \pm 1.15\text{g/dL}$ , respectively). At 12 weeks, 74% of epoetin alfa patients and 11% of BST patients had achieved Hb values  $> 12.0\text{g/dL}$ . Significantly more BST patients required blood transfusions than did those treated with epoetin alfa (16.7% vs 5.7%,  $p = 0.041$ ). A within-group analysis of EPO-treated patients showed significant improvements ( $p < 0.001$ ) in QoL scores (CLAS: energy, activities and overall QoL) during CT; the average score of all three scales increased by 29% between baseline ( $55.33 \pm 23.13$ ) and last observation ( $71.32 \pm 24.53$ ), with increases of up to 37% seen at 12 weeks. No significant improvements were observed in the BST patients. More detailed analysis, including an across-group comparison of QoL is ongoing.

**Conclusions:** Early treatment (Hb:  $10-12\text{g/dL}$ ) with epoetin alfa of ovarian cancer patients undergoing CT significantly increased Hb levels. Hb levels were maintained up to  $2\text{g/dL}$  higher in patients receiving epoetin alfa than in those given best standard of care, which reduced the risk of anaemia. Higher Hb levels resulted in fewer blood transfusions and meaningful improvements in QoL.

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POSTER DISCUSSION

### A phase III, double-blind, placebo-controlled, randomized study of novel erythropoiesis stimulating protein (NESP) in patients undergoing platinum-treatment for lung cancer

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**Purpose:** NESP binds to the erythropoietin (EPO) receptor and stimu-