

usually respond to hormonal therapy. Expression of the *cerbB2* oncoprotein is claimed to predict cancers, which recur early and respond poorly to hormonal therapy.

Aims: To detect whether raised serum levels of serum *cerbB2* antigen predicts poor response to hormonal therapy as judged by UICC criteria and to determine the incidence of *cerbB2* expression in primary tumours associated with bone metastasis.

Methods: Serum from 65 women with metastatic breast cancer bone metastasis undergoing hormonal therapy was assessed for *cerbB2* oncogene (EIA, Bayer, UK). In addition paraffin sections of 35 of the 65 women were retrieved and immunohistochemistry performed NCL-CBL11 (Novocastra) antibody to determine *cerbB2* expression. Serum levels of >25 ng/ml were considered significantly raised.

Results: Significantly more women with bone metastases which progressed on hormonal therapy had raised serum levels of *cerbB2* compared to women with stable or responding disease ($p < 0.0001$).

Response	Number	Serum > 25 ng/ml	<i>cerbB2</i>
CR/PR	17	0	2 (12%)
Stable	25	0	4 (16%)
Progressive	23	14 (61%)**	10 (43%)*

Chi square test ** $p < 0.0001$, * $p < 0.05$

Conclusion: Expression of *cerbB2* occurs frequently in bone metastases, which explains progressive disease on hormonal therapy. Raised serum levels of *cerbB2* predict response to hormonal therapy.

O-89. THE INFLUENCE OF OESTRADIOL ON INTEGRIN $\beta 1$ EXPRESSION AND FUNCTION IN BREAST CANCER AND THE EFFECTS OF LONG-TERM OESTROGEN DEPRIVATION

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Introduction: Integrins are transmembrane proteins that play a leading role in tumour metastasis. Breast cancer risk is associated with prolonged exposure to oestrogens. The aims of this study were to (i) assess the effects of oestradiol (E2) on integrin $\beta 1$ expression and function and (ii) evaluate variation in expression of integrin $\beta 1$ during oestrogen deprivation.

Methods: Integrin $\beta 1$ expression was measured on MCF-7 cells incubated in E2 by western blot. Integrin function was measured by cell adhesion to matrix proteins. MCF-7 cells were cultured in oestrogen deficient medium for over 100 weeks and integrin $\beta 1$ expression on these long-term oestrogen-deprived (LTED) cells was measured at regular intervals by western blot.

Results: Overnight incubation in 10^{-7} M E2, resulted in the up-regulation of integrin $\beta 1$ by 1.7-fold, conversely 10^{-11} M E2 down-regulated expression by 29%. The effect of 10^{-9} M E2 on integrin $\beta 1$ expression could be seen as early as 15 minutes, with peak effect at 2 hours. E2 enhanced cell adhesion to both collagen IV and fibronectin, with a significant maximal effect at 10^{-10}

M. Integrin $\beta 1$ expression was significantly up-regulated during weeks 1 to 25 of oestrogen deprivation. During this time the cells were noticeably more difficult to trypsinise during passage. After 25 weeks the cells appeared to adapt to oestrogen deprivation with little or no change in expression between weeks 26 to 109.

Discussion: Cell adhesion is a pre-requisite for successful cell invasion and metastasis. We have demonstrated that E2 has an effect on both integrin $\beta 1$ expression and cellular function. Our data suggest that integrins may play an integral role in the adaptation of tumours to steroid-independence.

O-90. FACTORS AFFECTING COSMETIC OUTCOME AFTER BREAST CONSERVING SURGERY

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120 patients who underwent breast conserving surgery from 1996/97 completed a questionnaire in July 2000 which asked for an assessment of cosmetic outcome on a scale of 1–10 and also included a 15 question body image questionnaire. 100 replies were complete and suitable for analysis. 86% of patients had an excellent or good cosmetic result using the 10 point scale, 81% had good or excellent scores using the body image score. There was a significant correlation between the two scores, $p < 0.0001$. Volume of tissue excised and the volume of the breast excised (calculated by using specimen volume and breast volume determined from the CC mammogram) both correlated with cosmetic outcome ($p < 0.0001$) with the percentage of breast excised correlating better than simple volume. Patients who had more than 12% of their breast excised were significantly more likely to have a poor cosmetic outcome ($p < 0.01$). Patients who underwent axillary sampling had a significantly better cosmetic outcome than if they had an axillary clearance or axillary sampling and radiotherapy, $p = 0.001$. Of the 4 consultant surgeons who performed all but 13 of the operations, 1 had significantly more good or excellent results, $p = 0.026$ and 1 had significantly more poor results, $p = 0.014$. Differences between surgeons were directly related to different volumes of tissue excised between surgeons, $p = 0.006$.

Percentage breast volume excised is the main determinant of cosmetic outcome after breast conserving surgery. As different surgeons remove different amounts of tissue, the surgeon performing the surgery has a significant impact on the final cosmetic result.

O-91. COSMESIS AND SATISFACTION AFTER BREAST CONSERVING SURGERY (BCS) CORRELATES WITH THE PERCENTAGE OF BREAST VOLUME LOST

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Cosmesis after BCS is an important outcome that correlates with

psychosocial adjustment after surgery. Previous studies by one of our group (AKA) have shown that among other factors, cosmesis after BCS is dependent upon breast size and specimen weight. This study assessed cosmetic outcome relative to the estimated percentage of breast volume lost (EPBVL).

The study group consisted of 151 women who had undergone BCS. All had previously completed a patient satisfaction questionnaire and been assessed subjectively by a panel for cosmetic outcome as part of previous studies. Mammograms were reviewed and breast volume estimated. A validation series of 40 patients who had skin-sparing mastectomy showed cone volume on the oblique mammogram to most accurately predict true breast weight (correlation = 0.9).

Both subjective cosmetic assessment and patient satisfaction correlated strongly with EPBVL ($p < 0.01$, Table).

EPBVL	N	Ave Panel Score/10	Very Satisfied	Not Satisfied
<5%	39	8.9	95%	0%
5–10%	59	8.0	69%	5%
10–15%	27	6.9	44%	15%
15–20%	14	5.9	43%	21%
>20%	12	6.1	25%	25%

A prospective study will show if PBVL can be predicted pre-operatively. This may provide better selection criteria for BCS and select those patients in whom breast reshaping or volume replacement should be considered.

O-92. IMMEDIATE BREAST RECONSTRUCTION: THE FACTORS AFFECTING COSMESIS AND PATIENT SATISFACTION

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It is known that immediate breast reconstruction (IBR) following mastectomy results in greater self-esteem and body image for the patient. Adjuvant treatment following surgery may cause complications that worsen cosmesis and patient satisfaction. This study evaluated the factors that may influence cosmetic outcome and patient satisfaction following mastectomy and IBR.

Patients who had undergone mastectomy and IBR were identified from the EBU database. Records were reviewed for details of the reconstruction performed and adjuvant treatment administered. A postal questionnaire was used to assess patients' psychological morbidity, pain and dissatisfaction and cosmetic outcome (max score 40), as well as overall appearance (scored out of 10).

There were 165 patients identified in whom 87 (53%) to date have returned the questionnaire. 69 (80%) patients rated their overall appearance as good or excellent. The 75 patients (86%) undergoing latissimus dorsi flap reconstruction expressed higher mean scores of satisfaction and overall appearance than the 12 patients receiving tissue expansion, 29.7 vs 22.8 and 7.7 vs 5.8 respectively ($p < 0.01$). Patients receiving radiotherapy (26)

were more critical of their final cosmetic outcome (mean scores 24.6 vs 30.5, $p < 0.01$). Chemotherapy had no effect upon the cosmetic or psychological outcome following IBR.

The type of surgery and adjuvant therapy received significantly influences patients' perceptions of aesthetic outcome following IBR. Psychological morbidity and dissatisfaction scores appear to be independent of the operative technique and adjuvant therapy. Radiotherapy had a detrimental effect upon cosmesis following IBR. All patients considered for IBR should be informed of the detrimental cosmetic effect of post-operative irradiation.

O-93. THE DEVELOPMENT & DETECTION OF LOCAL RECURRENCE FOLLOWING BREAST CONSERVATION THERAPY (BCT)

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Breast conservation therapy (WLE + radiotherapy) is an accepted alternative to mastectomy for patients with operable breast carcinoma. Whilst survival rates are similar for mastectomy and BCT, local recurrence (LR) rates are higher for the latter. Risk factors for LR following BCT include in situ disease, lymphovascular invasion and young age at diagnosis. The aim of this study was to identify factors relating to LR and whether the diagnosis was evident on mammograms taken prior to detection of recurrent disease.

We identified 937 women treated by BCT between 1981 and 1992. Local recurrence was detected in 82 patients. Records were reviewed retrospectively and data collected regarding patient demographics, treatment received and tumour morphology known to confer risk of LR. The mammograms taken at the time and from 12 months before detection of LR were reassessed blind to the original findings and the time periods the films related to. Records were unavailable for 11 patients. All 71 retrieved patients received radiotherapy following surgery. Adjuvant chemotherapy or tamoxifen was received by 18 and 16 respectively. Mean time to LR was 60.1 months (median = 53). The overall 5 year survival rate was 75% with a 42% 5 year survival following detection of LR. Malignant lymph nodes (73% vs 32%) and involved margins (29% vs 44%) were identified as related to recurrence at time intervals of less than or greater than 60 months respectively. There was no association between presence of DCIS and time to development of LR. Review of the mammograms of 34 patients showed 40% of patients had recurrence potentially diagnosable at least 1 year prior to eventual diagnosis.

BCT is an accepted method of treatment for T1 and T2 tumours. We have shown an association between the time to development of LR and the presence of positive lymph nodes and resection margins. Double reading of surveillance mammograms from BCT patients might improve detection of recurrence.