

ONCOPOOL is up to date, based on data direct from Units rather than from tumour registries, data is much more complete than SEER, there is greater accuracy in survival prediction and 10 yr survival figures rather than 5 yr are given.

ONCOPOOL should be regarded as the standard European dataset for primary breast cancer.

**O-10 Changing pattern of the detection of loco-regional relapse in breast cancer: The Edinburgh Experience**

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Guidelines exist for follow-up of breast cancer patients. Follow-up is concentrated on the first three to five years, with either reduced frequency of visits or discharge after this. Guidelines recommend mammography; no evidence exists to inform frequency. We analyse treatable relapses in our unit from 1312 patients with early stage breast cancer treated by breast conserving surgery (BCS) and post-operative radiotherapy between 1991 and 1998 to assess appropriateness of the guidelines. 110 treatable relapses were analysed. Treatable relapse developed at 1–1.5% per year throughout follow-up. 48 relapses were in ipsilateral breast, 25 ipsilateral axilla, 35 contralateral breast and 2 both breasts simultaneously. 37 relapses (33.5%) were symptomatic, 56 (51%) mammographically detected, 15 (13.5%) clinically detected, 2 (2%) diagnosed incidentally. Mammography detected 5.37 relapses per 1000 mammograms. Patients with symptomatic or mammographically detected ipsilateral breast relapse had significantly longer survival from original diagnosis ( $p=0.0002$ ) and from recurrence ( $p=0.0014$ ) compared with clinically detected relapse. Treatable relapse occurs at a constant rate to at least ten years. Clinical examination detects a minority (13.5%). Relapse diagnosed clinically is associated with poorer outcome. Long-term follow-up based on regular mammography is warranted for all patients treated by BCS.

**O-11 Radiotherapy and/or tamoxifen after conserving surgery for breast cancers of excellent prognosis: BASO II TRIAL**

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The BASO II trial was of intact breast irradiation (RT) versus No RT and/or Tamoxifen versus No Tamoxifen following breast conserving surgery, in patients with primary invasive breast cancers of excellent prognosis.

**Primary objective:** To determine the rates of local recurrence (LR) for the various regimes, defined as further cancer in the tissue or skin of the treated breast.

**Secondary objectives:** breast cancer specific survival rates; contralateral breast cancer rates.

**Method:** 2x2 design with entry allowed to one or other comparison as well as to both. Life table analysis (Log Rank) according to randomisation and to treatment received.

**Results:** Median FU 122 months. 10 year breast cancer specific survival (Life table) 96%.

The results of the randomisation (intention to treat) show that operative surgery without an additional treatment is significantly worse in terms of LR than treatment with either therapy and particularly so when treatment excluded both therapies. There was no significant

difference in LR between the addition of RT alone and the use of Tamoxifen alone

Analysis by treatment received (Table) showed the average rate of local recurrence to 10 years of follow-up is 1.6% per annum in the group receiving neither therapy against 0.1% per annum in those receiving both; recurrence rates are 0.5% per annum in those receiving only Tamoxifen and only RT.

Treatment received	No LR n	LR n	LR%	LR rate p.a (%)
No RT no TAM	146	29	16.6	1.6
RT no TAM	172	10	5.5	0.5
TAM no RT	401	20	4.8	0.5
RT + TAM	376	4	1.1	0.1

**Conclusions:** Even in this group of early tumours of least aggression, wide local excision alone has a rate of LR around 1.5% PA. This rate is significantly reduced by receipt of either RT or Tamoxifen. Recurrence rate is very low at around 0.1% PA following receipt of both adjuvant therapies.

**O-12 Radiation therapy after breast-conserving surgery: randomised trial in patients with low risk of recurrence**

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To study the role of radiotherapy and Tamoxifen after breast-conserving surgery (BCS) in patients with a favourable prognosis, a clinical trial was initiated by the German Breast Cancer Study Group. Between 1991 and 1998, 361 patients (pT1pN0M0, aged 45 – 75 years, receptor positive, grade I-II) were randomised to radiotherapy (yes/no) and Tamoxifen for 2 years (yes/no) in a 2x2 factorial design; the exclusion of seven centres (14 patients) left 347 patients in the analysis.

After a median follow-up of 5.9 years, 77 events concerning event-free survival were observed. Mainly due to local recurrences, the event rate was about three times higher in the group with BCS only than in the other three groups. No difference could be established between the four treatments groups for distant disease-free survival rates. It was concluded that even in patients with a favourable prognosis, the avoidance of radiotherapy and Tamoxifen after BCS increased the rate of local recurrences substantially.

The results of a median follow-up of nine years will be presented.

**O-13 Differential expression of ER and Ki67 in normal breast tissue and proliferating breast disease: further support of the progenitor cell concept?**

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In 2002/2003 we proposed a progenitor cell model of normal human breast epithelium, in which Ck5/14-positive cells give rise to both the glandular (Ck8/18+) and myoepithelial cell lineages. We further suggested a model of how proliferative lesions and carcinoma develop.

**Aim:** To test these hypotheses in resting breast epithelium (n=6), usual ductal hyperplasia (UDH) (n=4), FEA (n=3), ADH (n=6), DCIS (n=6) and LN (n=4) using an in-situ double immunostaining method (for example ER vs. Ck8/18, ER vs. Ck5/6, ER vs. ki67, ki67 vs. Ck8/18

and ki67 vs. Ck5/6). Results were confirmed by triple immunofluorescence and Western blotting experiments.

**Results:** See the table. FEA, ADH, DCIS, LN, tubular carcinoma disclosed a purely glandular phenotype, with ki67 proliferation rates ranging from 1.5% to 13%, ER+ cells 95% to 98%.

	% Cells staining	
	Ck 8/18+	Ck 5/6/+
Normal Epithelium		
Lobules	88	8
Ducts	44	93
ER neg		
Lobules	94	13
Ducts	79	79
Ck 5/6+, ER+	100	
UDH		
All	87	57
ER+	97	10

#### Conclusions:

1. Oestrogen receptor-alpha is a surrogate marker of glandular differentiation of normal and benign and malignant proliferative. Ck8/18-positive subpopulation divides to ER+ and neg. The luminal epithelium of lobules and ducts of the resting breast is distinct with a higher glandular differentiation within the lobules.
2. UDH shows a higher percentage of ER+ cells but lower ki67+ cells and that dissociation of ER and ki67 is similar to normal breast epithelium.
3. All types of CIS and tubular carcinoma disclose a glandular phenotype with a high percentage of ER+ cells, as do FEA and ADH. Our data supports the hypothesis that these lesions are derived from glandular cells of normal epithelium, rather than "stem" cells.

#### **O-14** The use of MRI in the management of patients with invasive lobular carcinoma of breast

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Invasive lobular carcinoma (ILC) accounts for 10% of all breast cancers. The use of conventional radiology for the selection of patients with (ILC) for breast-conserving therapy remains controversial.

The aim of this study is to examine the accuracy of MRI in prediction of tumour size and to compare this with other radiological modalities. And also to determine whether a policy of pre-operative MRI affects the relative number of patients undergoing breast-conserving surgery, mastectomy and re-operation for ILC of the breast. Demographic data, radiology results, operative findings and histopathology results were collected prospectively for all patients diagnosed with ILC between Jan 2000 and Jan 2006. 101 female patients underwent mammographic and ultrasonographic assessment of their tumours. Thirty-seven (37%) of these patients underwent further assessment by MRI.

**Results:** See the table.

Tumour size as determined by MRI correlated most accurately to histopathological size ( $r=0.588$ ,  $P=0.001$ ) when compared to mammography ( $r=0.318$ ,  $P=0.099$ ) and ultrasound ( $r=0.119$ ,  $P=0.353$ ).

MRI is more accurate than conventional radiology at pre-operatively determining tumour extent. MRI significantly decreases the chance of re-operation by two-thirds

without significantly increasing the radicality of surgery for invasive lobular carcinoma of the breast.

	No MRI	MRI	P
N	64	37	
Median age in years (range)	64 (39–86)	60 (47–85)	0.117
Conventional radiology – median tumour size in mm (range)	14.5 (4–80)	13 (4–74)	0.891
Histopathology – median tumour size in mm (range)	18 (1–85)	20.5 (1–90)	0.329
Breast-conserving surgery n (%)	39 (61)	19 (51)	0.348
Mastectomy n (%)	25 (39)	18 (49)	0.348
Re-operation n (%)	17 (44)	3 (16)	0.037

#### **O-15** Re-excision surgery following breast conservation: what margin is adequate?

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**Introduction:** The definition of adequate margins following wide local excision (WLE) for breast cancer remains contentious with practices varying depending upon disease process and local policies. We aimed to measure re-excision rates, investigate relationship of margin width and histology and generate information to allow clinical decisions to be made.

**Methods:** We identified all patients who had re-excision surgery following WLE for invasive & in-situ disease. In all patients we recorded margin status (involved, very close [0.1–2 mm], or close [2.1–5 mm]), primary tumour type (invasive or ductal-carcinoma-in-situ [DCIS]), grade and subsequent re-excision(s) histology. We compared re-excision histology with primary margin status.

**Results:** Between 2001 and 2006 (60 months), 137 of 1450 patients (9.8%) were re-excised following WLE. Of 56 patients with involved margins with invasive tumour, residual disease was identified in 36/56 (64.3%) and in 7/28 (25%) with very close or close invasive margins (0.1–5 mm). Residual disease was seen in 34/44 (77.27%) and 13/33 (39.3%) with involved or very close or close DCIS margins respectively. When margins exceeded 2 mm, residual invasive and in-situ disease was identified in 18% and 33% of patients respectively.

**Conclusion:** This study demonstrates that failure to re-excise 2–5 mm margins may leave residual disease in a proportion of patients. Residual disease is more likely to be identified in patients diagnosed with in-situ disease with involved or close margins.

#### **O-16** Wide local excision with resection of cavity margins: is it really necessary?

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**Introduction:** Residual disease at excision margins after breast conservation surgery for cancer necessitates further surgery. Primary resection of cavity margins ensures completeness of excision, but is associated with greater disfigurement. This study evaluates re-operation rates for margin positivity after wide local excision (WLE) with and without cavity margin resection.

**Methods:** Data were collected retrospectively from 01/06/01 to 31/04/06 on patients undergoing WLE with or without cavity margin resection. Histological results were examined for all patients with details of all further surgical procedures and histopathology of further resections.

**Results:** 598 patients (mean age-56 years) underwent WLE with axillary surgery as clinically indicated with