

therapy (RT) improves survival in breast cancer patients (pts) with positive nodes treated with adjuvant systemic therapies. This impact on survival will depend on effectiveness (EF) of RT in eradication of subclinical locoregional disease. The aim of the study is to examine the EF of RT in preventing locoregional recurrences in relation to dose and degree of nodal involvement.

Materials and Methods: Analysis was performed in the group of 1082 breast cancer pts with positive nodes treated with mastectomy alone (438 pts), with postoperative RT with low dose of 36–40 Gy (512 pts) or with high dose of 50 Gy (132 pts). The EF of RT was estimated by comparing the rates of local (chest wall) and regional (nodal) recurrences in pts treated with surgery alone and with RT with two dose levels in relation to the degree of nodal involvement.

Results: In pts with 1–3 positive nodes the rates of local recurrences was 15.5% with surgery alone, 5.7% with low dose RT (EF = 63%) and 3.6% with high dose (EF = 77%); regional recurrences occurred in 18.8% with surgery alone, 7.2% with low dose RT (EF = 62%) and 3.6% with RT of 50 Gy (EF = 81%). In pts with >3 positive nodes the respective rates for local recurrence were 23% with surgery alone, 16.4% with low dose RT (EF = 30%), and 10.4% with high dose RT (EF = 55%); The rates for regional failures were 36% with surgery alone, 18.1% with low dose RT (EF = 50%) and 5.2% with high dose RT (EF = 86%).

Conclusions: Effectiveness of RT in controlling subclinical disease shows dose-response relationship and is lower in preventing chest wall than nodal recurrences in patients with many (>3) positive nodes. In this subgroup of pts doses > 50 Gy should be delivered to the chest wall, with careful planning of RT to avoid excessive dose to lung and heart and prevent increased late morbidity and cardiac mortality.

Thursday, February 26, 1998

9.00–18.00

Surgery/DCIS

P51 Lack of correlation between menstrual phase during operation and prognosis of premenopausal patients with early breast cancer in a randomized study of adjuvant chemo-endocrine therapy

Y. Nomura, T. Takayama, Y. Hagino, A. Kataoka. *Department of Breast Surgery, National Kyushu Cancer Center, Fukuoka, Japan*

There is much controversy concerning the prognostic significance of the menopausal phase during operation in early breast cancer patients. We evaluated the correlation in 837 premenopausal patients in a randomized study of the adjuvant chemo-endocrine therapy. We divided the patients into the follicular phase group (F: mastectomy was done within 14 days after the onset of the last menstruation) and the luteal phase group (L: mastectomy after 15 days or more). 351 patients in F group and 365 in L group were evaluated, excluding 43 patients with irregular menstruation cycles just before the menopause, and 78 with unknown cycles. There were no significant differences between the two groups in the background factors such as age, UICC stage, tumor size, histological type, node status, operation method, ER status, and type of adjuvant therapy. Recurrence of malignancy and death occurred in 14% (48/351) and in 11% (40) in F group, and in 16% (57/365) and in 13% (47) in L group, respectively, at the median follow-up period of 8.2 years (range 4 to 17 years). There was no significant difference between the group in relapse-free survival ($p = 0.4651$), or in overall survival ($p = 0.5255$). We could not find any significant differences in subgroup analyses by age, stage, tumor size, node status, and ER status.

In conclusion, in this randomized study of Japanese breast cancer patients whose prognosis has been known to be much better than in western countries, we could not find any relation between menstrual phase during operation and prognosis of early breast cancer patients.

P52 Aesthetic results of the breast cancer conservative treatment in the lower quadrants

C. Calabrese, A. Nannelli, V. Distante, R. Simoncini, L. Cataliotti. *Istituto Clinica Chirurgica I, University of Florence Florence, Italy*

The quality of the cosmetic outcome of the breast cancer conservative treatment is strictly related to the primary location of the tumor.

It's widely accepted that the lower quadrants can leave more residual deformities than the others. In order to prevent these poor results a new surgical approach has been adopted: a wide lumpectomy associated with a superior pedicle mammoplasty (with post operative irradiation) was the treatment of choice in the last 25 cases of lower quadrants tumors.

In the last five years ('92–'97) at the Clinica Chirurgica I of the University of

Florence 1299 cases of breast cancer have been treated: 966 with conservative procedures and 220 located in the lower quadrants (127 central, 51 outer, 42 inner).

A case-control study (with a ratio 2:1) has been settled between the cases treated with the wide excision and the postoperative irradiation and the cases with the wide excision included in a superior pedicle mammoplasty (plus post-operative irradiation). The patients were matched by age, size of the tumors, location (central, inner, outer) and radiation dose received.

The results demonstrate that there is a significant improvement of the cosmetic outcomes with this kind of approach. The Authors also discuss the indication to a mono or bilateral mammoplasty, concerning the discrepancy between the level of the inframammary crease and the breast size.

The poor cosmetic results of the treatment of the lower quadrants tumors can be avoided utilizing a remodeling mammoplasty which, through a redistribution of the residual breast volume, can preserve a normal appealing breast.

P53 Is axillary lymph node dissection indicated for early stage breast cancer? A decision analysis

L.R. Prosnitz, G. Parmigiani, E.P. Winer, C. Tebaldi, J.D. Iglehart, D.A. Berry. *Duke University Medical Center, Durham, NC, USA*

Background: Axillary lymph node dissection (ALND) has been a standard procedure in the management of breast cancer. Presently ALND is performed primarily for staging purposes in an effort to guide adjuvant systemic treatment. Recently its routine use has been questioned, however, because the knowledge gained may not change adjuvant treatment and/or the benefit of any change would be small. The purpose of our study is to provide quantitative estimates for the survival benefits to be expected from performing ALND in clinically node negative patients.

Methods: A decision model was constructed to quantify the survival benefits of ALND. Patients were grouped by age, tumor size and hormone receptor status. The model predictions for outcome of adjuvant systemic therapy strategies were based on overviews from the Early Breast Cancer Trialist Cooperative Group (EBCTCG) as well as data from three large Cancer in Leukemia Group B studies (CALGB). Quality of life adjustments were also incorporated in the model. We assumed that patients not undergoing ALND received axillary radiation therapy (ART), that the two procedures were equally effective in preventing axillary recurrence and that any survival benefits accruing from local control in the axilla were equal for surgery or radiation.

Results: Outcome data for all patient groups are provided as well as a detailed discussion of two patient examples. For most patients, there are no survival benefits from the performance of ALND. Small benefits averaging from 2–6 weeks improvement in overall survival are seen, mostly in the group of patients who are ER positive and have small primary tumors. With increasing adverse effects of adjuvant systemic therapy on quality of life, the benefits of ALND increase, since node negative women may avoid adjuvant systemic treatment.

Conclusion: ALND provides a survival advantage for only a small percentage of patients with carcinoma of the breast. We recommend that it no longer be used routinely but on a more selective basis with a full understanding on the part of both physician and patient of the benefits and risks to be expected.

P54 Sentinel lymph node biopsy in breast cancer – Which tumors are suitable?

Th. Reuhl¹, J. Markwardt², W. Haensch³, P.M. Schlag¹. ¹Dep. of Surgery and Surgical Oncology (Chairman Prof. Dr. P. M. Schlag), Germany; ²Section of Nuclear Medicine (Head of the Section: Dr. J. Markwardt), Germany; ³Dep. of Surgery and Surgical Oncology at the Robert-Roessle-Hospital, Humboldt-University Berlin, Section of Pathology, Berlin, Germany

Sentinel node biopsy becomes more and more established in breast cancer therapy. Results from approximately 1000 patients show that this method has a sensitivity of 80–100% in detecting the most likely positive axillary lymph node. The overall predictive value of the SN representing the status of axillary metastases is 95–100%. However, there is only little experience about the limits of the method.

Patients and Methods: We studied SN detection with preoperative lymphoscintigraphy and intraoperative detection with a γ -probe in 95 patients with primary breast cancer, including 8 cases, where excision of the primary tumor was performed several days before. Tumor sizes ranged from pT1a up to pT4.

Among our patients there were also 9 cases of local recurrency and SN detection was done in order to find remaining lymph nodes after previous clearance of the axilla.

Results: We found a strong relation between the detection rate and the tumor size together with a dependence of the predictive value in respect to the tumor size. While pT1 tumors ($n = 37$) showed a detection rate of 90% and a predictive value of 97%, detection rate decreased to 62.5% with a predictive value of 60% in pT3/4 tumors ($n = 16$). According to our experience tumors with a diameter

of up to 5 cm are suitable for SN detection, while larger tumors should not be examined. Involvement of skin and/or breastwall often leads to false negative results.

P55 Minimally invasive surgery in wire-guided breast biopsy: Role of specimen mammography in predicting margins

C.P. Sheridan, H.M. Fenlon, S. Tierney, D. Buckley, M.B. Codd, J.T. Ennis, J.M. Fitzpatrick, T.F. Gorey. *Depts. of Surgery & Radiology, Mater Hospital & University College Dublin, Ireland*

Recent management of breast cancer has focused on minimally invasive surgery followed by adjuvant therapy. Specimen mammography (SM) is essential in confirming correct excision of mammographic lesions but may also support one-stage surgery by predicting margins of clearance. Immediate SMs were studied in 59 women having wire-guided excision in the incident round of a breast screening programme. After exclusion of 15 patients due to incomplete data 44 SMs were evaluated by a blinded observer to determine correct lesion excision and also margins of clearance compared with final histology. A representative biopsy was confirmed in 38 (86%) – the lesion was correctly re-excised in the other six. The results for margin clearance were:

Spec. Mamm.	Histology		Total
	Complete	Incomplete	
Complete	9 (43%)	12 (57%)	21
Incomplete	3 (13%)	20 (87%)	23
Total	12	32	44

In conclusion, S.M. not only confirms sampling of the correct lesion but predicts incomplete margins with a sensitivity of 63%, a specificity of 75% and a predictive value of 87% allowing immediate wider excision. Adjuvant therapy can therefore be planned with minimal surgical re-interventions.

P56 First experience with the advanced breast biopsy instrumentation. A new system for stereotactic excisions of suspicious non-palpable breast lesions

M. Zuber¹, D. Oertli¹, D. Müller², W.R. Marti¹, O.R. Köchli², F. Harder¹.
¹Department of Surgery, University of Basel, Basel, Switzerland; ²Department of Gynecology and Obstetrics, University of Basel, Basel, Switzerland

Up to now non-palpable suspicious radio-opaque breast lesions had to be resected by open surgery following wire localisation. The advanced breast biopsy instrumentation (ABBI) allows radiological stereotactic guided localisation and resection of non-palpable lesions with high accuracy. Tissue cylinders of 5, 10, 15 or 20 mm in diameters can be excised under local anaesthesia and on an ambulatory basis. We have treated 20/21 patients with suspicious clusters of microcalcification (n = 19) and with undetermined round-lesions of the breast (n = 2). In one case (5%) the breast was too small to meet the safety margins of the system. In 2/20 cases (10%) the ABBI procedure was unprecise due to a light dislocation of the breast gland caused by the advancing oscillating knife cylinder. The procedure was well tolerated in all cases and no wound complications have occurred; cosmesis is excellent. Histopathologically 16 lesions were benign (80%) and 4 malignant (20%). Among the 18 microcalcifications there were 2 invasive carcinomas, 2 ductal carcinoma in situ (DCIS), 1 lobular hyperplasia, 8 mastopathies, 1 fibroadenoma, 1 duct papilloma and 3 dystrophic calcifications. The 2 round-lesions were a fibroadenoma and a mastopathy. The 2 patients with invasive cancer were surgically reexcised followed by ipsilateral endoscopic axillary lymph node dissection. The invasive breast cancers and the DCIS were treated by consecutive irradiation of the breast. Patients with benign histologies (n = 16; 80%) didn't need any further treatment.

With the ABBI system non palpable mammary lesions can be precisely localised and excised. Patients with limited DCIS which are resected with clear margins derive most benefits from this technique because only irradiation of the breast and no further surgery is needed.

P57 Risk factors of local recurrence in women with ductal carcinoma in situ (DCIS) according to the treatment

H. Auvray, F. Penault-Llorca, M. De Latour, J. Dauplat, J.L. Achard, G. Le Bouedec. *Centre Jean Perrin, Clermont-Ferrand, France*

The selection of therapeutic options for DCIS is a controversial issue. The Van Nuys prognostic index (VNPI) (Cancer 1996, 77, 2267) attempts to resolve this by quantifying known and important prognostic factors in DCIS making them the basis in the management of the treatment.

Purpose: In order to validate the VNPI, we conducted a retrospective study about 72 patients (pts) with DCIS treated in our institution between 1975 and 1995.

Population: All the slides were reviewed in double blind fashion: 59 pts were retained, 14 rejected [4 invasive (IDC), 1 microinvasive, 9 atypical ductal hyperplasia] – mean age: 53 years (32–76) – Post-menopausal: 60% – mammographic detection (64.4%).

Pathologic findings: mean size = 14.6 mm – Comedocarcinoma = 30.5%, necrosis = 74.5% – nuclear grade = low (44%), intermediate (25.5%), high (30.5%); VNPI based on size, margins and Van Nuys pathological classification (VNPC):

Score	1	2	3
Size (mm)	<15:53.5%	16–40:37.9%	>40:8.6%
Margins (mm)	>10:17%	1–9:64%	<1:19%
VNPC (nuclear grade and necrosis) → 58 pts	non high grade, without necrosis: 38%	non high grade, with necrosis: 32%	high grade with or without necrosis: 30%

3 groups (G) were identified: G1 = (VNPI 3–4) 17/58; G2 = (VNPI 5–6–7): 35/58; G3 = (VNPI 8–9): 6/58. **Treatments** (58 pts): lumpectomy (L): 5%; lumpectomy + irradiation (L + XRT): 62%; mastectomy (M): 33%; axillary dissection: 56% all negative nodes.

Results: median follow-up: 73 months – Local recurrence[®]: 8 all in (L + XRT) group.

	L (3 pts)	L + XRT (36 pts)	M (19 pts)	R (8 pts)
G1 (17 pts)	2	10	5	2 DCIS (7–10 years)
G2 (35 pts)	1	22	12	2 DCIS – 2 IDC (3–5 years)
G3 (6 pts)	0	4	2	1 DCIS – 1 IDC (1–2 years)

Conclusion: no significant relation was found between relapse and clinical presentation, size, histologic subtypes and necrosis. Nevertheless, we found a trend to earlier and more frequent local recurrences in high nuclear grades and VNPI 8–9 (G3). This series will be included in a large retrospective multicentric study (French Cancer Institute) in order to select patients needing mastectomy. Actually no randomized trial include a 'mastectomy' arm. Such retrospective studies together with prospective trials NSABP-17 – EORTC 10853) after a long term follow-up should help in validation of the VNPI and in the understanding of risk factors for local recurrence.

P58 Prospective risk adapted therapy of ductal in situ breast cancer

M. Buehner, M. Folger, V. Dresel, N. Lang, A.H. Tulusan. *Women's Hospital Bayreuth, FRG*

Breast conserving therapy of ductal carcinoma in situ (DCIS) still remains under controversial discussion. 118 patients with 122 (4 bilateral) ductal carcinoma in situ have been treated in Women's Hospital Bayreuth and University Women's Hospital Erlangen between 1985 and 1996. Treatment was tailored individually according to histopathological criteria in a prospective study. In risk groups (RG) I (n = 27/22.1%) and II (n = 44/36.1%) with diseases of small to medium extent and wide free margins considered to be under low risk of local recurrence breast conserving therapy (BCT) was performed without further local treatment. In high risk cases (RG III, n = 47/38.5%) with larger volumes of DCIS, multifocal growth pattern or poor margins postoperative radiotherapy (RT) or secondary mastectomy was offered. In tumors with involved margins or multifocal and multicentric growth (RG IV, n = 4/3.3%) secondary mastectomy was recommended considering BCT as inadequate.

4 (3.3%) tumors of RG III and RG IV were treated by BCT alone neglecting the study design (2 of them developed recurrent invasive cancer). In 26 tumors of RG III and RG IV (21.3%) mastectomy was performed according to treatment plan.

After a median follow up of 68 (12–139) months in 92 (75.4%) tumors treated by BCT according to study design with or without RT 7 (7.6%) local recurrences were observed, 3 of them as invasive cancer. Median disease free survival was 28 (6–60) months. 1 patient deceased of recurrent cancer. Recurrence rate for low risk tumors treated by BCT alone was 7.9% (RG I: 0.0%/RG II: 9.1%) for high risk cases of RG III treated by BCT and RT 14.3%. Retrospective classification of these 92 tumors according to Van Nuys Prognostic Index (VNPI) showed 44.6% (n = 41) of low risk tumors with VNPI score 3–4, 46.7% (n = 43) tumors of moderate risk with VNPI score 5–7 and 8.7% (n = 8) of high risk with VNPI score 8–9. Local recurrence rate was 4.9% for low risk tumors treated by BCT alone, 6.7% for tumors of moderate risk treated by BCT alone, 7.7% for tumors of moderate risk treated by BCT and RT and 25.0% for high risk tumors treated by BCT and RT.

DCIS represents a very heterogeneous entity. Close collaboration of radiologist, surgeon and pathologist allows differentiation of therapy. Application of VNPI scoring system to this prospectively treated group of patients confirms and validates prognostic impact of VNPI concerning management of DCIS. Under strong selection keeping in mind the prognostic factors breast conserving therapy offers an important treatment option in these patients.