

postmenopausal women's breast cancer risk for a period of one year, based on the absolute risk and the excess risk from identified risk factors.

**Methods:** We tested this method in 988 women who underwent mammography in a private clinic. After calculating the individual risk for each of the patients, we divided them in quartiles. We also divided the population in arbitrary risk levels: low, intermediate, and high. Then, we compared the number of cases expected with the number of cases diagnosed.

**Results:** The breast cancer incidence was higher in the highest quartile of risk (7.6%) as compared to the lowest (0.008%) ( $P = 0.0003$ ). The relative risk of presenting the disease was 9.38 in the highest quartile of risk compared to the lowest ( $P < 0.001$ ), and was 7.63 in the high risk level compared to the low risk ( $P < 0.001$ ). There was a significant correlation in the expected/observed ratio between subgroups ( $r = 0.96$ ;  $P < 0.001$ ).

**Conclusion:** This new method might be useful in the evaluation of individual breast cancer risk in postmenopausal women.

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POSTER

### First-degree family history and breast cancer

R.M. de Souza<sup>1</sup>, A.R. Lazzaron<sup>1</sup>, R. Defferrari<sup>1</sup>, A.A. Borba<sup>2</sup>, L. Scherer<sup>2</sup>, A.L. Frasson<sup>3</sup>. <sup>1</sup>Faculdade de Medicina, UFRGS; <sup>2</sup>Centro de Ecografia e Radiologia, Hospital São Rafael; <sup>3</sup>Faculdade de Medicina, PUC/RS, Brazil

**Purpose:** Women whose mothers or sisters had breast cancer are 3–4 times more likely to develop the disease. However, only 10% of these patients have a positive family history. We evaluated the association between breast cancer first-degree family history and the risk to develop the disease.

**Methods:** Incident cases case-control study. We pared 74 consecutive incident breast cancer cases (histologically confirmed) and 222 controls for risk factors others than first-degree family history, selected among women who underwent mammography in a private clinic between January 1994 and July 1997. Before the mammography, all patients were interviewed about menarche, menopause, age at first pregnancy, parity, oral contraceptives or hormonal replacement therapy, and first and second-degree family history of breast cancer.

**Results:** There was no significant difference between cases and controls regarding all risk factors evaluated, besides first-degree family history. Patients with breast cancer, compared to controls, were more likely to have first-degree relatives with the disease (OR = 4.36; 95% CI, 1.30–14.94;  $P = 0.008$ ).

**Conclusion:** Breast cancer is significantly associated with first-degree family history of the disease.

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POSTER

### Second-degree family history and breast cancer

R.M. de Souza<sup>1</sup>, A.R. Lazzaron<sup>1</sup>, R. Defferrari<sup>1</sup>, A.A. Borba<sup>2</sup>, L. Scherer<sup>2</sup>, A.L. Frasson<sup>3</sup>. <sup>1</sup>Faculdade de Medicina, UFRGS; <sup>2</sup>Centro de Ecografia e Radiologia, Hospital São Rafael; <sup>3</sup>Faculdade de Medicina, PUC/RS, Brazil

**Purpose:** to evaluate the association between breast cancer second-degree family history and the risk to develop the disease.

**Methods:** Incident cases case-control study. Sixty six consecutive incident breast cancer cases and 193 controls were select among women who attended mammography in a private clinic between January 1994 and July 1997. Cases and controls were pared for age, age at menarche, at first live birth, at menopause, parity, oral contraceptives or hormonal replacement therapy use.

**Results:** There was no significant difference between cases and controls regarding all risk factors evaluated, besides second-degree family history. Patients with breast cancer were more likely to have second-degree relatives with breast cancer when compared to controls (OR = 2.77; 95% CI, 1.03–7.38;  $P = 0.039$ ).

**Conclusion:** Breast cancer is significantly associated with second-degree family history of the disease.

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POSTER

### A rigorous follow-up study is necessary to precisely estimate the effect of adjuvant therapy in early breast cancer

Y. Nomura, T. Takayama, Y. Takenaka. Department of Breast Surgery, National Kyushu Cancer Center, Japan

**Purpose:** A follow-up study of randomized controlled trials for adjuvant therapy in breast cancer has become more and more hard to perform,

although rigorous follow-up is necessary for lessening the type II errors in the studies.

**Methods:** In a randomized clinical trial comparing endocrine therapy (tamoxifen (TAM) ± oophorectomy), chemotherapy (CHEM; mitomycin C + oral cyclophosphamide), and chemoendocrine therapy (CHEM + TAM), for early breast cancer (UICC, I, II, IIIA) stratified by ER and menopausal status. In 1579 patients, 3 follow-up methods were evaluated for outcomes of the 3 treatments in terms of recurrence-free (RFS) and overall survival (OS) by means of the logrank test in the Kaplan-Meier curves and the Cox proportional hazard model: 1) X: periodical informations in the outpatient – clinic after operation, 2) Y: telephone and letter inquiry in addition to X, 3) Z: in addition to Y, inquiry of family register (Koseki), of resident cards, reference to other hospitals.

**Results:** 305 recurrences and 331 deaths were found by the method of Z. A 83% and 93% of deaths compared with Z were noted by X and Y, respectively. The analysis with X method did not show a significant difference in the adjuvant treatments. The Cox model showed that a significant difference in OS was noted by means of Z method alone.

**Conclusions:** These results suggest that a rigorous follow-up is necessary to avoid the type II errors in the breast cancer adjuvant therapy study.

Wednesday, 30 September 1998

16:00-18:00

## PARALLEL SESSION

### Reconstructive surgery

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INVITED

### Breast reconstruction by TRAM flap: Technical options

P.L. Santi. University of Genova, Division of Plastic and Reconstructive Surgery, National Institute for Cancer Research, Switzerland

The transverse rectus abdominis musculocutaneous (TRAM) flap has evolved as a popular source for routine postmastectomy breast reconstruction using autogenous tissue. As originally described, the TRAM flap consisted of the rectus abdominis muscle and lower abdominal skin perfused by the deep superior epigastric vessel via the periumbilical myocutaneous perforators. The principles that have been developed along with the evolution and modification of this flap have promoted a more reliable and augmented blood supply to the flap, with an attempt to maintain abdominal-wall integrity. Indeed, there are now a variety of options available to the surgeon that may suit most clinical situations; for example, preserving a lateral strip of the rectus abdominis (as in the "selective" technique) reduces the risks of significantly hampering the postoperative integrity of the abdominal wall.

Although using the superior-based single-pedicle TRAM flap is the preferred method, potential problems can occur with the poorly vascularized contralateral portion of the flap (zone IV), including fat necrosis and skin loss. Occasionally, the whole random portion of the flap may be compromised, thus to require excision of a significant segment of poorly vascularized tissue. Efforts to avoid these complications have produced trends toward the preferred utilization, in selected patients, of the bipedicle TRAM flap. Criteria for using both pedicles when transposing a TRAM flap include large soft-tissue requirements, prior abdominal surgery compromising the blood supply to portions of the anterior abdominal wall, and selected patients with suspected microvascular pathology, such as smokers. The disadvantages include a slightly longer operative time and increased risks of donor-site morbidity.

Anatomical studies have demonstrated that the dominant blood supply of the lower abdominal skin comes actually from the inferior system rather than the superior system, so in theory an improvement in blood supply could be realized if the flap were based on the deep inferior epigastric vessels. The free TRAM flap exploits this principle and has evolved as a popular and reliable choice in breast reconstruction. The "supercharged" TRAM flap has been introduced as a method where the single superiority based pedicle can be augmented with additional flow by means of the microvascular anastomosis of vessels on the opposite random portion of the flap to recipient vessels in the axillae. In this regard, supercharging by means of the superficial inferior epigastric artery or the deep inferior epigastric artery in an inferiorly based rectus muscle on the opposite side has been described. The preferred recipient vessels for the free TRAM flap as well as the supercharged flap include the axillary branches and the subscapular artery and its division; the internal mammary system has

been utilized successfully. Vein grafts or a turnover of the external jugular vein may be required to establish venous drainage. The success of both the free TRAM flap and the supercharged flap is totally dependent on the quality and availability of the recipient vessels. A short pedicle may cause difficulty in shaping and positioning the breast, possibly requiring the use of intrapositional vein grafts. Radiation and previous extensive obliterative surgery may cause further problems in finding reliable recipient vessels.

The "recharged" TRAM flap was designed with the intention of providing transmidline blood flow augmentation independent of recipient vessels in the axilla. The recharged TRAM flap allows increased blood flow to the remote areas of the flap (as well as augmented venous outflow) by means of a transmidline retrograde microvascular loop anastomosis of the deep inferior epigastric arteries and veins. The recharged TRAM flap allows a safe use of the whole abdominal ellipse, with minimal risks of total failure and requiring less muscle sacrifice and traumatic dissection than the double pedicle TRAM.

The author will present the experience of his Division on TRAM flap for breast reconstruction, including indications, contraindications, advantages and disadvantages of the above-described techniques.

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ORAL

### Immediate reconstruction in breast cancer surgery. Three hundred consecutive cases using prostheses and flaps

M. Montanari, O. Sidoli. *Department of Surgery, Fidenza General Hospital, Italy*

Immediate breast reconstruction after cancer surgery gives the best results from the point of view of life quality. Reconstruction is necessary not only after total mastectomy but also in several cases of partial resection, i.e. central and inferior quadrantectomy.

In our department 300 consecutive cases of breast reconstruction were performed from 01/07/1992 to 30/09/1997 (91 mastectomies; 209 quadrantectomies). After partial resection we used mammoplasty like techniques sometimes associated with contralateral breast reshaping. Recently we noted better results using selective latissimus flap after central-inferior quadrantectomy (6 cases).

After mastectomy, 59 prostheses (usually permanent expander) in sub-muscular pocket without other procedures and 32 musculocutaneous flaps (25 latissimus, 7 TRAM flaps) were carried out.

Complications were: 1 expander infection during chemotherapy which required removal of implant and delayed TRAM flap; 2 liposclerosis of zone 3 in TRAM flap; 1 light cyanosis in latissimus flap resolved by hyperbaric treatment; 1 partial necrosis in superior pedicle reduction mammoplasty like technique; 1 month later debridement, wound healing and areola by full thickness thigh graft were performed. No complication life threatening or significantly prolonging hospitalization was observed.

Length of operations and incidence of unsatisfactory aesthetic results are progressively decreasing.

On the basis of our experience and the data of other groups immediate reconstruction seems destined to be the treatment of choice in breast surgery, also for less technical problems.

Multidisciplinary oncological approach and informed consent are mandatory.

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ORAL

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

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

**Purpose:** 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 postoperative irradiation) was the treatment of choice in the last 25 cases of lower quadrants tumors.

**Methods:** In the last five years ('92-'97) at the Institute of Surgical Clinic 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 first 25 cases with the wide excision included in a superior pedicle mammoplasty (plus postoperative irradiation).

The patients were matched by age, size of the tumors, location (central, inner, outer) and radiation dose received.

**Results:** 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.

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ORAL

### Early experience of ultraconservative skin saving mastectomy and immediate breast and areolar reconstruction

R.M. Rainsbury, P.M. Peyser, A. Abel, V. Straker. *The Breast Unit, Royal Hampshire County Hospital, Winchester, Hants, UK*

Ultraconservative periareolar skin saving mastectomy (SSM) and simultaneous reconstruction of the breast and areolus allows 'seamless' breast reconstruction. Between 1994-1997, 40 patients (45 (31-61) yr) underwent 42 SSM, axillary dissection, immediate breast reconstruction (IBR) and areolar reconstruction using a latissimus dorsi (LD) pedicle flap and tissue expander (follow up 17.7 (1-35) months). Breast resection and reconstruction was performed through a single 5-6 cm periareolar incision.

Procedures lasted 4.0 (3.5-5.5) hr and were associated with 799 (390-1900) ml blood loss. Patients were discharged at 6.6 (5-10) days. Complications delaying discharge included skin envelope necrosis (4), infection (2) and haematoma (1). Complications were not increased by adjuvant chemotherapy or radiotherapy (11.1% chemotherapy alone, 20% radiotherapy, 15.3% no adjuvant therapy). Further procedures were performed in 23/40 patients, including nipple reconstruction (38.1%), contralateral surgery (11.9%), expander exchange (26.2%), capsulotomy (2.4%) and expander removal (2.4%). Relapses were recorded in skin flaps (2.5%), axilla (2.5%) and distant sites (5.0%).

Rates of complication, recovery, recurrence and re-operation after ultraconservative SSM and IBR compared favourably with skin-sacrificing procedures.

\* values = mean (range)

\* excluding seromas

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ORAL

### QU.A.R.T. versus SSM + TRAM flap immediate breast reconstruction in T2 > 3 cm n0-1 m0 breast cancer: Preliminary data

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Surgery is the primary approach for T2 breast cancer. Usually the choice between QU.A.D. and M.R.M. depends on tumor/breast ratio. At Istituto Tumori of Naples we use QU.A.D. in tumors <3 cm and M.R.M. in tumors >3 cm. Both procedures ensure adequate resection with local control, but aesthetic results may differ substantially. M.R.M. requires reconstructive surgery, often by means of a prosthesis and a second operation, QU.A.D. requires radiotherapy (QU.A.R.T.). SSM + TRAM flap is increasingly utilized to improve the aesthetic results by an immediate reconstruction. The purpose of this study is to correlate oncological and reconstructive outcomes of QU.A.R.T. and SSM + TRAM flap immediate breast reconstruction in selected cases. We are evaluating clinical (overall survival, disease free survival, relapse), cosmetic results (patient and physician satisfaction) and the cost of oncological and reconstructive outcomes (QU.A.R.T. vs SSM + TRAM). From 1/12/97 and 30/3/98, 45 patients with T2 (2-3 cm) breast cancer were randomly selected for the study: 20 patients had negative tumor/breast ratio and underwent SSM + TRAM flap immediate breast reconstruction; in the other 25 cases, 18 had QU.A.R.T. and 7 had QU.A.D. and are waiting for R.T. These preliminary data suggested that: no native skin or TRAM flap necrosis occurred, initial feedback from the patients in both groups was positive, while psychosocial impact is under assessment.