

age (HR 0.96, $p=0.014$), and treatment with both Tam and RT (HR 0.28, $p<0.0001$) were significant factors for IBR on multivariate analysis.

A planned subgroup analysis of low-risk patients who were ER or PR positive/unknown and tumour size ≤ 2 cm ($n=611$), showed an IBR of 4.3% at 10 years with Tam/RT vs 11.7% with Tam alone, (HR 0.30, $p=0.0006$). A further subgroup of women aged 70 and older with T1, hormone-receptor positive tumours showed an IBR of 2.9% at 10 years with Tam/RT ($n=135$) vs. 7.5% with Tam alone ($n=120$, HR 0.32, $p=0.094$).

There were no significant differences in 10-year rates of axillary nodal (2.2% vs 3.8%) or distant relapse (10.4 vs. 6.7%), death (16 vs 15%) or second malignancy (17.6 vs 17.2%) between Tam and RT vs. Tam alone.

Conclusions: The addition of RT to tamoxifen continues to show a significant benefit in terms of IBR when compared to tamoxifen alone in women over 50 with T1 and T2 node negative breast cancer. Tumour size, age and hormone-receptor status are also significant independent risk factors for local relapse. A low-risk group of older women with T1 tumours showed similar benefit from breast RT (HR 0.32 vs. 0.30 overall), and had a similar relapse rates to women who participated in the CALGB randomized trial. These data support the role for breast radiation for women who wish to minimize the risk of breast relapse.

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Poster discussion

Safety and routine feasibility of nipple sparing mastectomy

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Background: Nipple Sparing Mastectomy (NSM) is being increasingly used by breast cancer surgeons. Oncological safety is the major concern of this surgical option, but open issues are also surgical approaches and indications. Our experience with NSM starts in 2003 and here we describe our results and we show that, according to the literature, in selected cases, NSM is a safe procedure.

Materials and Methods: From June 2003 and April 2009 we have performed 175 NSM (147 for breast cancer and 28 prophylactic) according to this indications: multicentric breast cancers, large DCIS, patients with unfavourable lesion volume to breast ratio and prophylactic purpose. The average age is 44.4 years.

In the first 35 patients the surgical approach was by a periareolar incision, in 10 patients we utilized a pre-existent incision whereas in the remaining 127 we performed the NSM by an incision on the lateral aspect of the breast. During surgery in all cases we removed the nipple core up to the dermis and this specimen was sanded to the pathologist for a frozen section. In 7 cases we have the frozen section positive for neoplasia or high grade hyperplasia and in 5 of these cases we removed the nipple. In all mastectomies we analyzed also the retroareolar margin on the all breast specimen: in 26 cases we had a histological exam positive for infiltrating carcinoma, in situ neoplasia and atypical hyperplasia. Of these cases apart from the 5 nipple removed during surgery 11 patients received radiotherapy, the remaining 10 patients have a follow up.

Results: Median follow-up is 41.4 months (range 6-81). We observed 5 local relapses (3.4% considering the therapeutic mastectomies): only one in the nipple-areola complex (a Paget's disease after 31 month for a original cancer of the upper-outer quadrant). None of the patients with a positive retroareolar histology develop a local relapse.

We observed 9 total necrosis: 3 in the periareolar incision group (8.6%), 5 in the lateral incision group (3.9%) and 1 in the other incision group. The partial necrosis were 15 (42.9%), 6 (4.7%) and 1 respectively and this results led us to improve the use of incisions in the lateral aspect of the breast.

Conclusions: These results suggest that MNS is an oncologically safe technique, with an acceptable rate of complications. It can be offered to patients on a routine basis. However further data and longer follow up are necessary to define appropriate indications and improve surgical techniques.

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Poster discussion

Patient request for contralateral prophylactic mastectomy is due to a false perception of increased risk at time of initial diagnosis

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Background: Patient choice influences treatments offered by surgeons. Newly diagnosed unifocal and unilateral breast cancer patients often ask for bilateral (contralateral prophylactic) mastectomy at the time of initial diagnosis because they feel that improves their life chances. This is often due to a perception of high risk of ipsilateral relapse and development of contralateral breast cancer and the notion that mastectomy offers the best chance of survival. There is no evidence to suggest that mastectomy for unifocal lesion and contralateral prophylactic mastectomy in women

with low to moderate risk of developing breast cancer offers any survival benefit. Yet these procedures are increasingly accepted as patient choice and offered by clinicians who do not address the possibility of an inaccurate perception of risk as the reason behind their patient's request. We carried out a study to determine if the patient's request for bilateral surgery was based on cancer worry rather than an actual calculated risk ratio.

Methods: Consecutive patients between April 2008 and Oct 2009 diagnosed with breast cancer undergoing surgery for unilateral breast cancer who requested bilateral mastectomy were included in the study. Patients were questioned on their perception of risk of cancer relapse and of developing contralateral breast cancer. Women were counselled and had their options discussed by breast care nurses. Patient's were offered a "cooling" period of twelve months in which to reconsider their decision.

Results: A total of 27 patients (age range of 31-65) were included in the study. The reasons given by patients were young age but without family history (3 patients), lobular cancers (7 patients), family history which was deemed low risk by the surgeon (12 patients), bad experience of treatment outcome in family or friends (4 patients) and a desire to avoid radiotherapy (1 patient). A patients felt that they will not live more than 5 years. All overestimated their risk of contralateral breast cancer by a factor of 5 to 10. Twelve months later all were less anxious about their risk. 4 patients (3 family history and 1 lobular) were happy with the actual risk but still asked for prophylactic surgery. The rest 23 patients were pleased about the opportunity to rethink.

Conclusion: Breast cancer risk perception by patients at the time of initial diagnosis is always over-estimated. Therefore women requesting bilateral mastectomy should receive adequate counselling of actual risk and be encouraged to defer such measures if they fall into the low to moderate risk group, so as to not undergo unnecessary, irreversible procedures. Given time to rethink patients are able to have a better understanding of their actual risk and fewer then request bilateral or prophylactic mastectomy. Healthcare professionals should take into account patient choice but where this might be based on false perception of risk should offer a cooling off period to facilitate appropriate decision making.

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Poster discussion

Patient preference for choosing intra-operative or external-beam radiotherapy following breast conservation

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Background: The international TARGIT trial is currently studying Intraoperative Radiotherapy (IORT) for equivalence to External Beam Radiotherapy (EBRT) following lumpectomy for invasive breast cancer; this study hypothesizes that patients would choose IORT because of various benefits, even if IORT is not shown to be equivalent to EBRT in reducing the risk of local recurrence.

Materials and Methods: We used a validated tradeoff technique to quantify how much additional risk, if any, patients are willing to accept in order to undergo IORT instead of EBRT. Eligible patients were current or past candidates for breast conserving radiation. Factors studied that would possibly affect patients' preference included age at diagnosis, time since diagnosis, working status (full-time, part-time), type of therapy (chemo and/or hormone), ER, PR and HER2 status, tumor grade, and, if applicable, time since treatment, ability to continue working, type of treatment (IORT or EBRT) or radiation tolerance.

We initially presented patients with a slideshow comparing EBRT with IORT, including a slide on the possible link between local recurrence and survival. Patients were then asked whether they would chose to have EBRT or IORT given hypothetical recurrence risks. Two initial Tradeoff Slides were used. The first stated both forms of radiotherapy lead to a 10%, 10 year risk of local recurrence, while the second stated EBRT leads to a 10% risk versus an IORT risk of 20%. These two conditions were used to assess whether the initial risk comparison had an effect on patients' switch points. Subsequent tradeoff slides incrementally increase or decrease the hypothetical rate of recurrence associated with IORT until the subject's preference changes.

Results: Data from 58 patients were used to determine the additional risk of 10-year recurrence that patients would accept in order to have IORT instead of EBRT. The median switch point was 12%, or 2% additional risk. There were two outliers, one accepting 45% risk and the other 50% risk for IORT compared to 10% for EBRT. Only 4 patients had switch points $<10\%$; 6 had switch points = 10%, the remaining 48 chose switch points $>10\%$.

None of the factors studied affected the median switch point or the percentage of patients selecting higher than 10% risk for IORT. Factors studied included age at diagnosis, time since diagnosis, working status (FT or PT), type of therapy (chemo and/or hormone), ER, PR and HER2

status, presence of positive lymph nodes, tumor grade, and, if applicable, time since treatment, ability to continue working, type of treatment (IORT or EBRT) or radiation tolerance.

Conclusions: Allowing patients to choose between two non-equivalent therapeutic options is common practice in breast cancer treatment. This study shows that some patients would choose to consider radiation treatment that is both experimental and less efficacious at local disease control, if it meets certain extra-therapeutic goals. Thus, it may be appropriate to offer additional choices in radiation.

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Poster

Sentinel node micrometastases in breast cancer do not affect prognosis: a population-based study

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Background: Sentinel node biopsy (SNB) for axillary staging in breast cancer allows the application of more extensive pathologic examination techniques. Micrometastases are being detected more often however coinciding with stage migration. Besides assessing the prognostic relevance of micrometastases and the need for administering adjuvant systemic and regional therapies, there still seems to be room for improvement. In a population based analysis we compared survival of patients with sentinel node micrometastases with those with node-negative and node-positive disease in the era after introduction of SNB.

Methods: Data from the population based Eindhoven Cancer Registry were used on all (n = 6803) women who underwent SNB for invasive breast cancer in the South-East Region of The Netherlands in the period 1996–2006.

Results: In 451 patients (6.6%) a sentinel node micrometastasis (pN_{1mi}) was detected and in 126 patients (1.9%) isolated tumor cells (pN_{1tc}). Micrometastases or isolated tumor cells in the SNB did not convey any significant survival difference compared with node-negative disease. After adjustment for age, pT and grade, still no survival difference emerged (pN_{1mi}: HR 0.9 (95% CI, 0.6–1.3) and pN_{1tc}: (HR 0.4 (95% CI, 0.14–1.3)) and neither was the case after additional adjustment for adjuvant systemic therapy.

Conclusion: Our practice based study showed that the presence of sentinel node micrometastases in breast cancer patients has hardly any impact on breast cancer overall survival during the first years after diagnosis.

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Poster

Health-related quality of life in patients with early stage breast cancer treated with breast conserving surgery and radiotherapy

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Background: Patient, tumour and adjuvant treatment factors can influence health-related quality of life (HRQoL). Aim was to study the impact of these factors on HRQoL in a cohort of women with early stage breast cancer treated with breast conserving therapy (BCT).

Material and Methods: Included cases were consecutive disease-free female patients treated for invasive breast cancer (stage I-III) with BCT, at the University Medical Center Groningen from 2005–2008. After completion of irradiation, HRQoL was assessed by questionnaires (EORTC QLQ-C30 and EORTC QLQ-BR23). Evaluated subscales were global health status (GHS), emotional functioning (EF), body image (BI) and sexual functioning (SF). Scores ranged from 0% to 100% and higher scores represent better HRQoL. Data were compared to a reference group [1]. Multiple linear regression analyses with Z-transformation were performed to assess the impact of patient, tumour and staging characteristics, adjuvant treatment modalities and time since local treatment on HRQoL.

Results: Questionnaires of 333 patients were available (90.2% response), with median follow-up of 32 (Interquartile range [ICR] 28–41) months. Mean age was 57.5 (Standard deviation [SD] 10.7) years at diagnosis. All subscales, except for sexual functioning, had relatively high scores and were slightly higher than reference scores, with median GHS

of 83 (ICR 75–100), EF 92 (ICR 75–100), BI 100 (ICR 92–100) and SF 33 (ICR 0–33), respectively.

Regression analyses showed that high comorbidity lowered GHS with 6.5% (95% confidence interval [95% CI] 1, 12). Younger patients had more emotional problems (3%; 95% CI 1, 5) and issues with body image (2%; 95% CI 1, 4), but less with sexual functioning (–6%; 95% CI –9, –4) than older patients, in a 10 years age difference subscale. Furthermore, BI was reduced by 6% (95% CI 2, 9) in tumours >2 cm.

Conclusions: In our cohort of disease-free early stage breast cancer survivors, treated with BCT, HRQoL was excellent, except for sexual functioning. Younger women had more problems with emotions and body image, although fewer sexual problems than elderly women. These findings stress the importance to address these issues during follow-up.

References

- [1] Janz NK, Mujahid M, Lantz PM, Fagerlin A, Salem B, Morrow M, Deapen D, Katz SJ: Population-based study of the relationship of treatment and sociodemographics on quality of life for early stage breast cancer. *Qual Life Res* 2005;14:1467–1479.

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18:15–19:15

POSTER SESSION

Radiotherapy

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EORTC Radiation Oncology Group survey of current technological clinical practice in breast radiotherapy

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Background: The purpose of this survey was to determine the current technological clinical practice of radiation therapy of the breast in Europe.

Materials and Methods: A survey was conducted between August 2008 and January 2009 on behalf of the Breast Working Party within the EORTC Radiation Oncology Group. The questionnaire comprised 32 questions on 4 main topics: fractionation schedules, treatment planning methods, volume definitions and position verification procedures.

Results: Sixty-eight institutions out of 16 countries responded (a response rate of 47%). The standard fraction dose was generally 2 Gy for both breast and boost treatment, although a 2.67 Gy boost fraction dose is routinely given in the United Kingdom. A simultaneously integrated boost fractionation is implemented in 23% of the institutions and is the standard choice of fractionation in a third of these institutions. The main boost modality was electrons in 55%, photons in 47% and brachytherapy in 3% of the institutions (equal use of photon and electron irradiation in 5% of the institutions). All institutions used CT based treatment planning. Wide variations are seen in the definition of the breast and boost target volumes, with margins around the resection cavity ranging from 0–30 mm. Inverse planned IMRT is available in 27% and breath-hold techniques in 19% of the institutions. The number of patients treated with IMRT and breath-hold varied per institution. Electronic portal imaging for patient set-up is used by 92% of the institutions.

Conclusions: This survey has established precise details of radiotherapy techniques currently implemented for breast irradiation in Europe.

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Definitive radiotherapy in non-responded breast cancer patients after neoadjuvant chemotherapy

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Background: Patients with locally advanced breast cancer who respond poorly to initial neoadjuvant chemotherapy remain a therapeutic challenge. Results of radiotherapy in over two hundred not operated patients after neoadjuvant chemotherapy are presented in this report.