Thursday, 1 October 1998 16:00-18:00

PARALLEL SESSION

Radiotherapy

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Quality of life of patients with early stage breast cancer treated with breast conservative surgery and postoperative irradiation

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The clinical outcome of patients with early breast cancer after breast conservation is similar to that after mastectomy. The main advantage of breast conservation is to obtain a local tumor control with a good cosmetic and functional result avoiding a feeling of female inferiority and a negative body image linked to mastectomy. Despite this, there is no clear evidence in the literature of a difference in psychological health between mastectomy and breast conservation. Even though several aspects of psychosocial outcomes have been extensively studied, few reports evaluate globally the quality of life of these patients. Radiotherapy, an essential part of the conservative approach, can significantly increase psychological symptoms. In this lecture a review of the literature about the role of radiotherapy in modifying quality of life of conservatively treated patients will be presented as well some personal experience in patients with invasive and intraductal breast cancer.

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The influence of the boost on the cosmetic outcome after breast conserving therapy

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Purpose: The influence of the radiotherapy boost in breast conserving therapy on cosmesis is still controversial. The aim of this study is to analyse the influence of the boost on the cosmetic outcome and to evaluate the time trend in the cosmetic result.

Methods: In the "boost versus no boost" trial 22881 of the EORTC, 5569 stage I or II breast cancer patients have been treated with tumorectomy and axillary dissection followed by tangential irradiation of the breast with a dose of 50 Gy in 5 weeks, 2 Gy per fraction. 5317 patients were randomised between no boost or a boost of 15 Gy, 251 patients having a microscopically incomplete excision were randomised between a boost dose of 10 or 25 Gy. The cosmetic result was assessed by a panel, scoring photographs of the patients after surgery and after 3 years follow-up, and by a digitiser measuring the displacement of the nipple at both time points. This analysis concentrated on the 731 patients randomised between no boost or a boost of 15 Gy, evaluated by the panel.

Results: No difference in the cosmetic outcome appeared between the two treatment arms after surgery. After 3 years follow-up the boost appeared to have a significant but limited negative impact on the cosmetic result: 71% excellent and good results in the boost group compared to 86% in the no boost group. Other factors that influenced the cosmetic result the most, apart from the giving of the boost, were: tumour location (a worse cosmetic result for the tumours located in the inferior part of the breast), the volume of the surgical excision and the presence of postoperative breast complications.

Discussion and Conclusion: These results showed the negative, but limited impact of a boost dose of 15 Gy on the cosmetic outcome after 3 years. Other factors that influenced the cosmetic result were tumour location, the volume of the surgical excision and the presence of postoperative breast complications.

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The usefull boost range (UBR) concept judges the ballistic selectivity of electron beams (EB) versus brachytherapy (BT) in the boost techniques of breast conserving therapy

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Radiation teleangiectases are, besides radiofibrotic retraction, one of the main reasons of cosmetic damage caused by radiotherapy in breast conserving treatment.

Electron beams as well as brachytherapy are used, the latter being thought to be more suitable for deeply seated lesions. Since no data exist to determine from which depth on interstitial implants may be ballistically advantageous over electron boosts, we undertook a dosimetrical study on the dose distribution of both techniques

The depth dose curves of the 4.5 to 15 MeV EB of the Saturne 42 (field size 6 × 6 mm), were compared to interstitial implants (6 cm wire length), arranged in single planes, triangles and squares using interneedle spacings of 12, 15, 18 and 20 mm. The UBR was defined as the distance that was covered by the 85% isodose. Since it was assumed that the overlying skin is not included in the target volume, the implants were arranged so that the 85% isodose line was pushed at 5 mm beneath the epidermal surface.

We demonstrated that EB from 4.5 to 9 MeV and interstitial implants in different configurations have about the same ballistic selectivity qua UBR upto 28 mm under the epidermis. For deeper localisations BT has a higher ballistic selectivity than EB. The skin doses delivered by these techniques however are different. Epidermal doses for EB rise from 73% for 4.5 MeV to 85% for 15 MeV, while the doses at −5 mm depth go from 85 to 90%. For implants the dose gradient is much steeper and goes from 85% of the mean central dose at −5 mm depth, to 55 à 58% at the epidermal surface. The mean skin dose is about 70% for all source configurations.

We conclude that for target volumes deeper than 28 mm under the skin surface interstitial implants have a much higher ballistic selectivity. Also for superficial target volumes the skin doses are lower for interstitial implants than for 4.5 to 9 MeV EB, but the differences are less pronounced, and may be clinically less relevant.

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The value of post lumpectomy mammogram

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Purpose: To evaluate the value of post lumpectomy mammogram.

Materials and Methods: Retrospective review identified 90 breast cancer patients referred to our department between 1992–1997 who met all of the following criteria: 1) patients were considered for breast conserving management; 2) presence of suspicious microcalcifications on diagnostic mammograms; 3) the mammographic lesions were thought to be removed entirely on post excision specimen radiographs; 4) surgical excisions were thought to be adequate based on reviewing the histological pathology reports; 5) post-lumpectomy mammograms with magnification views were done.

Results: Sixteen patients (17%) were found to have residual microcalcifications on post-lumpectomy mammograms. Twelve patients underwent either local re-excision (seven patients) or simple mastectomy (five patients). Residual malignant cells were found in eight patients. Six of these patients had their tumors initially resected with clear margin.

Conclusion: Post lumpectomy mammograms with magnification views detected residual clinical disease in a significant proportion of patients. Our result supports the routine use of this test even when satisfactory post excision specimen radiographs and adequate lumpectomy resection margins are obtained.