318 ORAL

The influence of the boost technique on local control in breast conserving treatment in the EORTC 'Boost versus No Boost' Trial

P.M. Poortmans, H. Bartelink, J.C. Horiot, H. Struikmans, W. Van den Bogaert, A. Fourquet, J.J. Jager, W.J. Hoogenraad, P. Rodrigus, C. Warlam-Rodenhuis, L. Collette, M. Pierart. *On behalf of the EORTC Radiotherapy and Breast Cancer Groups, The Netherlands*

Introduction: The EORTC Trial 22881/10882 investigating the role of a boost dose in breast conserving therapy demonstrated a significantly better local control with the higher radiotherapy dose, especially in women younger than 50 years of age. In this study, we investigated in the same patient group the potential impact of the different boost techniques on local control and on cosmetic outcome after breast conserving therapy.

Patients and Methods: From 1989 to 1996, 2661 patients were randomised to receive a boost dose of 16 Gy to the primary tumour bed after a microscopically complete tumorectomy and 50 Gy whole breast irradiation. The choice of boost technique was made at the institutional level. Treatment data were prospectively recorded as well as the clinical outcome in terms of local control and fibrosis. Sixty-three per cent of the patients received a boost dose with fast electrons, 28% with photon beams and 9% with interstitial brachytherapy.

Results: At 5 years, local recurrences were seen in 74 of the 1635 patients who received an electron boost (4.8%, C.I. 3.6–5.9%), in 28 of the 753 patients who received a photon boost (4.0%, C.I. 3.4–5.5%) and in 6 of the 225 patients after an interstitial boost (2.5%, C.I. 0.3–4.6%). The grade of fibrosis, as scored by the treating radiation-oncologist, was similar in the three groups in the whole breast as well as at the primary tumour bed. Age, together with the use of a boost dose by far the most important prognostic factor for local control, could be excluded as having a major influence on the comparison of the outcome across the 3 boost techniques. The median boosted volume was 60 cc with the interstitial technique, 144 cc with the electron boost and 288 cc with photons. The overall treatment time was 6 days longer in the interstitial boost group due to the interruption between external whole breast irradiation and the delivery of the interstitial boost.

Conclusions: Although the three groups are of a rather unequal size, the interstitial boost seems similar in terms of fibrosis and at least as good in terms of local control, despite the lower treatment volume and the longer overall treatment time.

319 ORAL

Special focus on cardiac toxicity from a pilot study of the adjuvant sequencing chemotherapy of doxorubicin/docetaxel/CMF regimen and radiotherapy with a mid-term follow-up in patients treated for poor prognosis breast cancer

C. Philippson[1], N. Magné[1], A. Di Léo[2], I. Veys[3], D. Larsimont[4], S. Simon[2], J.-M. Nogaret[3], M.J. Piccart[2], P. Van Houtte[1]. *[1]Jules Bordet Institute, Department of Radiotherapy, Brussels, Belgium; [2]Jules Bordet Institute, Department of Chemotherapy, Brussels, Belgium; [3]Jules Bordet Institute, Department of Surgery, Brussels, Belgium; [4]Jules Bordet Institute, Department of Anatomo pathology, Brussels, Belgium*

Purpose: Cardiac toxicity associated with chemotherapy and radiotherapy may be life threatening, can limit the dose and duration of the treatment and certainly adversely affect short-term and long-term quality of life. The combination of anthracyclines and taxanes is currently considered as the first choice chemotherapy in advanced breast cancer and encouraging results have taken place in adjuvant setting. The aim of the present study was to evaluate the treatment related to cardiac toxicity doxorubicin/docetaxel/CMF regimen and radiotherapy with a mid-term follow-up in patients treated for poor prognosis breast cancer.

Materials and methods: From March 1996 to March 1998, in the single Jules Bordet Institute, 64 patients with clinical stage II or III breast cancer were included in a pilot study exploring the efficacy/feasibility of doxorubicin/docetaxel/CMF sequential and combination regimens. Patients with significant cardiovascular history or ECG abnormalities were not eligible for the study. Radiotherapy was performed in 100% of the patients reviewed for the present study. Less than 20% of the irradiated patients were treated with 6 MV photons produced by a linear accelerator. The majority were treated with Cobalt. Two tangential photon fields were used for the chest wall or the breast, for a total ICRU dose of 50 Gy. Nodal radiation therapy was given for the 64 patients. The supraclavicular and internal mammary nodes were treated with a mixed beam (1/3 photons and 2/3 electrons) for a total ICRU dose of 45 Gy. All fields were treated 5 days per week, 2 Gy per fraction, during 5 or 6 weeks. In the case of a conservative treatment, a 12 Gy electron boost was added to the tumoral bed. Patients were regularly clinically assessed during chemotherapy and at least 4 times yearly after completion of treatment. Measurements of left ventricular ejection fraction (LVEF) were performed at baseline, during and at the end of chemotherapy. A cardiac event was defined as a myocardial infarction or clinical evidence of congestive heart failure.

Results: The median age was 48 years (range 29 to 65 years), the median number of positive nodes was 6 (0 to 25), stage III in 19 patients, negative estrogen receptors in 17 patients and grade III in 31 patients. The median follow-up was 6 years. The mean disease-free and overall survival were 42 and 69 months, respectively (10 to 72 and 13 to 90 months, respectively). There was a significant fall in LVEF during chemotherapy in 21 patients with a median decrease of 10% (5 to 20%). However 64 patients have kept normal cardiac function. All of them have rescued initial values of LVEF. Forty four and 19 patients received radiotherapy to the chest wall or breast, respectively, 33 of to the left side. Median radiation therapy duration was delivered in 36 days (32 to 54 days). Twenty six patients received radiotherapy concomitantly with CMF regimen. No cardiac events were observed for patients with either left- or right-sided breast cancer.

Conclusions: Doxorubicin/docetaxel/CMF sequential and combination regimens plus radiation therapy in particular selected non high risk cardiac patients are safe and effective with an absence of cardiac toxicity, second cancer and other complications with a mid-term follow-up.

320 ORAL

The course and prognosis for loco-regional recurrences among high-risk breast cancer patients receiving adjuvant systemic treatment and randomized to +/− postmastectomy radiotherapy. Long-term results from the Danish DBCG 82b&c studies with 3083 patients

H.M. Nielsen[1], M. Overgaard[2], C. Grau[1,2], A.R. Jensen[1,2], J. Overgaard[1]. *[1]Aarhus University Hospital, Department of Experimental Clinical Oncology, Aarhus C, Denmark; [2]Aarhus University Hospital, Department of Oncology, Aarhus C, Denmark*

Background: Postmastectomy radiotherapy (RT) in high-risk breast cancer patients can reduce loco-regional recurrences (LR) and improve disease-free and overall survival. In the DBCG 82b&c studies (N Engl J Med 1997, 337: 949–55, Lancet 1999, 353: 1641–48), the patients were followed for 10 years or until their first recurrence, other cancer or death. This study aim to make a long-term follow-up in these patients, and to record details about LR in order to investigate the course and prognosis after LR in the RT versus no-RT group.

Material and methods: In the DBCG 82b&c trial 3083 patients with stage II and III breast cancer were randomized to receive +/− postmastectomy radiotherapy from 1982 to 1990. The patients who experienced a LR as their first recurrence was identified and follow-up data was selected from medical records and the National Databases (LR was defined as recurrence on the chest wall, axillary and/or supra/infraclaviculary regions without distant metastases). The risk of developing distant metastases (DM) was analysed as a function of adjuvant radiotherapy, localisation of and time interval from mastectomy to LR.

Results: Of the 3083 patients, 518 patients experienced a LR as their first recurrence. The 17-year probability of isolated LR was 8% (75) in the RT group and 39% (443) in the no-RT group, thus RT significantly reduced the risk of LR ($p<0.001$). For the patients with LR the 10-year probability of developing subsequent DM is 83% and 79% in the RT versus no-RT group respectively ($p=0.86$). Patients with a short LR free interval had a shorter interval to subsequent DM ($p<0.001$). Patients with supra/infraclaviculary and multiple site recurrences had a worse prognosis than patient with chest wall and axillary recurrences ($p<0.001$). The LR free interval was significantly longer in the RT group. Also the localization of the LR differed between the two groups, with a relatively higher proportion (seems to increase with longer LR free interval) of chest wall LR in the RT group (Odds Ratio = 1.3, 95% CI 1.00–1.79). Relatively the proportion of axillary LR is lower in the RT group (Odds Ratio = 0.83, 95% CI 0.74–0.93).

Conclusion: Adjuvant radiotherapy caused a significant reduction in the number of LR in high-risk breast cancer patients given adjuvant systemic treatment, and increased the loco-regional recurrence free interval. For patients with LR the outcome were equally severe in the two randomization groups.

Supported by the Danish Cancer Society.

321 POSTER

Isolated axillary relapse in patients with breast cancer presenting axillary positive lymph nodes and extranodal tumor invasion

H. Stranzl[1], P. Ofner[2], F. Peintinger[3], A. Hackl[1]. *[1]Univ.-Clinic of Radiotherapy, Graz, Austria; [2]Institute of Medical Informatics, Statistics and Documentation, Graz, Austria; [3]Department of Gynecology, Graz, Austria*

Background: To determine the incidence of isolated axillary failure rates and to evaluate the indications for axillary nodal irradiation in female breast cancer patients with positive axillary lymph node and extranodal spread.