both groups received external beam therapy to the whole breast to a dose of 50 Gy in 25 fractions or to a dose of 42.5 Gy in 17 fractions. Cosmetic outcome was evaluated using four point (excellent, good, fair, poor) scale.

Results: Median follow-up was 71 months. The volume of irradiated breast tissue differed significantly in both groups: 24.3 cm^3 in group A versus 36 cm^3 in group B ($p = 0.001$). Cosmetic results in both groups were similar: excellent in 76.9% patients (group A) versus 79.2% in group B ($p = 0.812$).

Conclusion: Intraoperative Ir 192 HDR brachytherapy boost allows for a smaller volume of irradiated breast tissue, than the classical boost after teleradiotherapy. The cosmetic outcome in both modalities is similar.

197 Poster

Comparison of three techniques of whole breast irradiation (WBI) and boost delivery for early breast cancer after breast conserving surgery

R. Zaucha, P. Szewczyk, J. Jassem. *Medical University of Gdansk, of Clinical Oncology and Radiotherapy, Gdansk, Poland*

Aim of the study: To compare target coverage, target dose uniformity and normal tissue complication probability (NTCP) for the heart/left anterior descending coronary artery (LADCA), lungs, and contralateral breast with three techniques: (1) standard whole breast irradiation (WBI) using wedged pair tangential field (50 Gy/25 fractions), followed by electron boost (16 Gy/8 fractions); (2) the same WBI followed by photon boost; and (3) intensity modulated radiotherapy (IMRT) tangential fields with concomitant boost (60 Gy/25 fractions).

Methods: Computed tomography (CT) scans from 10 retrospectively selected cases were used to generate and then compare the above techniques. The average breast equivalent uniform dose, ipsilateral and contralateral lung dose (lung V_{20}), contralateral breast dose, heart dose (V_5 and V_{30}) and LADCA dose were compared.

Results: IMRT plan produced significantly better target coverage and target dose uniformity, as well as reduced dose to the contralateral breast (V5 42.45 vs 48.62 Gy) and reduced hot spots to the ipsilateral lung compared with standard wedged pair tangents with either electron or photon boost. Also the mean LADCA dose was lower (17.1 vs 30.2 Gy), however this effect was breathing motion-sensitive. In contrast, IMRT was associated with higher mean contralateral lung dose (0.8 vs 0.6 Gy). There were no significant differences in dose distribution between two techniques using standard WBI.

Conclusion: IMRT with simultaneous integrated boost seems to offer more uniform target dose coverage and better sparing of the heart and lung delivered in 5 instead of 6.5 weeks, however at the expense of higher mean contralateral lung dose.