Long-term follow-up results of intensity modulated radiotherapy in early-stage breast cancer patients

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BACKGROUND

- Adjuvant breast radiation therapy (RT) is a standard of care either after breast conserving surgery or mastectomy
- RT planning studies have shown, that intensity modulated radiotherapy (IMRT) improves the dose homogeneity in breast, and also superior in target volume coverage and organ at risk (OAR) sparing compared to 3D- conformal radiotherapy (3D-CRT)
- In our previous studies, IMRT and helical tomotherapy (HT) may be a good technical alternative for a well selected group of breast cancer patients
- Long-term follow-up data are lacking in the literature regarding breast irradiation with IMRT technique

AIMS AND METHODS

Accordingly, our aim was to evaluate our experience in terms of local control, overall survival, progression free survival and adverse events.

- Between 2009 and 2015, altogether 194 breasts in 179 non-metastatic breast cancer patients were treated with IMRT-HT irradiation at our Institute
- The median age of the patients was 53 years (range: 26 to 76 years), and only 25 (14%) patients of them were younger than 40 years
- All of the patients were irradiated using IMRT-HT technique, as the conventional tangential techniques were unsatisfactory in terms of target volume coverage and dose to the OARs.
- All toxicity events were evaluated during and after RT in accordance with Common Terminology Criteria of Adverse Events version 4.03 (CTCAE)

RESULTS

Figure 1: Overall survival (OS) and progression free survival (PFS) in our study population.

Figure 2: Patients’ OS and PFS characteristics in different histological cohorts

Table 1: Multivariable analysis of toxicity and cardiac toxicity

SUMMARY

- After the median follow-up of 65 months, HT or VMAT seems to be safe and efficient techniques in cases of complex adjuvant breast irradiation
- IMRT provide better target volume coverage, and decreasing the high doses to OAR