

EFFICACY OF TARGETED INTRAOPERATIVE RADIOTHERAPY (TARGIT-IORT) AS ANTICIPATED BOOST IN HIGH-RISK BREAST CANCER.

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Aims

High risk breast cancer require a tumor bed boost dose. We reported clinical outcome of TARGIT IORT as anticipated boost modality in a large single-institute population.

Methods

All patients had an infiltrative breast carcinoma and at least one of the following risk factors: age<50years, grading G3, diffuse lymphovascular invasion or diffuse peritumoral ductal in situ carcinoma, positive nodes or lobular histology. Patients were treated with TARGIT-IORT as anticipated boost modality during lumpectomy. Whole breast radiotherapy was performed with standard of hypo-fractionated schedule. Primary outcomes were 5-years in-breast tumor relapse risk and survival without inbreast tumor recurrence, secondary analyses were regional- and distant recurrence-free survival, mastectomy-free survival, overall survival and tumor-related survival. Primary and secondary outcomes were estimated with Kaplan Meyer method. High grade toxicity events were collected and scored according to Common Terminology Criteria of Adverse Events scale 5.0.

Results

The study included 439 patients treated between 2002 and 2021. Median follow up was 89 months (range:6-245) and 82% of patients had a 5-year complete follow up. The estimated risk of 5 years in-breast tumor recurrence was 0.8% (95%CI=0.4%-1.2%) and 5-year survival without local relapse (event=death or local recurrence) was 96.4% (95% CI=95.5%-97.5%). Survival analysis results for secondary endpoints were reported in Table 1. Only 5/23 (23%) local relapses were inside the previous index quadrant. High grade toxicity (CTCAE Grade 3-4) events were rare (incidence=1.1%) and consisted in 1 case of skin fistula, 2 cases of severe fibrosis and 2 radiation induced angiosarcomas.

Conclusions

TARGIT-IORT was an effective modality to deliver an anticipated boost in high-risk breast cancer patients.

Table 1: five-years Kaplan Meyer estimates of survival measures

Outcomes	Kaplan-Meyer estimates (95%CI)
5 years regional recurrence free survival	99.5 (99.2-99.8)
5 years distant recurrence free survival	97.5% (96.7-98.3)
5 years mastectomy-free survival	99.2 (98.8-99.6)
5 years overall survival	97.2% (96.6-97.8)
5 years tumour related survival	98.7% (98.1-99.3)
5 year not tumour related survival	98.5% (97.9-99.1)