

irradiation (WBI), accelerated partial breast irradiation (APBI) offers an alternative to WBI that shortens the duration of treatment and may improve toxicity profiles and quality of life. The purpose of this analysis is to compare clinical outcomes of patients treated with WBI versus APBI.

**Materials/Methods:** A total of 3,009 patients were treated with BCT at single institution between 1980 and 2012 with 2,528 patients receiving WBI and 481 patients receiving APBI (interstitial or balloon-based). A matched-pair analysis was performed with patients matched according to age ( $\pm 3$  years), T stage (Tis vs T1 vs T2), and estrogen receptor (ER) status ( $\pm$ ). All patients had a minimum of 12 months of follow-up. A total of 247 matches were made with clinical outcomes compared using the Kaplan-Meier method.

**Results:** Mean follow-up was 8.1 years for WBI vs 7.8 years for APBI ( $p < 0.001$ ), a difference of less than 4 months. There were no differences with respect to age ( $p = 0.88$ ), tumor stage ( $p = 1.0$ ), or ER status ( $p = 1.0$ ). Long-term cosmesis was good to excellent in 94% vs 95% of patients ( $p = 0.78$ ). WBI patients demonstrated a trend for slightly larger tumors (13.0 vs 11.4 mm,  $p = 0.06$ ). At 10 years, no difference in ipsilateral breast tumor recurrence (4% vs 4%,  $p = 0.11$ ), regional recurrence (1% vs 1%,  $p = 0.20$ ), distant metastases (3% vs 6%,  $p = 0.47$ ), disease free survival (93% vs 91%,  $p = 0.10$ ), or contralateral breast failure (9% vs 3%,  $p = 0.06$ ) was noted when comparing WBI and APBI. In addition, 10 year cause-specific survival (94% vs 93%,  $p = .72$ ) and overall survival (83% vs 75%,  $p = 0.34$ ) were similar.

**Conclusions:** At 10 years, no differences in locoregional recurrence, distant metastasis or survival were found between patients undergoing whole breast irradiation or accelerated partial breast irradiation using interstitial catheter or balloon-based brachytherapy. These data represent one of the only APBI series with prolonged follow-up and show similar outcomes in a matched group of patients undergoing WBI or APBI.

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### Omitting Whole Breast Radiation Therapy did not Increase Axillary Recurrence in the TARGIT-A Trial

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**Purpose/Objective(s):** The Z11 trial found that even when axillary clearance is not performed after finding one or two positive sentinel nodes, it does not affect local control, despite 23% of patients in the axillary-clearance arm having positive nodes. However, every patient in this trial received whole breast radiation therapy and it has been suggested that inadvertent nontherapeutic irradiation of the lower axilla that occurs with tangential fields of conventional whole breast radiation therapy could be responsible for controlling the growth of the minimal residual axillary disease. Therefore, questions are being raised whether following the concept of sentinel node biopsy or not dissecting the axilla after 12 positive nodes is applicable to patients receiving partial breast radiation.

**Materials/Methods:** We compared the risk of axillary recurrence in patients with negative sentinel node biopsy or those with 12 positive nodes as per whether they received EBRT or TARGIT only within the updated TARGIT trial. Please note that this is a comparison as per treatment received rather than as per randomized allocation.

**Results:** Overall there were 3375 patients who had breast conserving surgery. One thousand two hundred twenty-two patients had a median follow-up of 5 years, and all patients had a median follow-up of 2 years 5 months. There are thus 9491 women-years of follow-up. This trial patient had generally good prognosis but there were a substantial number of (>1200) patients  $\leq 60$  years, and more than 500 patients were node positive and/or grade 3. Ninety-one percent of patients had sentinel node biopsy, of which 90% had < 10 nodes removed if that was negative.

Eleven patients had axillary recurrences, one of whom had axillary clearance and other 10 had negative sentinel node biopsy. The risk of axillary recurrence was the similar whether the patients received EBRT (6/1762, 5 year risk 0.82% (95% CI 0.342-0.2) or did not receive EBRT (5/1613, 5 year risk 0.68% (95% CI 0.28-1.6, HR 0.84, 95% CI 0.26-2.74,  $p = 0.8$ ). The results were similar if we only included patients with 1 or 2 positive axillary nodes: EBRT given (1/255) vs EBRT not given (0/127).

**Conclusions:** Omitting whole breast radiation therapy after a sentinel node biopsy in this good prognosis population, is not associated with an increased axillary recurrence rate.

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### Analysis of Prone Accelerated Partial-Breast Irradiation After Breast-Conserving Surgery: 42 Month Follow-up Results of 200 Patients

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**Purpose/Objective(s):** To report the combined results of two consecutive prospective trials of the same regimen of accelerated partial breast irradiation (PBI) in the prone position.

**Materials/Methods:** Post-menopausal patients with stage I breast cancer after segmental mastectomy with tumor negative margins, negative nodes, and no extensive intraductal component were eligible to either IRB-approved prospective trials. In both trials, patients were treated a dose of 3000 cGy in five 600 cGy/day fractions to the tumor cavity with a 1.5 cm margin. The first trial delivered the prescribed dose by 3D-CRT and required port film verification at each treatment while in the second trial (still open for accrual), patients were treated with either 3D-CRT or IMRT with both port film verification at each treatment and cone beam CT (CBCT). Rates of local recurrence, breast cancer survival and overall survival were recorded.

**Results:** A total of 200 patients were analyzed: 100 patients were enrolled in the first trial from 2003 to 2007, and the subsequent 100 patients were enrolled in the second trial, opened on 2007 and still accruing. Of the 200 patients enrolled, 2 patients withdrew consent after simulation, and 1 patient elected to interrupt radiation therapy after receiving 2 treatments. Median patient age was 71 years (range, 52-89 years). At a median follow-up of 42 months (range, 0.5-132 months), there were 2 local recurrences in the ipsilateral breast, both outside the quadrant of the PTV treated (1% ipsilateral breast failure). In addition there were 3 distant failures (1.5%), 1 with recurrence in the contralateral breast, and 2 presenting with metastatic disease. Three patients have died, one with metastatic breast cancer.

**Conclusions:** At a median follow-up of 42 months, local recurrence, breast cancer survival, and overall survival rates of patients with stage I breast cancers treated with PBI with a prone set up were 1% and 99.5% and 98.5%, comparable to other experiences with similar follow-up.

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### Interim Analysis of 455 Breast Cancer Patients Randomly Treated With Hypofractionated or Conventional Fractionated Radiation Therapy After Mastectomy

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