Accelerated Partial Breast Irradiation using Mammosite

First analysis of patient demographics, technical reproducibility, cosmesis, and early toxicity: results of the American Society of Breast Surgeons MammoSite breast brachytherapy trial.


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BACKGROUND: Eighty-seven institutions participated in a Registry Trial that was designed to collect data on the clinical use of the MammoSite breast brachytherapy catheter for delivering breast irradiation. Patient demographics, technical reproducibility, cosmesis, and early toxicity were evaluated. METHODS: From May 4, 2002 through July 30, 2004, 1419 patients with Stage 0, I, or II breast carcinoma who were undergoing breast-conserving therapy were enrolled on the trial. The device was placed in 1403 of these patients. The 1237 patients (87% of enrolled patients) who received accelerated partial breast irradiation (APBI) (34 grays prescribed to 1.0 cm in 10 fractions; 95% of patients who received APBI) constituted the study population; 86% of those patients (1068) had Stages I-II breast carcinoma (median tumor size, 10 mm), and 14% of those patients (169) had Stage 0 breast carcinoma. Ninety-one percent of the patients with invasive carcinoma (977 of 1068 patients) had negative lymph node status, and 99% of all patients had negative margins. The median patient age was 65 years. Systemic chemotherapy alone was administered to 79 patients with invasive carcinoma (7%), hormone therapy was administered to 501 patients (45%), and both were administered to 39 patients (4%). The median follow-up was 5 months. RESULTS: Five hundred fifty-four catheters (45%) were placed with an open cavity at the time of lumpectomy, and 683 catheters (55%) were placed with a closed cavity after lumpectomy. Skin spacing ranged from 2 mm to 75 mm (median, 10 mm). In 89% of patients, there was a minimum balloon-to-skin distance of 7 mm (2% of patients had distances < 5 mm). In terms of cosmetic assessment, 95% of patients (1030 of 1084 patients) who had a cosmetic assessment had a good/excellent result (last follow-up visit). Cosmetic results at 12 months were good/excellent in 92% of 248 evaluable patients. The median skin spacing (> or = 7 mm vs. < 7 mm) was associated significantly with a good/excellent cosmetic result (96.1% vs. 86.8%; P = 0.0001) overall and at 6 months (P = 0.006). Increasing skin spacing was associated with a good/excellent cosmetic result as a continuous variable (P < 0.0001). In total, 92 of 1140 evaluable patients (8.1%) developed an infection in the breast, which was device-related in 5.3% of patients (60 of 1140 patients). Good/excellent cosmetic results were noted in 86% of these patients (last follow-up visit). Fifteen of 442 evaluable patients (3.4%) developed a radiation recall reaction. Good/excellent cosmetic results were noted in 93% of these patients at their last follow-up visit. One local recurrence (0.1%) was reported (new primary carcinoma). CONCLUSIONS: Clinical evaluation of the ability of the MammoSite breast brachytherapy catheter to deliver APBI demonstrated acceptable technical reproducibility
between multiple institutions and use in appropriate groups of patients. Cosmetic results at 12 months (92% good/excellent) were comparable to those reported with whole-breast RT. Early toxicity rates (infections, radiation recall) appeared to be acceptable.

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- Review The MammoSite breast brachytherapy applicator: a review of technique and outcomes. [Brachytherapy. 2005]
- Review The MammoSite balloon brachytherapy catheter for accelerated partial breast irradiation. [Semin Radiat Oncol. 2005]