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Retrospective Breast Cancer Patterns of Care and Outcomes Analysis from a Community Radiation Oncology Program in the Hudson Valley

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Abstract
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Gabrielle Brini [1], Thomas R. Eanelli [2]

1. Radiation Oncology/ Oncology/ Diagnostic Radiology, Touro College of Osteopathic Medicine, Middletown, USA 2. Radiation Oncology, Garnet Health, Middletown, USA

Corresponding author: Gabrielle Brini, gbrini@student.touro.edu

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Abstract

Purpose: Breast cancer is the second most commonly diagnosed cancer in women in the United States[1]. Adjuvant radiation therapy (RT) plays a key role in reducing recurrence and improving survival. While outcomes from academic centers are well-documented, there is limited data on patient experiences and outcomes in community-based settings. This study evaluates survival outcomes and treatment-related toxicities in breast cancer patients treated with adjuvant RT at a community oncology program in the Hudson Valley.

Methods: A retrospective chart review was conducted on 855 breast cancer patients treated with RT between January 2018 and December 2024. Patient data were extracted from the ARIA oncology information system. Five common RT-related toxicities—skin reaction, fatigue, cough (pneumonitis), pain, and heartburn—were assessed using a 0-5 scale, with 5 indicating death due to toxicity, to evaluate quality of life during treatment. Patients with incomplete records or whose primary radiation site was not the breast were excluded, resulting in a final cohort of 806 patients.

Results: The median overall survival (OS) was 95.7% across all stages and subtypes, with a median follow-up of 34.4 months (95% CI: 32.9-35.9). The most commonly reported treatment-related toxicity was skin reaction, observed in 87.9% of patients, followed by fatigue in 47.2%, pain in 30.9%, heartburn in 15.6%, and cough in 9.9%. Grade 1-2 reactions comprised nearly all toxicity cases, accounting for 97.4% of skin reactions, 98.7% of fatigue, 100% of pain, 99.2% of heartburn, and 98.7% of cough. No grade 4 or 5 toxicities were reported.

When comparing toxicities by surgical type, lumpectomy patients experienced slightly higher rates of fatigue (50%) and skin reactions (88.5%) compared to mastectomy patients (46.4% and 87.2%, respectively). In contrast, mastectomy patients had higher rates of cough (10.5%), heartburn (16.5%), and pain (31.4%), compared to 7.7%, 11%, and 29.8%, respectively, than those who underwent lumpectomy.

Among patients with no evidence of disease (NED) at follow up, only one experienced a local recurrence. In patients classified as alive with disease (AWD), recurrence patterns included four local, three distant, one regional, and one unknown location. Of the 31 patients who died, 16 deaths were attributed to disease progression. Among those 16, five had documented recurrences, four of which were distant and one regional.

Conclusion: Breast cancer patients treated with adjuvant RT in a community setting demonstrated excellent survival rates and low recurrence. Our community program's overall survival is 95.7% higher than the SEER average of 94.6%.[2] The most common adverse event was low grade skin reaction. No high-grade toxicities were observed. These findings support the effectiveness and safety of delivering comprehensive breast cancer care within community radiation oncology programs.