Postmastectomy Radiotherapy in pN1 Breast Cancer: Survival Outcomes and Prognostic Factors From a Single-Institution Cohort

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Background

- Post-mastectomy radiation therapy (PMRT) is known to benefit patients with stage N2+ breast cance
- The benefit of post-mastectomy radiation therapy (PMRT) for pathologic N1 (pN1) breast cancer remains uncertain in the era of contemporary systemic therapy.
- The objective of this study was to compare recurrence-free survival (RFS) and overall survival (OS) in pN1 patients treated with or without PMRT at a single academic center.

Methods

- RFS was defined as elapsed time from diagnosis to recurrence, death from any cause, or last follow-up. OS was defined as elapsed time from diagnosis to death or last follow-up.
- We retrospectively identified 57 pN1 patients who underwent mastectomy between 2016-2022.
- Clinicopathologic variables and treatments were abstracted; 54 patients had complete receptor data (83% hormone receptor–positive; 17% triple-negative).
- 19 patients (33%) received PMRT and 35 (61%) did not (3 excluded from receptor status analyses only).
- Kaplan–Meier estimates and Cox proportional hazards models were used to evaluate associations between PMRT and RFS/OS.

Results

Demographics	PMRT	No PMRT	N (%)	P-value
Age at Diagnosis				
Mean (SD)	57.3 (12.5)	58.5 (13)	55.5 (11.7)	0.3962[1]
Median (IQR)	57 (50, 63)	57.0 (50, 65)	56.0 (44, 63)	
Min, Max	29, 88	29, 88	37, 75	
Cancer Type, n (%)	49 (100)	32 (100)	17 (100)	0.1139[2]
IDC	45 (91.8)	31 (96.9)	14 (82.4)	
ILC	4 (8.2)	1 (3.1)	3 (17.6)	
Pathologic Tumor Size, n (%)	56 (100)	35 (100)	21 (100)	0.8922[2]
p1a	1 (1.8)	1 (2.9)	0 (0.0)	
p1b	4 (7.1)	3 (8.6)	1 (4.8)	
p1c	16 (28.6)	9 (25.7)	7 (33.3)	
p2	35 (62.5)	22 (62.9)	13 (61.9)	

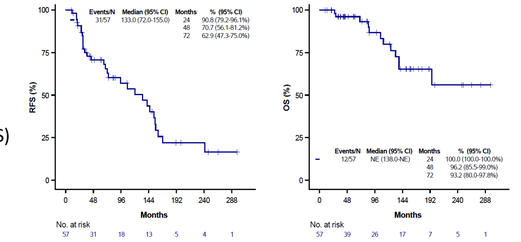


Figure 1. Kaplan-Meier curves for recurrence-free survival (RFS) and overall survival (OS) in all patients

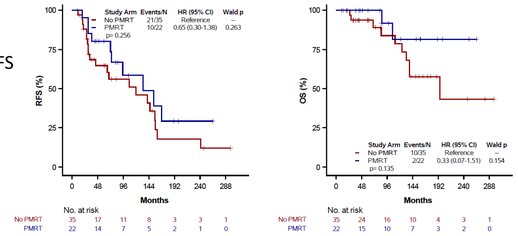


Figure 2. Kaplan-Meier curves for RFS and OS by PMRT Status

Results (contd.)

- PMRT use was not associated with improved RFS or OS, though a trend toward increased RFS was observed in PMRT patients
- Survival curves for PMRT and no-PMRT overlapped, and adjusted hazard ratios did not demonstrate significant differences
- Exploratory subgroup analyses did not reveal a consistent benefit with PMRT in hormone receptor–positive or younger patients.

Conclusions

- In this single-institution experience, PMRT did not significantly improve RFS or OS among pN1 patients treated with modern multimodality care.
- These data support individualized decision making over routine PMRT for all pN1 cases
- Adequately powered, contemporary studies are needed to refine patient selection for treatment.

References:

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McGale P, Taylor C, Correa C, et al. Effect of radiotherapy after mastectomy and axillary surgery on 10-year recurrence and 20-year breast cancer mortality: meta-analysis of individual patient data for 8135 women in 22 randomised trials. *Lancet.* 2014;383:2127-2135.