

**PRESENTATION: ORAL PRESENTATION (GENERAL SESSION)
– 2ND BEST LOCOREGIONAL TREATMENT STUDY**

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1025 – Precise study: postmastectomy radiotherapy in breast cancer patients achieving nodal complete pathologic response after neoadjuvant chemotherapy – a systematic review and meta-analysis

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Introduction: The role of postmastectomy radiotherapy (PMRT) after neoadjuvant chemotherapy in patients who achieve nodal pathologic complete response (ypN0) remains controversial. As locoregional recurrence risk is low in this setting, the magnitude of benefit from PMRT is uncertain.

Objective: To evaluate the impact of PMRT on oncologic outcomes in ypN0 patients after NAC.

Methods: This systematic review and meta-analysis was conducted according to the PRISMA guidelines and registered in PROSPERO (CRD4202460366). The databases PubMed, Embase, Cochrane Library, Scopus, and Web of Science were searched for studies published from January 2007 to December 2025. Randomized and observational studies including women with early breast cancer treated with NAC and mastectomy who achieved nodal pCR were eligible if they compared PMRT with no PMRT. Primary outcomes were overall survival (OS), disease-free survival (DFS), and locoregional recurrence (LRR). Pooled effect estimates were calculated using random-effects models, and risk of bias was assessed with ROBINS-I.

Results: Twenty studies comprising 36,380 patients were included; 23,228 received PMRT and 13,143 did not. Most studies were retrospective and had a low-to-moderate risk of bias. PMRT was associated with a marginal improvement in OS (relative risk [RR] 1.02; 95% confidence interval [CI] 1.00–1.03), DFS (RR 1.05; 95%CI 1.02–1.09), and LRR (RR 1.02; 95%CI 1.01–1.03). Heterogeneity was moderate for OS and DFS and low-to-moderate for LRR. Egger's test suggested possible small-study effects for DFS and LRR. Given the very small absolute effect sizes and the already favorable prognosis of ypN0 patients, the clinical relevance of these pooled differences appears limited. **Conclusions:** In breast cancer patients achieving nodal pCR after NAC and mastectomy, PMRT was associated with at most minimal improvements in survival and locoregional control. These findings, together with the neutral randomized evidence from NSABP B-51/RTOG 1304, support a selective, risk-adapted approach rather than routine PMRT for all ypN0 responders in contemporary practice.

Ethics: Public data – Literature review.

Registry: International Prospective Register of Systematic Reviews (PROSPERO) CRD4202460366.

Keywords: breast neoplasms; neoadjuvant therapy; radiotherapy; mastectomy; pathologic complete response.