

De-escalating Axillary Surgery in T3 Breast Cancer: Oncologic Safety and Morbidity of Targeted Axillary Dissection after Neoadjuvant Systemic Therapy.

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BACKGROUND

- Axillary lymph node dissection (ALND) has traditionally been used for regional control in patients presenting with node-positive breast cancer.
- Neoadjuvant systemic therapy (NST) can eradicate nodal disease in a substantial proportion of patients, creating an opportunity for axillary de-escalation.
- Targeted axillary dissection (TAD), combining removal of a previously marked positive node with sentinel lymph node biopsy (SLNB), improves post-neoadjuvant axillary staging accuracy while potentially reducing surgical morbidity.

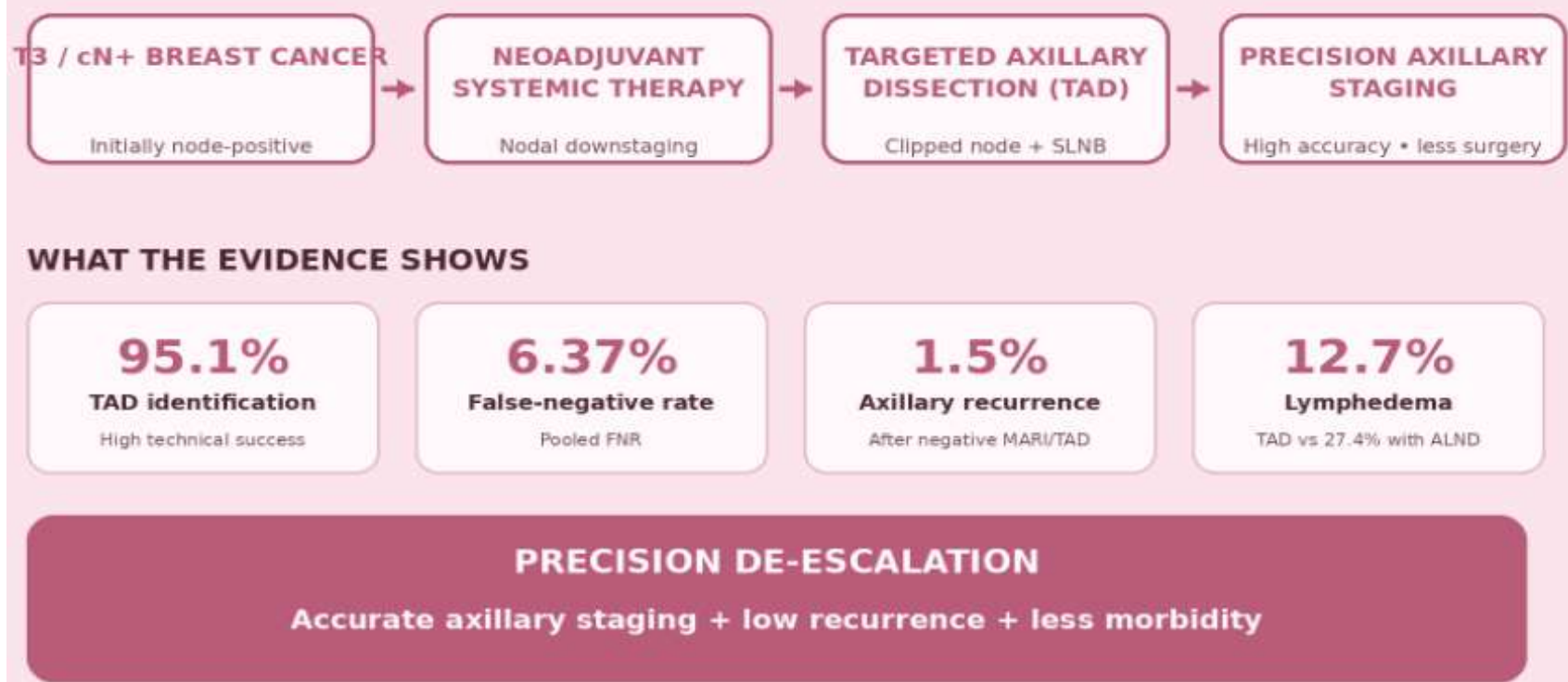
OBJECTIVE

- To evaluate whether TAD following NST provides adequate oncologic control while reducing axillary morbidity compared with conventional axillary surgery in initially node-positive T3 breast cancer.

METHODOLOGY

- PubMed/MEDLINE, Embase, Scopus, Web of Science and Cochrane Library for studies evaluating axillary de-escalation after NST.
- **Primary outcomes:**
 1. Axillary recurrence
 2. False-negative rate (FNR)
- **Secondary outcomes:**
 1. Disease-free survival
 2. Postoperative morbidity, including lymphedema and upper-extremity dysfunction.
- **Random-effects models** were used for quantitative synthesis, with effect estimates reported as pooled proportions or comparative effect measures with 95%CI.

KEY EVIDENCE SUPPORTING TAD



CLINICAL FRAMEWORK FOR TAD

Clinical Domain	Key Consideration	Implication for TAD
Initial nodal status	Biopsy-proven cN+ disease should be documented before neoadjuvant therapy.	Provides a defined node for accurate post-treatment restaging.
Node marking	Clip/mark the biopsy-proven positive node before systemic therapy.	Essential for reliable targeted node retrieval.
Nodal response	cN+ → ycN0 after neoadjuvant therapy creates the main setting for de-escalation.	Supports consideration of TAD rather than routine ALND.
TAD technique	Remove the marked node + sentinel lymph nodes.	Combines targeted and lymphatic mapping to improve staging accuracy.
Residual disease	ypN0, micrometastatic and macrometastatic disease have different implications.	TAD does not automatically eliminate ALND when significant residual disease remains.
Patient selection	Initial nodal burden, response, adequate retrieval and RT context influence safety.	De-escalation should be individualized; T3-specific evidence remains limited.

RESULTS & ANALYSIS

- **High diagnostic performance:** TAD achieved a **pooled identification rate** of 95.1% (95% CI, 93.2–96.5%) and **FNR** of 6.37% (95% CI, 5.02–8.04%) across 59 studies.
- **Favorable oncologic control:** Following negative TAD, **pooled axillary recurrence** was only 1.5% (95% CI, 0.5–4.1%), comparable to 2.1% (95% CI, 1.4–3.2%) after negative SLNB.
- **Durable survival outcomes:** 5-year DFS, distant DFS, and OS following axillary de-escalation were 87%, 90%, and 92%, respectively.
- No significant difference with **omission versus completion ALND** (RR 1.09, 95% CI, 0.47–2.52; P=.80).
- TAD was associated with substantially **lower lymphedema** (12.7% vs 27.4%) and **upper-extremity impairment** (18.0% vs 33.9%) compared with ALND.

KEY TAKEAWAYS

- ✓ TAD offers a compelling balance between oncologic safety and surgical de-escalation after nodal response to neoadjuvant therapy.
 - ✓ TAD can shift axillary management from **“more surgery for more certainty”** toward **“precision surgery with preserved oncologic safety.”**
 - ✓ Prospective T3-specific validation is the next step toward routine axillary de-escalation.
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