

# **Surgical Management of the Axilla in the Z1071 Era: Propensity-Score Matched Analysis of the NCDB**

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## **Abstract**

**Introduction:** Since the introduction of Z1071 in HER2+ breast cancer patients with clinically positive axillary node, there has been an increasing interest in investigating the outcomes of sentinel lymph node biopsy or targeted axillary lymph node dissection (SLNB/TALND) as the preferred surgical management of the axilla compared to complete axillary lymph node dissection (CALND).

**Methods:** The NCDB for breast cancer was analyzed. We included patients with HER2+ breast cancer and clinically positive axillary nodes treated with neoadjuvant chemotherapy followed by surgery. Patients who received lumpectomy or mastectomy were included. We included patients whose surgical management of the axilla was reported as either SLNB/TALND or CALND. Patients were matched between SLNB/TALND and CALND groups based on a multivariate logistic regression for the likelihood of receiving either procedure. Kaplan-Meier method was used to study survival in the matched groups.

**Results:** 6,479 patients met the inclusion criteria. Mean age was  $52.63 \pm 11.63$  and 4,342 (76.0%) were whites. One third of tumors were located in the upper outer quadrant (N=2,442, 37.7%) and half were cT2 (3,145, 48.5%). 4,127 (63.7%) were hormone receptor (HR) negative. Breast conserving surgery was completed in 2,220 (34.3%), and 2,368 (36.5%) had complete response to neoadjuvant treatment. SLNB/TALND was the preferred axillary management in 1,776 (27.4%) whereas 4,703 (72.6%) had CALND. The mean number of retrieved nodes in SLNB/TALND group was  $3.65 \pm 3.99$  (median, 3) vs.  $11.28 \pm 8.21$  (median, 11) in the CALND group. We matched 1,418 SLNB/TALND to 2,836 CALND patients (1:2) per the propensity score with adequate balance between the groups. Kaplan-Meier analysis showed no difference in overall survival between SLNB/TALND and CALND ( $66.20 \pm 0.58$  vs.  $66.72 \pm 0.35$  months;  $p=0.384$ ). Cox logistic regression identified age, Charlson comorbidity index  $\geq 2$ , lower inner quadrant tumors, cT stage, HR status, response to neoadjuvant therapy, and pathologic nodal status as significant predictors of survival, whereas the choice of surgical axillary management was not.

**Conclusion:** SLNB/TALND provides comparable survival outcomes to CALND in HER2+ cN+ breast cancer patients after neoadjuvant chemotherapy.