# Outcome of De-Escalation of Axillary Surgery in Locally Advanced Breast Cancer Patients

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## Introduction

- Evidence from high income countries support de-escalation of axillary surgery from axillary lymph node dissection (ALND) to sentinel lymph node biopsy (SLNB) alone in patients with breast cancer (BC) and cT2-4N1M0 disease who respond to neoadjuvant chemotherapy (NACT)
- ALND avoidance in these cases mitigates surgical morbidity with comparable recurrence and survival rates [5]
- However, the data regarding safety of axillary de-escalation for locally advanced breast cancer (LABC) is sparse from developing countries where the LABC burden is high

## Objective

To assess the effect of axillary de-escalation surgery on the outcomes of LABC patients who become ycCT2-4N0M0 following NACT

## Methods

- Digital and medical case records of eligible patients registered at Breast Cancer Clinic were assessed retrospectively for the year 2022-2023 and prospectively for 2024
- Clinical presentation, results of cytology, histology, treatment received, number of lymph nodes removed and follow-up were noted in a predesigned proforma
- After SLNB, patients with positive SLN showing macrometastasis or those in whom an SLN could not be identified were subjected to ALND
- Data were analyzed by SPSS version 27

**Primary Outcome:**

- Rate of composite outcome of mortality, locoregional, or distant recurrence rates in the overall patients

**Secondary Outcomes:**

- Overall survival (OS), disease-free survival (DFS) and recurrence free survival (RFS) duration in overall population
- Comparison of mortality, locoregional and distant recurrences, OS, RFS and DFS in SLNB vs ALND group
- Proportion of patients with arm lymphedema and pain

## Results

- A total of 82 LABC patients with ycN0 after NACT were included
- Clinical and pathological characteristics of the included population is described in Table 1
- All the patients had a dual mapping procedure with either blue dye and indocyanine green [54 (67.5)] or blue dye with Technetium [26 (32.5%)] for SLNB
- A sentinel lymph node was identified in 77 (93.9%) cases of which 24 (31.2%) were positive (Table 1)
- Of 82 cases, a total of 25 (30.4%) patients underwent ALND either because of positive SLN showing macrometastasis (n=20) or non-identification of SLNs (n=5)
- Median (IQR) lymph nodes removed during SLNB and ALND were 3(2–4) and 13(15–19), respectively
- Median (IQR) follow-up duration was 21(15-29) and range (9-44) m.
- Composite outcome, locoregional recurrence, distant metastasis and mortality in overall cohort, SLNB only and ALND groups are shown in Table 2.
- Pain and lymphedema were significantly higher in ALND group compared to SLNB alone (Table 2, Figure 1,2)
- Mean (95% CI) OS, DFS and RFS duration in overall, SLNB and ALND groups are shown in (Table 3 and Figure 4-6) showing no significant difference in RFS/ DFS duration between the groups

**Table 1. Clinical and pathologic characteristics of patients**

| Parameter | n=82 |
|---|---|
| Age, (yr), mean±SD | 47.2±11.2 |
| Tumor size (cm), median (IQR) | 4 (3-5) (N=81) |
| Tumor stage, no (%) | |
| cT2 | 31 (37.4) |
| cT3 | 27 (33.2) |
| cT4 | 23 (28.2) |
| cTx | 1 (1.2) |
| Clinical N stage, n (%) | |
| cN1 | 82 (100.0) |
| Tumor characteristics, no (%) | |
| ER positive | 44 (53.7) |
| PR positive | 32 (39.0) |
| Her 2 neu positive | 36 (43.9) |
| TNBC | 22 (26.8) |
| Ki 67 | N=77 |
| <20% | 7 (8.5) |
| ≥20% | 70 (85.5) |
| Grade | N=74 |
| 1 | 2 (2.4) |
| 2 | 30 (36.6) |
| 3 | 42 (51.2) |
| Breast surgery, no (%) | |
| BCS | 33 (40.2) |
| Mastectomy | 49 (59.8) |
| Axillary treatment, no (%) | |
| SLNB | 82 (100.0) |
| SLNB followed by ALND | 25 (30.5) |
| Details of axillary treatment | |
| Number of SLN identified, median (IQR) | 3 (2 – 4) |
| 0 n (%) | 5 (6.1) |
| 1-3 n (%) | 42 (51.2) |
| 4 - 6, n (%) | 32 (39.0) |
| ≥7, n (%) | 3 (3.7) |
| Number of SLN positive, median (IQR) | 0 (0 – 1) |
| 0, n (%) | 58 (70.7) |
| 1-3, n (%) | 21 (25.6) |
| ≥4, n (%) | 3 (3.7) |
| SLN positive, n (%) | N=24 |
| Micrometastasis, n (%) | 4 (16.7) |
| Macrometastasis, n (%) | 19 (79.2) |
| Isolated tumor cell, n (%) | 1 (4.1) |

ALND – Axillary lymph node dissection; BCS – Breast-conserving surgery; c-Clinical; ER- Estrogen receptor; PR- Progesterone receptor; SD – Standard deviation; TNBC – Triple negative breast cancer; yc-Clinical stage after neoadjuvant chemotherapy.

**Table 2: Outcomes in SLNB and ALND groups**

| Parameters, n (%) | Overall (n=82) | SLNB only (n=57) | ALND (n=25) | p-value |
|---|---|---|---|---|
| Composite outcome | 8 (9.8) | 6 (10.5) | 2 (8.0) | 1.000 |
| Loco-regional recurrence | 5 (6.0) | 4 (7.0) | 1 (4.0) | 0.640 |
| Distant metastasis | 2 (2.4) | 2 (3.5) | 0 | 0.371 |
| Mortality | 2 (2.4) | 1 (1.8) | 1 (4.0) | 0.519 |
| Pain | 9 (10.9) | 3 (5.3) | 6 (24.0) | 0.022 |
| Lymphedema | 10 (12.9) | 4 (7.0) | 6 (24.0) | 0.044 |

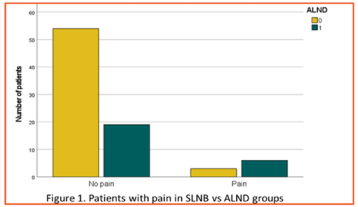



Figure 1. Patients with pain in SLNB vs ALND groups

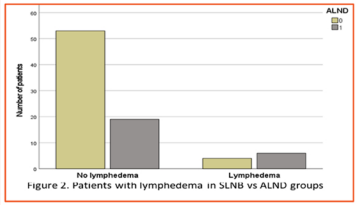



Figure 2. Patients with lymphedema in SLNB vs ALND groups

**Table 3. Mean survival durations in overall and SLNB and ALND groups**

| Mean (95% CI) | Overall | SLNB only | ALND | p-value |
|---|---|---|---|---|
| OS | 43.1 (41.8 - 44.3) | - | - | - |
| RFS | 40.8 (38.4 - 43.2) | 41.0 (38.3 - 43.8) | 36.7 (33.9 - 39.7) | 0.890 |
| DFS | 40.0 (37.4–42.6) | 39.9 (36.7 - 42.9) | 36.7 (33.9 - 39.7) | 0.725 |

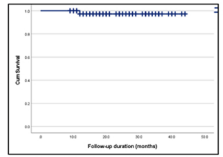



Fig 3. KM analysis for Overall survival

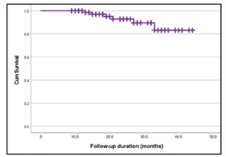



Fig 4. KM analysis for recurrence free survival

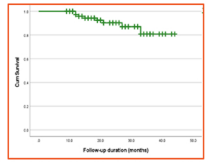
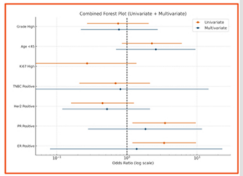



Fig 5. KM analysis for disease free survival

**Table 4. Estimated point OS, RFS and DFS probabilities**

| Probability of survival | 1-yr | 2-yr | 3-yr |
|---|---|---|---|
| Overall | 97.2% | 97.2% | 97.2% |
| Recurrence free | 98.5% | 97.0% | 95.1% |
| Disease free | 97.2% | 94.3% | 92.5% |

- On univariate logistic regression analysis, the only predictor of SLN positivity was ER and PR positivity however, none of the factors were significantly associated on multivariate analysis (Figure 6)




## Discussion

- Literature reported SLN identification rates >90% using dual mapping techniques with SLN positivity rates of 50%
- Meta-analysis also supported low rates of loco-regional recurrence and good oncological outcome following SLNB alone

## Conclusion

- This study demonstrates comparable oncological outcomes along with improved pain and lymphedema rates, in LABC patients with ycN0 disease after NACT treated with SLNB supporting axillary nodal de-escalation surgery.

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**References**

1. Fisher B., Redmond C., Fisher E.R., Bauer M., Wolmark N., Wickerham D.L., Deutsch M., Montague E., Margolese R., Foster R. Ten-Year Results of a Randomized Clinical Trial Comparing Radical Mastectomy and Total Mastectomy with or without Radiation. N. Engl. J. Med. 1985;312:674–681. doi: 10.1056/NEJM198503143121102.
2. Mamouras E.P. Impact of neoadjuvant chemotherapy on locoregional surgical treatment of breast cancer. Ann. Surg. Oncol. 2015;22:1425–1433. doi: 10.1245/s10434-015-4406-6.
3. Zardavis D., Piccart M. Neoadjuvant therapy for breast cancer. Annu. Rev. Med. 2015;66:31–48. doi: 10.1146/annurev-med-051413-024741.
4. Tee SR, Devane LA, Evoy D, et al. Meta-analysis of sentinel lymph node biopsy after neoadjuvant chemotherapy in patients with initial biopsy-proven node-positive breast cancer. Br J Surg. 2018;105 (12):1541-1552. doi:10.1002/bjs.10986
5. Cabioglu N, Koçer HB, Karanlik H, Gülçelik MA, Igci A, Müslümanoglu M, Uras C, Mantoglu B, Trabulus DC, Akgül G, Tükenmez M, Senol K, Özkurt E, Sen E, Karadeniz Çakmak G, Bademler S, Emiroglu S, Yildirim N, Kara H, Dag A, Dilege E, Altinok A, Basaran G, Varol E, Ugurlu Ü, Bölükbasi Y, Ersoy YE, Zengel B, Karaman N, Özbas S, Zer L, Gül Kiliç H, Agcaoglu O, Sakman G, Utkan Z, Soyder A, Akcan A, Ergün S, Yilmaz R, Aydiner A, Soran A, Ibis K, Özmen V. De-Escalation of Nodal Surgery in Clinically Node-Positive Breast Cancer. JAMA Surg. 2025 Mar 1;160(3):257-266.