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Oncological outcomes of breast-conserving surgery versus mastectomy following neoadjuvant chemotherapy in a contemporary multicenter cohort

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Objective: To evaluate local recurrence (LR), distant recurrence (DR), and death in non-metastatic breast cancer patients undergoing breast-conserving surgery (BCS) or mastectomy following current neoadjuvant chemotherapy (NAC) regimens. **Methods:** This retrospective multicenter cohort study was conducted with breast cancer patients (cT1–T4, cN0–N3, M0) treated with BCS or mastectomy following NAC at the Fortaleza General Hospital and the Pontifícia Universidade Católica do Rio Grande do Sul (PUC/RS) between 2013 and 2023. **Results:** Patients submitted to NAC were evaluated (n=365; mastectomy: 165; BCS: 200). More mastectomy patients were over 70 years old (12.7% vs. 7.0%; p=0.02) and had T4b tumors (16.4% vs. 4.5%; p=0.0003), whereas more BCS patients had node-negative axilla (42% vs. 31.5%; p=0.02). After a mean follow-up of 65 months (range: 4–124), LR and DR were similar in the mastectomy and BCS groups (4.8% vs. 5.0%; p=0.95 and 10.9% vs. 9%; p=0.58, respectively). More deaths occurred in the mastectomy group (8.5% vs. 3.0%; p=0.03). Ten-year LR-free survival was higher in the BCS group (98.5% vs. 95.0%; hazard ratio [HR] 3.41; 1.09–10.64; p=0.03), while 10-year DR-free survival was similar (91.0% BCS vs. 89.0% mastectomy, HR 1.25; 0.65–2.42; p=0.4). Overall survival was better in the BCS group (97.0% vs. 91.5%; HR 2.62; 1.06–6.69; p=0.03). Estimated 10-year disease-free survival, stratified according to tumor stage, showed no difference except for T4, for which the risk was greater in the mastectomy group (94.5% vs. 81.8%; HR 2.86; 1.54–5.30; p=0.0008). T3/T4 (odds ratio [OR] 4.37, 1.03–21.91; p=0.04) and axillary dissection (OR 5.11; 1.14–35.52; p=0.04) were associated with LR in the BCS group. **Conclusion:** In this cohort, BCS proved to be a safe alternative to mastectomy following treatment with NAC, even in cases of locally advanced breast cancer.

Keywords: breast neoplasms; chemotherapy; mastectomy; neoadjuvant therapy; segmental mastectomy.