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# Analysis of axillary lymph node response to neoadjuvant therapy in young breast cancer patients ( $\leq 40$ years) treated at Dr. Arnaldo Cancer Institute in São Paulo

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**Objective:** To describe pathological complete response rates in axillary lymph nodes after neoadjuvant therapy in young breast cancer patients ( $\leq 40$  years) and correlate with molecular subtypes. **Methods:** This study analyzed patients  $\leq 40$  years treated at a cancer center in São Paulo from August 2018 to July 2023. Collected data included molecular subtype (luminal-like, human epidermal growth factor receptor-type 2-positive [HER2+], triple negative [TN]), axillary response (ypN0 vs. ypN+), and survival outcomes. Statistical analysis used descriptive methods of cN+ patients and their response to neoadjuvant therapy followed by surgery. The ethics committee at Dr. Arnaldo Cancer Institute approved this work.

**Results:** Fifty young patients with breast cancer were included (median age 35.5 years), of whom 26 (52%) had clinically positive axillary involvement (cN+) before treatment. After neoadjuvant therapy, it was observed that 40% (10/26) of cN+ patients achieved pathological complete response in axilla (ypN0). The ypN0 rates varied significantly among subtypes: HER2+ in 62% (8/13); TN in 38% (5/13); and luminal in 23% (6/26). Of the cN+ patients, 60% (16/26) remained ypN+, with 77% being luminal subtype. Regarding surgical approach, 44% (11/26) underwent axillary lymph node dissection. Among those achieving ypN0, only 20% (2/10) required dissection. **Conclusion:** HER2+ tumors showed the highest ypN0 rate (54%), while TN had the worst prognosis (60% of deaths). Complete axillary response correlates with a better prognosis, especially in HER2+. TN requires aggressive multimodal approach due to high progression rates. The findings support axillary treatment individualization based on subtype and response to neoadjuvant therapy.

**Keywords:** breast cancer; neoadjuvant therapy.