

PRESENTATION: ORAL PRESENTATION (FAST PRESENTATION)

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1062 – Breast pathologic complete response fails while axillary response persists: a breast multicenter study developing a nomogram for predictive accuracy across luminal subtypes

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Introduction: Pathologic complete response (pCR) is commonly used as a surrogate endpoint in breast cancer; however, its clinical relevance in luminal tumors remains uncertain due to low response rates.

Objective: To evaluate breast and axillary response patterns and to develop and externally validate predictive models in luminal breast cancer (LBC).

Methods: This multicenter retrospective study included patients with LBC treated with neoadjuvant chemotherapy between 2011 and 2022. Patients were classified as Luminal A (LA) or Luminal B (LB) based on Ki-67 expression. The Hospital Pérola Byington cohort (n=725) was used for model derivation, and the Hospital do Servidor Público Estadual (HSPE) cohort (n=123) for validation. Breast pCR was defined as ypT0/is/ypN0. Multivariable logistic regression models incorporating age, clinical T and N stage, histological grade, estrogen and progesterone receptor expression, and the Ki-67 index were constructed. Discrimination was assessed using the area under the receiver operating characteristic (ROC) curve (AUC). Baseline characteristics were comparable between cohorts, demonstrating homogeneous populations.

Results: A total of 848 patients were analyzed. Breast pCR rates were low in both cohorts (Pérola: 3.8%; HSPE: 3.2%), particularly in LA tumors. Predictive modeling for breast pCR demonstrated poor discrimination (AUC=0.37), with similarly limited performance across subtypes (LA AUC=0.34; LB AUC=0.41). In contrast, axillary response rates were substantially higher (Pérola: 31.4%; HSPE: 28.5%) and showed clear biological stratification. LB tumors demonstrated higher response rates compared to LA tumors. The axillary predictive model showed moderate discrimination in the derivation cohort (AUC=0.68), with improved performance in LB (≈ 0.72) compared to LA (≈ 0.61). External validation confirmed consistent performance in the HSPE cohort (AUC=0.65), supporting the model's reproducibility.

Conclusion: Breast pCR is rare and poorly predictable in LBC, limiting its role as a surrogate endpoint. Conversely, axillary response is more frequent, biologically stratified, and reproducible across centers, supporting its use as a more clinically relevant endpoint.

Ethics: The study was approved by Plataforma Brasil (CAAE 39097520.4.1001.546).

Keywords: breast neoplasms; neoadjuvant therapy; luminal breast cancer; sentinel lymph node biopsy; real-world data.