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1034 – Molecular reclassification after neoadjuvant chemotherapy in breast cancer: a preliminary analysis from a breast oncology service

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Introduction: Neoadjuvant chemotherapy can induce changes in the immunohistochemical (IHC) profile of breast cancer, with conversion of the status of the main biomarkers—estrogen receptor (ER), progesterone receptor (PR), human epidermal growth factor receptor 2 (HER2), and Ki-67 expression—directly impacting adjuvant therapeutic decisions.

Objective: To evaluate these changes in patients treated at the Breast Care Service of the Dr. Arnaldo Cancer Institute, São Paulo.

Methods: This retrospective descriptive study was based on a database (2023–2025). Patients undergoing neoadjuvant chemotherapy with IHC evaluation of pretreatment biopsy and surgical specimens were included. The variables analyzed were ER, PR, HER2, molecular subtype, and pathological response. Cases without paired IHC evaluations were excluded.

Results: Of the 182 patients who received chemotherapy, 51 had a documented pathological response: complete in six (11.8%), partial in 32 (62.7%), and absent in 13 (25.5%). Among the 49 cases with a defined pre-chemotherapy subtype, triple-negative (n=19; 38.8%) and Luminal B HER2- (n=16; 32.7%) predominated. In the 34 pairs with ER evaluation, two cases (5.9%) showed conversion from positive to negative. In the 39 pairs with HER2 evaluation, one case (2.6%) converted from HER2 3+ to negative. In the 22 cases with paired subtyping, molecular reclassification was observed in six (27.3%), including three conversions from Luminal B to Luminal A and one from Luminal B HER2+ to triple-negative.

Conclusion: The changes in the IHC profile observed after neoadjuvant chemotherapy may reflect the effect of treatment on the residual tumor and not necessarily the original tumor biology and therefore should be interpreted with caution. The study is ongoing, with data collection still in progress. Expanding the sample size will allow for analyses with greater statistical power and a more complete evaluation of the clinical impact of biomarker conversions on adjuvant treatment.

Ethics: Research Ethics Committee Approval (CAAE 74462723.1.0000.5471).

Keywords: breast neoplasms; neoadjuvant chemotherapy; immunohistochemistry; biomarker conversion; molecular subtype.