

LOCALLY ADVANCED BREAST CARCINOMA: AN EVALUATION OF ANATOMICAL STAGING AND THE PROGNOSTIC STAGING SYSTEM PROPOSED BY THE 8TH EDITION OF THE AMERICAN JOINT COMMITTEE ON CANCER (AJCC)

Manoel Neri Batista Neto¹, Adriana Bastos Pires¹, Fernanda Murici Brasiliense do Carmo¹, Marcella Coelho Mesquita Fernandes², Millene Arruda Bechara Gonçalves², Anne Costa Rendeiro³, Kátia Emi Tsuchiyama³, Cynthia Mara Brito Lins Pereira¹, Ana Karyssa Mendes Anaissi³, Samia Demachki^{1,3}

¹Faculdade de Medicina/Instituto de Ciências Médicas UFPA, Belém-PA.

²Oncologia clínica Complexo Hospitalar – EBSEH/HUJBB, Belém – PA. EBSEH UFPA, Belém

³Unidade de Anatomia Patológica do Complexo Hospitalar – EBSEH/HUJBB, Belém – PA.

Introduction: The TNM staging system proposed by the AJCC exclusively considers anatomical factors of the tumor, classifying tumors with similar clinical outcomes while disregarding factors intrinsic to tumor biology. The Stage III tumors are locally advanced breast carcinoma and a big challenge due to their high recurrence rate. However, patients in this stage with favorable biological tumor markers have a better prognosis. In 2018, the AJCC proposed Prognostic Staging, incorporating the Nottingham grade and prognostic and predictive factors such as estrogen receptor, progesterone receptor, and HER-2 oncogene expression into the anatomical TNM solving its limitations.

Objectives: This study aimed to evaluate the prognostic staging of locally advanced sporadic breast carcinoma in patients treated at a university hospital in the state of Pará. **Methods:** A retrospective descriptive analytical study with both qualitative and quantitative approaches was conducted. Breast carcinomas staged as groups IIIA, IIIB, and IIIC in women treated for breast cancer at a university hospital between 2019 and 2024 were re-evaluated. Data were obtained from medical records, histopathology, and immunohistochemistry reports and entered into the secure platform RedCap using variable instrumentation. The information required for prognostic staging was entered into the "TNM Cancer Staging Calculator" (Integrated Cancer Research, 2023) grouping them according to the prognostic TNM. The association between the change in staging and the molecular type was determined by creating a contingency table, which was subjected to the chi-square test ($p < 0.05$). The study was approved by the Research Ethics Committee under CAAE 55998522.1.0000.5634. **Results:** From a cohort of 306 patients with complete clinical records, 30 were diagnosed with locally advanced breast

carcinoma. This group had a mean age of 53.6 years. The predominant histological type was invasive carcinoma of no special type (NST), comprising 76.7% of the cases. The most prevalent molecular subtype was Luminal A, representing 30% of the sample, followed by Luminal B HER-2 negative (27.3%), Triple Negative (20%), HER-2 positive (16.7%), and Luminal B HER-2 positive (10%). Regarding anatomical staging, 50% were classified as stage IIIA, 20% as IIIB, and 30% as IIIC. In terms of prognostic staging, patients were distributed as follows: 26.7% in stage IB, 3.3% in IIA, 10% in IIB, 30% in IIIA, 13.3% in IIIB, and 16.7% in IIIC. When comparing the groupings, 76.7% of the patients experienced a change in staging, with 70% being downstaged and 6.7% upstaged. The association between molecular subtype with re-staging has statistical significance ($P < 0.05$), it was observed that 85.7% of the downstaged cases occurred in those classified as luminal, while all the upstaged cases occurred in triple-negative breast carcinoma. **Conclusion:** The change in stage with prognostic staging in 76.7% of cases demonstrates the importance of this methodology. Since different stages do not have similar prognoses, this allows for precise clinical decision-making. The association between molecular subtype and re-staging shows the impact of biomarkers on the prognosis of patients with locally advanced tumors. This underscores the significance of prognostic staging in this patient case series with invasive breast carcinoma treated at a northern Brazil public hospital.

Keywords: Breast Neoplasms; Neoplasm Staging; Immunohistochemistry, TNM