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Tumor-infiltrating lymphocytes as prognostic markers in a Brazilian population with neoadjuvant chemotherapy-treated breast cancer: a survival study

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Objective: To assess the association between overall survival at 5 and 10 years and the percentage of tumor-infiltrating lymphocytes (TILs) in breast cancer patients who underwent neoadjuvant chemotherapy followed by surgery at the University Hospital of the Federal University of Sergipe (HU-UFS). **Methods:** This is a survival study with uni- and multivariate analyses using core biopsy slides from a retrospective cohort of breast carcinoma patients between June 2011 and March 2019. The variables analyzed included age, histological type, tumor grade, post-surgical clinical staging, immunohistochemical profile, and residual neoplasia. TILs were evaluated by two independent pathologists who were blinded, using criteria from the International TILs Working Group. This study received approval from the research ethics committee of the Federal University of Sergipe following the guidelines of Resolution CNS 466/12. **Results:** We analyzed 46 patients with a mean age of 49.5 years. Molecular subtypes were: 50% luminal A, 26.1% triple negative, 13% triple positive, and 10.9% HER2-enriched. Patients with TILs $\leq 5\%$ had better 5- and 10-year survival in all molecular subtypes, with a more significant drop in survival for those with TILs $>5\%$. Five-year survival was significantly higher in patients with TILs $\leq 5\%$ ($p=0.038$) but no significant difference was found at 10 years ($p=0.059$). TILs did not correlate significantly with complete pathological response or overall survival, though patients with TILs $>5\%$ tended to have a worse prognosis. **Conclusion:** In this cohort, breast cancer patients treated with neoadjuvant chemotherapy and surgery had better 5-year survival with TILs $\leq 5\%$. While TILs did not significantly correlate with long-term survival, patients with TILs $>5\%$ showed a trend toward poorer outcomes. These results suggest TILs may be a valuable prognostic marker for short-term survival, but further research is needed to assess their role in long-term outcomes.

Keywords: lymphocytes; breast neoplasms; tumor microenvironment; survival analysis.