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The role of tumor-associated macrophages in the prediction of sentinel lymph node involvement in breast cancer

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Objective: The purpose of this study was to evaluate the association between the TAM density of breast tumor stroma and sentinel lymph node involvement. **Methodology:** The cohort consisted of patients with histopathological diagnosis of early-stage invasive breast cancer submitted to mastectomy or quadrantectomy and sentinel lymph node biopsy between January 2007 and December 2012 at a Brazilian referral hospital (A.C.Camargo Cancer Center). Using tissue microarrays, 101 tumors were submitted to immunohistochemistry for total macrophages (CD68), M2 macrophages (CD163), M1 macrophages (HLA-DR), and proliferating macrophages (double staining for CD68 and Ki67). **Results:** The cut-off values for the macrophage markers were CD68 (110 céls/mm²), CD163 (25 céls/mm²), and HLA-DR (80 céls/mm²). No association was observed between the TAM density of breast tumor stroma and sentinel and lymph node involvement. Low CD68 and CD163 expression was associated with luminal tumors, while high CD68 and CD163 expression was associated with hormone receptor-negative tumors, histological grade III, and high mitotic indices. HLA-DR was not correlated with hormone receptor status, HER2, or anatomopathological variables. Most macrophages displayed no proliferation. **Conclusion:** Stromal TAMs are not predictive of axillary involvement in tumors of good prognosis.

Keywords: tumor-associated macrophages; sentinel lymph; breast cancer.