Neutrophil / Lymphocyte Ratio (NLR) – Trombocyte / Lymphocyte Ratio (TLR): A Predictor of Axillary Lymph Node Metastasis in Breast Cancer Patients.

Tugba Han Öner

Baskent University School of Medicine, Turkey

Abstract

Background: This study evaluated the relationship between preoperative neutrophil / lymphocyte ratio - platelet / lymphocyte ratio, clinicopathological, radiological factors, and axillary lymph node metastasis in stage I-III breast cancer to determine if axillary surgery can be safely omitted in selected patients.

Methods: The study included 158 Stage I-III breast cancer patients operated on at Baskent University Zubeyde Hanim Research Center between 2011 and 2018. The incidence of axillary lymph node metastasis was correlated with clinical, radiological, pathological, and laboratory (neutrophil count to lymphocyte count, platelet count to lymphocyte count) findings by univariate and multivariate analyses. Sensitivity and specificity calculations, positive predictive value, negative predictive value, positive and negative Likelihood Ratio (accuracy ratio), and exact accuracy were calculated for neutrophil/lymphocyte ratio cut-off values of 3.5 and 1.

Results: Neutrophil and platelet values were significantly higher in patients with lymph node metastasis. Neutrophil / lymphocyte ratio - platelet / lymphocyte ratio values were higher in patients with axillary lymph node metastasis, but this was not statistically significant. Axillary lymph node metastasis was not associated with age, lymphocyte, monocyte count, estrogen receptor, progesterone receptor, or c-erb B2 status. The incidence of axillary lymph node metastasis was statistically significantly higher in the presence of lymphovascular invasion. Sensitivity, specificity, positive predictive value, and negative predictive value were 93.85%, 16.67%, 44.9%, and 78.9% respectively for axillary lymph node metastasis while the neutrophil / lymphocyte ratio was ≥ 3.5. Specificity, sensitivity, positive predictive value, and negative predictive value were 97.78%, 9.23%, 75.0%, and 59.9% respectively for axillary lymph node metastasis while the neutrophil / lymphocyte ratio < 1.

Conclusions: For axillary lymph node metastasis, neutrophil, platelet counts, lymphovascular invasion status, radiological and pathological mass size, and presence of radiological axillary lymphadenopathy are the statistically significant independent variables. They provide information that can help surgeons decide on the treatment of breast cancer patients with certain neutrophil / lymphocyte ratio values (neutrophil / lymphocyte ratio < 1 and neutrophil / lymphocyte ratio ≥ 3.5).

Biography

Dr Tugba Han Öner completed his Doctor of Medicine at the Baskent University School of Medicine in 2015. He is currently a neurosurgery registrar at Royal Prince Alfred Hospital in Turkey. In 2017 he was awarded NSW Junior Medical Officer of the Year.