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Comparison of Neutrophil to Lymphocyte Ratio with Other Prognostic Factors Affecting Short Term Mortality in Acute Pulmonary Embolism

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Objectives: Identifying the prognostic factors for patients with acute pulmonary embolism (APE) play a critical role in determining of the treatment strategy and to reduce mortality. The aim of this study is to evaluate the prognostic value of NLR and compare NLR with other prognostic factors in APE.

Methods: We retrospectively examined 550 cases of acute pulmonary embolism diagnosed by spiral computed tomographic angiography. A receiver operating characteristics (ROC) curve was used to determine the sensitivity and specificity of parameters and the optimal cut-off value for predicting mortality. Significance of each prognostic factors selected by univariate analysis confirmed using Cox regression model.

Results: After exclusion of 110 patients, a total of 550 patients were included in the study. The median age of the patients was 68 (19-86) years, and 277 (50.3%) of patients were male. Also, 76 (13.8%) patients died within 30 days after the APE diagnosis. Patients with high-risk status and sPESI > 2 points had a significantly higher short-term mortality rate ($p < 0.05$). Short-time mortality was found significantly higher in patients with $NLR > 7.3$ ($p < 0.05$). Cox regression analysis indicated that patient risk status and sPESI score were independent prognostic factors ($p < 0.05$). However, NLR was not found as a predictor of mortality in APE ($p > 0.05$). After the subgroup analysis of the study, in patients without comorbid diseases NLR, patient's risk status, sPESI score were found the predictor of mortality in APE ($p < 0.05$).

Conclusion: Even though NLR is not the predictor of short time mortality in APE, subgroup analysis has been indicated that NLR may be a useful prognostic factor for patients' without comorbid diseases in short time of mortality in APE.

Keywords: Lymphocytes, mortality, neutrophil, prognosis, pulmonary embolism