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## Are Blood Eosinophilia and Neutrophil-To-Lymphocyte Ratio Stable Over Time?

Yağmur Kaptan<sup>1</sup>, Aslı Suner<sup>2</sup>, Alev Gürgün<sup>1</sup>, Abdullah Sayiner<sup>1</sup>

<sup>1</sup>Department of Chest Diseases, Ege University School of Medicine, İzmir, Turkey

<sup>2</sup>Department of Biostatistics and Medical Informatics, Ege University School of Medicine, İzmir, Turkey

**Objectives:** Efforts are being made to define COPD patient subgroups who have distinct prognostic characteristics or who display distinct responses to treatments. Blood eosinophilia and neutrophil-to-lymphocyte ratio (NLR) are proposed as potential biomarkers that can be used to predict disease progression and/or responses to inhaled steroid treatment. There is a scarcity of data regarding the stability of these two biomarkers over time. This study thus aimed to determine the repeatability of these biomarkers and their relation to clinical outcomes.

**Methods:** Fifty COPD patients who had regular assessments during two years were included in the study and their findings were retrospectively examined. As part of their regular visits, all patients had spirometry, blood counts and x-rays; CAT scores and history of exacerbations were noted. Forty-four of the patients had full data from four visits and six patients from two visits. Blood eosinophilia was assessed at cut-off points of 2, and 3% and 200 and 300/mm<sup>3</sup>. Neutrophil-to-lymphocyte ratio was assessed at a cut-off point of 3.3. Repeatability was defined as agreement of at least three of four measurements (in patients with four visits) or of both measurements (in patients with two visits).

**Results:** With a cut-off point of 2%, 44 and 40% of the patients were consistently eosinophilic and non-eosinophilic. Less than 20% of the patients had variable results over time when other cut-off points for eosinophilia were used. Regarding, NLR, 20 and 62% of the patients had consistently high and low values, respectively.

**Conclusion:** Neither consistent eosinophilia nor elevated NLR were associated with the frequency of exacerbations, yearly FEV1 change or CAT scores. Both biomarkers are repeatable but are not associated with relevant clinical outcomes.

**Keywords:** COPD, eosinophil, NLR