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The Clinical Significance of Complete Blood Count Parameters for Frequent Emergency Department Admissions and Re-hospitalisation in Patients with Asthma Attacks Requiring Hospitalisation

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Objectives: Asthma attacks are a major cause of morbidity and constitute an important part of health expenditures. Some patients experience more frequent asthma attacks it is not clear which factors are associated with frequent attacks. The aim of this study is to investigate the factors associated with emergency department (ED) admissions and hospitalization within one year following a baseline asthma attacks requiring hospitalization, and to investigate the relationship between complete blood count parameters and these attacks.

Methods: The study is a retrospective observational study. Patients hospitalized due to an asthma attack in our clinic between September 2015 and September 2017 were evaluated. Demographic characteristics, additional diseases and baselinde complete blood count parameters of the patients were recorded. Within one year, the presence of ED admissions and re-hospitalisation due to asthma attack were investigated. Predictive factors related to frequent ED admissions (\geq 2) and re-hospitalisation were analyzed.

Results: Of the 59 patients included in the study, 9 (15%) were male and the mean age was 58 ± 16 . In the follow-ups 15 (25%) patients were found to have frequent ED admissions and 20 (34%) patients were re-hospitalized. Demographic features, additional diseases and baseline CRP values were not associated with attacks (p>0.05). Baseline leukocytes (p=0,003), neutrophils (p=0.001) and ratio of neutrophils to lymphocytes (NLR) (p=0.017) were found to be statistically significant in patients with frequent ED admissions. The risk of re-hospitalization was found to be increased with higher baseline NLR (p=0.014) and platelet to lymphocyte ratio (PLR) (p=0.016).

Conclusion: Complete blood count analysis can provide important clues for prognosis in asthma attacks. NLR values for frequent ED admissions; NLR and PLR values should be taken into account for attacks requiring re-hospitalization.

Keywords: Asthma, eosinophil, lymphocyte, neutrophil