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The Relationship of Immature Granulocyte with Other Inflammation Markers

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Objectives: It is important to define bacterial and non-bacterial systemic infection biomolecules because it helps identify inflammation, determine severity, and monitor treatment. Although C-Reactive Protein (CRP) is a very sensitive marker of inflammation, it has no specificity. Although procalcitonin levels show sensitivity and specificity in the diagnosis of systemic infection, it is not always possible to measure procalcitonin levels. Recently, immature granulocytes (IG) in the peripheral circulation have been used in the diagnosis of infection. In this study; the relationship between immature granulocytes, procalcitonin, CRP, leukocyte and neutrophil levels was evaluated.

Methods: Between September 2018 and October 2018, 528 patients between 0-89 years (mean \pm SD=50.55 \pm 21.57) admitted to Sütçü İmam University biochemistry laboratory. Total procalcitonin, CRP, IG, leukocyte and neutrophil counts for the diagnostic purposes were analyzed. White blood cells count, neutrophils, lymphocytes, platelets and IG parameters were studied by SYSMEX XN 3000 instrument by electrical impedance method. Patients were divided into two groups according to the measured IG; Group 1:<0.62 (a total of 310 patients) and Group 2: IG \geq 0,62 (a total of 218 patients). The data were given as mean \pm standard deviation, Mann Whitney U test was used for comparison of groups and Spearman correlation coefficient was used in the analysis of the relationship between groups.

Results: In grouping according to percentages of immature granulocytes, both groups were similar in terms of age and sex (p=0.280 and 0.059, respectively). IG and CRP, procalcitonin, NLR, SII, PLO, neutrophil and wbc values were all poorly correlated and highly significant (r<0.5 and p<0.001). Although there was a moderate correlation between IG and WBC and neutrophil counts (r=0.521 and 0.540), there was a very significant correlation (p=0.000). CRP values; grouped as 1<5 and group 2> 5 and there was a significant difference between the two groups in terms of gender but not for age(respectively p<0.01 ve p=0.381). There was a weak (r<0.5) but significant relationship between CRP groups and procalcitonin, IG and NLR (p<0.01).

Conclusion: In this study, we investigated the relation of IG with known inflammatory markers as a cheap and easily accessible marker of inflammation. We have indicated that it can be used in the clinic with other markers.

Keywords: Immature granulocyte, CRP, procalcitonin, inflammation markers