HAEMATOLOGICAL PARAMETERS AND C-REACTIVE PROTEIN IN PREDICTION OF DISEASE SEVERITY AND MORTALITY IN PATIENTS WITH SEPSIS

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ABSTRACT

Sepsis is a life-threatening condition characterized by a systemic inflammatory response of the body caused by a severe infection. The aim of this study was to examine the importance of hematological parameters and c-reactive protein (CRP) in the diagnosis of sepsis, assessment of disease severity, and prediction of final outcome of these patients. The prospective study included 106 hospitalized patients with a clinical diagnosis of sepsis. Haematological parameters and CRP correlated with sepsis stage, and using ROC (Receiver operating characteristic) analysis were evaluated in the prediction of the final outcome of these patients. Among haematological parameters, patients with sepsis had a significantly higher proportion of total unsegmented neutrophil granulocytes, a lower percentage of lymphocytes, as well as a lower total platelet count (p<0.05 for all measurements). An excellent positive correlation was found between serum CRP concentration and disease stage (r=0.77). The best predictive value for the presence of sepsis was shown by CRP at the cut-off value of 165 mg/L (AUC 0.98), followed by the percentage of unsegmented neutrophil granulocytes for the cut-off value of 15.5 (AUC 0.67), and the percentage of lymphocytes less than 9.9 (AUC 0.66), platelets lower than 118×10^9/L (AUC 0.63). At the CRP cut-off value of 294.7 mg/L (AUC 0.84; 95% CI 0.74-0.93), death could be predicted in 80.95% of patients with sepsis, with the sensitivity of 43.75% and the specificity of 89.71% (p<0.0001).

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By monitoring changes in haematological parameters and CRP concentration in combination with other clinical and laboratory indicators, disease severity and final outcome in patients with sepsis can be predicted.

Key words: CRP, lymphocytes, platelets, SIRS, sepsis,