

P-192

Leukocyte Indices in Prediction of Outcome in Intra-abdominal Infections

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In outcome of most infectious processes a reaction of immune system plays crucial role. The simplest method to detect immune reactivity is to measure ratios of different types of leukocyte cells. These leukocyte indices provide an indirect proof of activation of proinflammatory or antiinflammatory immune response. Reviewing of literature data showed lack of studies conducted to evaluate the use of leukocyte indices in intra-abdominal infections.

The purpose of the work was to reveal leukocyte indices which differ significantly in survived and non-survived patients with intra-abdominal infections, to study dynamics of indices in postoperative period, and to develop mathematical model of prediction of outcome. Materials and methods. 18 leukocyte indices were calculated for 49 patients with peritonitis: immature-to-mature neutrophil ratio, lymphocyte-to-mature neutrophil ratio, lymphocyte-to-monocyte ratio, etc. The cluster analysis was used to classify indices by dynamics of their values in postoperative period. The discriminate analysis was used for development of prognosis model. Assessing the accuracy of model was performed on 14 patients with different intra-abdominal infections: peritonitis, pancreatitis, cholecystitis, etc.

Results. In early postoperative period significant differences were observed in immature-to-mature neutrophil ratio, haematological intoxication index, and monocyte-and-immature neutrophil-to-mature neutrophil ratio. The prognostic model was developed based on the immature-to-mature neutrophil ratio and the haematological intoxication index. The overall accuracy of model was 87.76%. The model was checked on an independent group of patients, the overall accuracy was 85.71%

Conclusion. Leukocyte indices are simple and objective criteria that can be used in prediction of outcome in patients with intra-abdominal infections.

Keywords: Leukocyte indices, Intra-abdominal infections, Prediction of outcome