BIOMARKERS IN THE DIAGNOSIS AND DYNAMICS OF TREATMENT OF COMPLICATIONS OF ACUTE PLEURAL EMPYEMA

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Backgroung. Biomarkers play an important role in the diagnosis of sepsis and systemic inflammation, determining the severity of the septic state, and differentiating systemic sepsis and local infection.

The objective of the work is to define significant white blood markers in the diagnosis and dynamics of treatment of complications of acute pleural empyema.

Materials and methods. Patients with clinical and laboratory signs of SIRS and clinically proven infection were assigned to the group with complicated pleural empyema - established sepsis (n=64). Patients with acute pleural empyema without signs of systemic infectious process were assigned to the group without established sepsis (n=63) within the period of 2008-2022 have been analyzed. Upon admission, all patients included in the sample were measured for PCT, CRP, PSEP, MR-proADM levels.

Results. Optimal threshold values for PCT as a biomarker for identifying patients at risk of developing infectious complications; on admission > 14.16 PCT ng/ml (42.1% sensitivity and 100% specificity), after 48 - > 9.238 ng/ml (44.2% sensitivity and 88.2% specificity), after 120 hours - > 4.331 ng/ml (54.4% sensitivity and 67.7% specificity). Optimal threshold values for PSEP on admission > 519 pg/ml (57.5% sensitivity and 74.5% specificity), after 48 - ≤ 1356 pg/ml (77.78% sensitivity and 46.2% specificity), after 120 hours - ≤ 1423 pg/ml (85.7% sensitivity and 70.0% specificity). The sensitivity and specificity values of presepsin were determined using the recommended Cut off level of 337 pg/ml for the division between healthy individuals and patients with sepsis and CVD. The maximum area under the AUC ROC curve is achieved at a cut off level of > 519 pg/ml.

Conclusions. For PCT, the positive predictive value was 100%; 79.3%, 71.4% and the negative predictive value: 60.7%, 60.8%, 50% respectively. For PSEP, the positive predictive value was: 62.2%, 66.7%, 80% and the negative predictive value: 70.7% 60%, 77.8% respectively. Using Cut off, the sensitivity of presepsin was determined to be 66%, specificity 54%, positive predictive value – 49%, and negative predictive value – 70%.