



THE PROGNOSTIC VALUE OF PULMONARY ARTERY OBSTRUCTION INDEX IN CORRELATION WITH D-DIMERS AND ALVEOLAR-ARTERIAL GRADIENT OF OXYGEN IN PATIENTS WITH PULMONARY EMBOLISM PESI I-III

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Objective: AIM: The aim of the research was to determine the prognostic value of pulmonary artery obstruction index in patients with pulmonary embolism (PE) and its correlation with D-dimers and alveolar-arterial gradient of oxygen (PAO₂-PaO₂).

METHODS AND SUBJECTS: The research included 54 PE patients, confirmed by MSCT pulmonary angiography, that have been treated in the Department for Pulmonary Diseases and TB of University Clinical Hospital Mostar in period from 2016 to 2018. The average age of patients was 58,79 years, 30 men and 24 women. All patients were scored in to group of very low, low and moderate mortality risk (PESI I – III). The index of pulmonary artery



obstruction was calculated for each patient on the basis of MSCT angiography results. The formula for calculation was $\Sigma (n \cdot d) / 40 \times 100$, where n denotes the number of arteries affected by clot (thrombus) in each lung wing, and d the degree of pulmonary artery obstruction expressed in numbers from 0 to 2 (0 - no thrombus, 1 - partial thrombus occlusion, 2 - complete thrombus occlusion). The D-dimer values and gas analyses were measured in the artery blood of each patient first day of hospitalization. PAO₂-PaO₂ was calculated out of the gas analysis results according to the formula $A-a = PAO_2 - PaO_2$, and PAO₂ was calculated by formula: $PAO_2 = (P_{atm} - P_{water}) FiO_2 - PaCO_2 / 0,8$. Including criteria were: confirmed diagnosis of pulmonary embolism by MSCT pulmonary angiography, D-dimer and gas blood analysis one measurement results first day of hospitalization, treatment with anticoagulant therapy. Excluding criteria were: PE confirmed by another method, patients with PE PESI IV - V, treatment with fibrinolysis or surgical embolectomy.

RESULTS: Pulmonary artery obstruction index is a significant negative predictor of mortality in patients with PE PESI I-III ($z = -2,394$, $p = 0,017$). The larger pulmonary artery obstruction index, the larger mortality risk. The pulmonary artery obstruction index is poorly positively correlated with D-dimer values ($r = 0,395$, $p = 0,003$) and PAO₂-PaO₂ values ($r = 0,317$, $p = 0,019$). Results showed that D-dimers ($z = -0,061$, $p = 0,951$) and oxygen gradient ($z = -0,536$, $p = 0,592$) are not independent significant predictors of patients mortality ($p > 0,05$).

CONCLUSION: The seriousness of PE is manifested in the level and location of blood clot in hemodynamically stable patients.

Key words: PE, pulmonary artery obstruction index, D-dimer, PAO₂-PaO₂, MSCT pulmonary angiography.