Title: LABORATORY PREDICTORS OF INFECTION COMPLICATIONS AFTER PULMONARY ENDARTERECTOMY FOR CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION

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Abstract

OBJECTIVES. The postoperative course after pulmonary endarterectomy (PEA) is accompanied by a number of complications, which contribute to the high rate of early postoperative mortality. Markers allowing the early detection of infectious complication during the postoperative period may be of major clinical importance. The aim of the prospective study was to analyse a predictive value of 5 inflammatory markers to recognise inflammatory complications accompanying PEA before first clinical signs of infection.

METHODS. 92 patients with CTEPH underwent PEA using cardio-pulmonary bypass (CPB) and deep hypothermic circulatory arrest (DHCA) were included into study. Procalcitonin (PCT), tumour necrosis factor-α, interleukin (IL)-6, IL-8 and C-reactive protein arterial concentrations were measured before sternotomy and repeatedly to 72 h after the end of surgery. Hemodynamic parameters, infectious and non-infectious complications were recorded.

RESULTS. Postoperative course was uncomplicated in 69/92 patients (Group 1). 14/92 patients (Group 2) developed an infection in the first 3 days after surgery (bronchopneumonia, n = 9, bacterial sepsis, n = 5). 9/92 patients (Group 3) developed non-infectious complication in the same period. PCT and IL-6 were the only significant independent predictors of infection in days 1-3 after PEA. The area under ROC curve calculated for PCT to predict postoperative infection was 0.83 (95% CI, 0.74 to 0.92) compared with 0.74 (95% CI, 0.68 to 0.81) for IL-6. With the cut-off 2.3 ng/ml, the test characteristics of PCT were as follows: sensitivity 86%, specificity 83%, negative predictive value 92%, and positive predictive value 84%.

CONCLUSIONS. The increase in PCT and IL-6 may allow patients at increased risk of infection after PEA to be identified, allowing earlier institution of antibiotic treatment. These changes occur before infection can be detected clinically. This finding may make the daily monitoring of PCT post-PEA useful.