

Prognostic value of pulmonary vascular permeability index in surgical patients with sepsis

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Argomento: Altro

INTRODUCTION. Pulmonary vascular permeability index (PVPI) has been focused on as an indicator of mild ARDS. PVPI can be measured with PiCCO (Pulse-induced Contour Cardiac Output) monitoring.

OBJECTIVES. Presentation of prospective observational study of 3-years-duration aimed at investigating PVPI dynamics in development of pulmonary oedema in surgical patients with sepsis through PiCCO monitoring.

METHODS. Examined group: 50 patients (29 male, age 55 ± 11 yrs and 21 female, age 50 ± 10 yrs) after urgent abdominal surgery, with mild ARDS. Control group: 50 patients (28 male, age 46 ± 9 yrs and 22 female, age 45 ± 10 yrs) after urgent surgery, without mild ARDS. Diagnosis of sepsis was established both clinically and by laboratory, mild ARDS was defined by Berlin definition. All patients were mechanically ventilated and analgosedated with midazolam and sufentanil. PVPI measurements were obtained 3 times a day in the same 8-hours interval for 7 consecutive days through PiCCO monitoring. Concomitantly, lung compliance, oxygenation ratio and albumin levels were assessed. Both measured and calculated data were statistically processed using Smirnov-Kolmogorov test and independent T-test. Values of $P < 0.05$ were considered statistically significant.

RESULTS. From examined group, 21 patients died before day 28. There was no statistical difference in PVPI between examined and control group during first 72 hours. The average baseline PVPI was 1.8 ± 0.37 . After day 3, PVPI was significantly higher in non-survivors compared to survivors: 3.93 ± 0.72 vs. 1.90 ± 0.41 ; $P < 0.001$). PVPI was correlated to oxygenation ratio ($r = -0.400$; $P < 0.001$), lung compliance ($r = -0.643$; $P < 0.001$) and albumin levels ($r = -0.364$; $P < 0.001$).

CONCLUSIONS. Dynamics of PVPI could be used as an outcome indicator for surgical patients with mild ARDS in sepsis. PVPI correctly reveals the degree of pulmonary vascular permeability and levels of serum albumin. Reduction of PVPI in early treatment period was associated with better patient outcome.