Extended Abstract

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Diagnostic Values of Inflammatory Markers at PICU

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Abstract

Background: Sepsis is a major cause of mortality and morbidity and early diagnosis and timely use of antibiotic therapy is essential for life-threatening condition, at the newborns in PICU.

Objective: The aim of this study is to determinate the values of procalcitonin (PCT) on the outcome of patients in pediatric intensive care units (PICUs) and find out if these biomarker can be used to predict sepsis.

Methods: The study was designed as a retrospective and prospective, clinical, epidemiological investigation conducted in the period sixth months, which included 45 (M:F=25:20) newborns with two or three clinical signs of sepsis hospitalized in the Intensive Care Unit at the PHI University Clinic for Children Diseases-Skopje. The patient have been divided into two groups: I group included 31 septic newborns with negative blood culture and II group-14 septic newborns with positive blood cultures. Results of blood count (WBC), CRP and PCT, were recorded. Procalcitonin levels were measured by using a immunoassay system Vidas based on the Enzyme Linked Fluorescent Assay (ELFA) principles,at admission and 3-5 days after admission.The third measurement after 6-14 days.The new multiplex polymerase chain reaction–based rapid diagnostic test (BioFire FilmAray Blood Culture Identification (BCID) was used for determinate blood culture.

Results: Procalcitonin PCT levels at first 24 hours of the admission were increased in all 45 newborns (≥ 2 ng/mL). The values of C-reactive protein gradually increase after 12-36 hours at admission. The values of WBC increased at 31 newborns, except in 14 pediatric patients with severe sepsis the WBC were decreased (WBC counts <4000). The second measurement, after 3 days usage of an adequate antibiotic treatment, the levels of PCT is decreased, regardless of whether blood culture is positive or negative, except 5 patients develop severe sepsis, and three patients develop septic shock. After the third measurement (6-14 days) the levels of PCT and CRP is decreased. NIV was used in 39.8% patients and Invasive MV was used in 29.8% patients.Sensitivity of procalcitonin 83.5%, Specificity of procalcitonin 81.3%.

Conslusion: Procalcitonin (PCT)value is a early prognostic factor for sepsis. The PCT measurement may provide a more rapid means of ruling in or out sepsis provided before availability of blood culture results.The value of PCT of 2 ng/ml is a reliable parameter whether an appropriate antibiotic for the treatment is used,thus increasing newborns safety, reducing costs and reducing the development of antibiotic resistance.

Keywords: Sepsis; C-reactive protein; Procalcitonin PCT

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Biography

The tertiary care provides services for taking care of critically ill neonates and premature babies, especially the one that need mechanical ventilation in the intensive care, such as premature babies with respiratory distress, asphyxia, congenital malformations, critically ill with infection and all conditions that require intensive care support in the neonatal period as well as in pediatric age.

Special emphasis is put on the neonatal transport service that provides saving lives of all critically ill children all over the country and as a regional center in the countries abroad. It is into the system for flying in other countries for extra medical support and additional medical services.