Abstract

IG, IMI and NRBC as Parameters in Diagnosis of Sepsis and SIRS

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Systemic infectious diseases and subsequent organ failure account for a great portion of morbidity and mortality in modern intensive care environments. Over the last years dysregulation of the immune system has been recognized to play a crucial role in the development of overwhelming infections, organ failure and late mortality in ICU patients.

Measuring markers of systemic inflammation, infection and immunoparalysis such as humoral markers like cytokines or markers of cellular functionality such as monocytic HLA-DR has been of increasing interest in recent years. Studies have shown those markers to be of prognostic value concerning morbidity and mortality. The presence of immature granulocytes (IG), immature myeloid information (IMI), and nucleated red blood cells (NRBC) using the Sysmex XE-2100 E® Analyzer has been shown to be correlated with mortality and severity of illness in septic ICU patients. Patients suffering from sepsis displayed NRBC as opposed to patients suffering from model SIRS such as extracorporeal circulation and hyperthermia treatment and healthy controls.

The present observational study was designed to determine the prognostic value of IG, IMI and NRBC and their correlation with severity of illness as displayed by SAPS II and SOFA score. Well-established markers of inflammation and infection such as Interleukins 6, 10 as well as lipopolysaccharide binding protein (LBP) and Procalcitonin were measured on a daily basis. Cellular immunocompetence was assessed by measuring monocytic HLA-DR and TNF? after ex-vivo stimulation. A total of 130 consecutive patients of a 16-bed anesthesiological ICU with a minimum stay of 48 hours were included. Exclusion criteria were a stay shorter than 48 hours, malignant disorders of the hematopoetic system, immunosuppressive medication, treatment with colony-stimulating factors or interferons and patients after bone marrow transplantation. All patients were screened for infections and proven infections as defined by CDC criteria are recorded as well as the causative agents.