

Clin Chem Lab Med. 2006;44(8):955-61

Poor prognosis indicated by nucleated red blood cells in peripheral blood is not associated with organ failure of the liver or kidney

Stachon A, Holland-Letz T, Kempf R, Becker A, Friese J, Krieg M.

Institute of Clinical Chemistry, Transfusion and Laboratory Medicine, BG-University Hospital Bergmannsheil, Bochum, Germany

BACKGROUND: The appearance of nucleated red blood cells (NRBCs) in peripheral blood is associated with a variety of severe diseases. When NRBCs are detected in blood, this is generally associated with increased mortality. **METHODS:** In a prospective study, NRBCs and other laboratory parameters were measured daily in the peripheral blood of surgical intensive care patients. The appearance of NRBCs was analyzed in relation to laboratory indicators of organ injury. **RESULTS:** A total of 284 surgical intensive care patients were included in this study. The mortality of NRBC-positive patients was 44.0% (40/91). This was significantly higher ($p < 0.001$) than the mortality of NRBC-negative patients (4.2%, 8/193). Mortality increased with the NRBC concentration and the length of the NRBC-positive period. Multiple logistic regression analysis of several other clinical and laboratory risk indicators revealed a significant association between NRBCs and increased mortality, with an odds ratio of 1.95 (95% CI 1.35-2.82; $p < 0.001$) for each increment in NRBC category (0, 1-40, 41-80, 81-240 and >240 NRBC/ μmL). After the initial detection of NRBCs in blood, there were no significant increases in creatinine concentrations or alanine aminotransferase activity. However, the appearance of NRBCs coincided with increasing C-reactive protein and thrombocyte concentrations. **CONCLUSIONS:** The detection of NRBCs in blood of surgical intensive care patients is of prognostic power with regard to patient mortality. This prognostic significance of NRBCs was independent of some clinical and other laboratory risk parameters. The appearance of NRBCs in blood was not associated with kidney failure or lesion of the liver.

PMID: 16879060 [PubMed - indexed for MEDLINE]