Can leukocyte antisedimentaton rate (LAR) predict septic complications and critical care mortality early in polytrauma and burn victims?

Martin Rozanovic¹, Csaba Csontos¹, Lajos Bogár¹, Lívia Szélig¹, Tímea Bocskai¹, Patrícia Kovács¹, Marianna Matancic², Attila Miseta³, Csaba Loibl¹
¹University of Pécs, Clinical Center, Department of Anaesthesia and Critical Care
²University of Pécs, Clinical Center, 1st Department of Internal Medicine
³University of Pécs, Clinical Center, Department of Laboratory Medicine

Aim: To evaluate the predictive power of leukocyte antisedimentation rate (LAR), serum C-reactive protein (CRP) and procalcitonin (PCT) levels regarding mortality risk and development of septic complications in critical care trauma patients.

Methods: In a prospective, observational study, 36 patients were followed for 5 days (T1-T5) after admission (T1) to our critical care unit immediately after polytrauma (Injury Severity Score > 16) or burn injury affecting more than 20% of body surface area. In 11 patients septic complications developed, their LAR, serum CRP and PCT levels were analyzed before and after 3 days of sepsis was declared. Primary and secondary outcomes were septic complications and critical care death, respectively.

Results: LAR showed increasing tendency (p<0.001) in the observation period in the whole group. 10 patients died due to secondary infectious complications. In the survivor group LAR at T1 (p<0.001) and T2 (p<0.001) as well as CRP at T1 (p<0.05) were significantly higher compared to controls and deceased group. In the deceased group CRP elevation were detected from T2 only. In septic patients LAR (p<0.05) and CRP (p<0.05) showed a significant drop one day before sepsis was declared. PCT levels failed to predict the onset of septic complications.

Conclusions: Simple LAR test can predict septic complications and consequent death. Drop in LAR and serum CRP levels may be warning signs regarding the onset of septic complications which allow early therapeutic interventions.