

Acute Kidney Injury in Severe Trauma Patients: Clinical Presentation and Risk Factor Analysis

Authors : Inkyong Yi

Abstract : Acute kidney injury (AKI) in trauma patients is known to be associated with multiple factors, especially shock and consequent inadequate renal perfusion, yet its clinical presentation is little known in severe trauma patients. Our aim was to investigate the clinical presentation of acute kidney injury and its outcome in severe trauma patients at a level I trauma center. A total of 93 consecutive adult trauma patients with an injury severity score (ISS) of more than 15 were analyzed retrospectively from our Level I trauma center data base. Patients with direct renal injury were excluded. Patients were dichotomized into two groups, according to the presence of AKI. Various clinical parameters were compared between two groups, with Student's T test and Mann-Whitney's U test. The AKI group was further dichotomized into patients who recovered within seven days, and those who required more than 7days for recovery or those who did not recover at all. Various clinical parameters associated with outcome were further analyzed. Patients with AKI (n=33, 35%) presented with significantly higher age (61.4 ± 17.3 vs. 45.4 ± 17.3 , $p < 0.0001$), incidence of comorbidities (hypertension; 51.5% vs. 13.3%, OR 6.906 95%CI 2.515-18.967, diabetes; 27.3% vs. 6.7%, OR 5.250, 95%CI 1.472-18.722), odds of head and neck trauma (69.7% vs. 41.7%, OR 3.220, 95%CI 1.306-7.942) and presence of shock during emergency room care (66.7% vs 21.7% OR 7.231, 95%CI, 2.798-18.687). Among AKI patients, patients who recovered within 1 week showed lower peak lactate (4.7mmol/L , 95%CI 2.9-6.5 vs 7.3mmol/L , 95%CI 5.0-9.6, $p < 0.0287$), lesser units of transfusion during first 24 hours (pRBC; 20.4unit, 95%CI 12.5-28.3 vs. 58.9unit, 95%CI 39.4-78.5, $p=0.0003$, FFP; 16.6unit, 95%CI 6.8-26.4 vs. 56.1unit, 95%CI 26.9-85.2, $p=0.0027$). In severe trauma patients, patients with AKI showed different clinical presentations and worse outcomes. Initial presence of shock and higher DIC profiles may be important risk factors for AKI in severe trauma patients. In patients with AKI, peak lactate level and amounts of transfusion are related to recovery.

Keywords : acute kidney injury, lactate, transfusion, trauma

Conference Title : ICACCM 2017 : International Conference on Anesthesiology and Critical Care Medicine

Conference Location : Bangkok, Thailand

Conference Dates : December 18-19, 2017