Early RIFLE Criteria and Sepsis in Critically Ill Children

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Objective: We conducted a study to evaluate the incidence, risk factors and outcome associated with acute kidney injury in the first 24 hours after pediatric intensive care (PICU) admission.

Methods: Retrospective study based on the institutional database analyzing 1050 patients admitted from October, 1999 to January, 2005.

Results: Of 1050 patients were admitted, we excluded 78 patients with end stage kidney disease (ESKD). 190 patients (18%) had sepsis diagnosis and 21% had acute kidney injury diagnosis. Septic patients were stratified for acute kidney injury RIFLE criteria (risk of renal failure, injury to the kidney, failure and loss of kidney function, and end-stage kidney disease). 10% of patients were to the risk category, 8.9% to the injury and 2.6% to the failure. Septic acute kidney injury patients for risk, injury and failure had high length of stay (LOS) before PICU (P=0.00), high PICU and hospital length of stay (p=0.00), lower PaO$_2$ (P=0.005), pH$\leq$7.2 (P=0.01), lower hematocrit (P=0.00), high arterial blood pressure levels (P=0.00), high urea levels (P=0.00), lower base excess (P=0.00), high glucose levels (P=0.01), worse pulmonary function measures by arterial oxygen tension/fraction of inspired oxygen ratio (P=0.00) and use of vasoactive drug (P=0.00), compared with nonseptic. Septic AKI was also associated with high PIM1 and 2 scores and was associated with high hospital mortality (34% versus 24%; odds ratio 1.58, 95% confidence interval 0.8 to 3.11).

Conclusion: Septic acute kidney injury was frequent in the first 24 hs after PICU admission. It was associated with high biochemical abnormalities and mortality.

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