Predictive Factors of Acute Renal Failure in the Neonates with Respiratory Distress Syndrome

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Background: Preterm birth occurs in a large number of pregnancies, and its incidence has been reported to be on the rise. Acute kidney injury (AKI) is a common complication in the premature infants with respiratory distress syndrome (RDS). The present study aimed to determine the predictive factors, clinical courses, and outcomes of AKI in the neonates with the clinical and radiological manifestations of RDS.

Methods: Medical records of 84 premature neonates with RDS were evaluated in two groups of case (with AKI) (n=34) and control (without AKI) (n=50). Diagnosis of AKI was based on the increased level of serum creatinine (>1.5 mg/dL) after the third day of birth or increasing serum creatinine level. In addition, blood pressure and laboratory findings, including complete blood count, serum electrolytes, and urine volume, were compared between the two groups.

Results: Mean age of the infants with AKI was 5.41±3.29 days, and the majority of the patients had nonoliguric renal failure. Among the samples, 23.5% died, and 76.5% were discharged without renal impairment. Birth weight, systolic blood pressure, blood urea nitrogen, calcium, and pH on admission had significant correlations with the presence of AKI. Moreover, birth weight was observed to be a relatively accurate predictive factor for AKI (AUC=0.08; 95% CI=0.68-0.91), with 73.5% sensitivity and 80% specificity.

Conclusion: According to the results, AKI was more common in the low-birth-weight infants with severe RDS compared to the other subjects.

Keywords: Acute kidney injury, Creatinine, Kidney, Neonates, RDS

A clinicopathologic study of children with idiopathic focal segmental glomerulosclerosis

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There is little information about the clinicopathological correlations of focal segmental glomerulosclerosis (FSGS) in children. Renal biopsies of 46 patients with primary FSGS were reviewed between 1994 and 2015. Clinical and laboratory findings were evaluated at the time of renal biopsy. Totally, not otherwise specified (NOS) was the most common pathologic variant in 38 patients. There was no correlation between age, gender, serum protein, urine protein, hematuria, and steroid response with five distinct pathologic variants and histopathologic lesions. Hgb level had a negative correlation to the glomerular hyalinosis, mesengial hypercellularity, mesengial deposition, and glomerular volume. Renal dysfunction and blood pressure had a significant positive association with the extent of tubular atrophy, interstitial fibrosis, synechiae in Bowman capsule, arteriolar hyalinosis, mononuclear infiltration, atherosclerosis, glomerular hyalinosis, mesengial hypercellularity, mesengial deposition, and glomerular sclerosis. In conclusion, serum creatinine and blood pressure were the significant predictors of histopathologic lesions in children with primary FSGS.

Key words: focal segmental glomerulosclerosis; children, nephrotic syndrome, pathology