

URINARY BIOMARKERS OF ACUTE KIDNEY INJURY IN PEDIATRIC PATIENTS AFTER CARDIAC SURGERY.

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Acute kidney injury (AKI) is common in pediatric patients undergoing cardiac surgery and is associated with significant morbidity. A number of urinary biomarkers have been identified that promise to allow earlier detection of AKI, thereby facilitating earlier intervention and improved patient outcomes. We are recruiting pediatric patients undergoing cardiac corrective/palliative surgery in order to prospectively evaluate a panel of the most promising urinary biomarkers of AKI.

Twenty-one patients have been enrolled. Ten patients (48%) developed AKI using the pediatric RIFLE criteria; 7 (33%) met the *Risk* (estimated creatinine clearance [eCCL] decrease by 25%), 4 (19%) met the *Injury* (eCCL decrease by 50%), and no patients met the *Failure* (eCCL decrease by 75%) criterion. No patients required renal replacement therapy. Characteristics of patients with and without AKI are summarized in the Table, expressed as median (interquartile range).

| | No AKI | AKI | P-value |
|-----------------|-----------------|-----------------|---------|
| Age (months) | 52 (9 – 152) | 26 (5 – 39) | 0.25 |
| Baseline Cr | 0.4 (0.3 – 0.5) | 0.3 (0.3 – 0.3) | 0.07 |
| RACHS category | 2.5 (2 – 3) | 3 (2 – 3) | 0.22 |
| CPB time (mins) | 115 (98 – 140) | 101 (65 – 140) | 0.51 |
| Highest Lactate | 2.6 (1.8 – 3.0) | 2.9 (1.8 – 6.5) | 0.56 |
| TTE (hrs) | 16 (8 – 42) | 39 (19 – 60) | 0.10 |
| ICU LOS (days) | 2 (1 – 3) | 3 (2 – 5) | 0.22 |

Cr, creatinine; RACHS, Risk Adjusted classification for Congenital Heart Surgery; TTE, time to extubation; CPB, cardiopulmonary bypass; ICU LOS, intensive care unit length of stay

Given the high incidence of AKI, the ongoing study promises to yield important information regarding the utility of a biomarker panel in the early diagnosis of AKI. Biomarker assays will be performed as enrollment nears completion.