

## **NUTRITIONAL STATUS AND CARDIAC SURGERY ASSOCIATED ACUTE KIDNEY INJURY AND IMPACT ON PATIENT OUTCOMES**

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### **Keywords:**

**Background:** Malnutrition (MAL) and acute kidney injury (AKI) are common in children after undergoing surgery for congenital heart disease (CHD) and both have been independently associated with increased morbidity and mortality. The study aim was to assess the development of cardiac surgery associated AKI (CSA-AKI) in children admitted to the cardiac ICU (CICU) after surgery for CHD, and its impact on renal recovery and patient outcomes.

**Materials/Methods:** Retrospective study of children admitted for  $\geq 48$  hrs after surgery for CHD between 01/12 and 12/14. Complexity was according to Society of Thoracic Surgeons-European Association for Cardio-Thoracic Surgery (STAT) category, CSA-AKI was defined according to KDIGO creatinine criteria, persistent CSA-AKI was as CSA-AKI lasting  $\geq 48$  hours, renal recovery was resolution of CSA-AKI by post-operative day 5, and MAL defined according to WHO and CDC weight-for-age (WFA) z-score  $< -1$ . Multivariate analyses by logistic regression.

**Results:** A total of 735 children were enrolled (44% females), median (IQR) age 1.16 (0.38-4.87) yrs, weight 9 (5.6-17.9) kg, duration of mechanical ventilation (MV) 23.5 (8.2-37) hrs, CICU LOS 3 (2-6) days, hospital LOS 8 (5-12) days. The prevalence of MAL was 47.3%. CSA-AKI was 17.4% with a predominance of Stage 1 AKI (61%), persistent CSA-AKI was 2.5%; 97.5% of patients had renal recovery. Hospital mortality was 1.5%. When adjusting for STAT category there was a significant association between CSA-AKI and both cardiopulmonary bypass (CPB) time and age  $< 1$  yr: Odds ratio (OR) (95% CI) 2.2, (1.37-3.52),  $p=0.001$  and OR, 1.01 (1.00-1.01),  $p<0.0001$ ; respectively; there was not association with MAL and MV; OR, 0.94 (0.6-1.48),  $p=0.784$ , and OR, 1.00 (1.00 -1.00),  $p= 0.2605$ , respectively. When adjusting for STAT category, age, malnutrition, CSA-AKI and duration of MV, there was a significant association between mortality and both STAT category and CPB time: OR 7.54, (1.25-45),  $p=0.0275$  and OR, 1.01 (1.00-1.02),  $p=0.0217$ , respectively.

**Conclusions:** Malnutrition was common on admission for congenital heart disease surgery and almost 1 in 5 pts had acute kidney injury after cardiac surgery. By post-operative day 5 most patients exhibited renal recovery. Regardless of the presence of malnutrition or acute kidney injury overall mortality remained low.

**Images / Graph / Table:** No image uploaded