

RENAL REPLACEMENT THERAPY FOLLOWING PEDIATRIC CARDIAC SURGERY: A LOCAL REVIEW OF OUTCOMES AND RENAL RECOVERY

Nicholas Larkins¹, Peter Skippen², Gordon Krahn², Sanjiv Gandhi³, Andrew Campbell³, Cherry Mammen¹

¹University of British Columbia, Department of Pediatrics, Division of Nephrology, Vancouver, BC, Canada, ²University of British Columbia, Department of Pediatrics, Division of Pediatric Critical Care, Vancouver, BC, Canada, ³University of British Columbia, Department of Pediatrics, Division of Pediatric Cardiothoracic Surgery Nephrology, Vancouver, BC, Canada

OBJECTIVES: 1) Describe the outcomes of patients requiring renal replacement therapy (RRT) following cardiac surgery including mortality, duration of RRT and likelihood of renal recovery 2) Explore the potential predictors of renal recovery following RRT.

METHODS: We reviewed our PICU database for all patients between 2008-2013 who required cardiac surgery and received RRT post-operatively. A detailed chart review was then performed using a standardized data extraction form.

RESULTS: 1184 (3%) patients required RRT following cardiac surgery. The median age and weight at surgery was 66 days and 4.29 kg respectively. 28/37 (76%) patients received PD, 5/37 (14%) continuous renal replacement therapy (CRRT), and 4/37 (10%) both during their admission. 16/37 (43%) required ECMO post-operatively. The overall mortality rate was 32% (12/37) and was significantly higher in patients requiring ECMO (10/16, 62%). 10/37 (27%) patients failed to recover renal function, all of whom died. In patients who recovered function the median length of RRT was 5 days with a maximum of 19 days (Figure). The following variables were significantly associated with a failure to recover renal function: lowest diastolic pressure intra-operatively, number of blood transfusions, post-operative chest compressions, requirement of ECMO, suspected or confirmed necrotizing enterocolitis, re-intubation and re-initiation of inotropes ($p < 0.05$).

CONCLUSIONS: RRT following cardiac surgery in the pediatric population is a relatively uncommon event, but carries a high mortality. Our local results suggest that the majority of patients recover renal function before 2 weeks. Confirmation in larger cohorts is needed before reliable prognostication can be made.