

Prevalence of Post-operative Acute Kidney Injury (AKI) in Children Following Cardiac Surgery with Cardiopulmonary Bypass

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Objective: To observe and identify potential risk factors for the development of AKI and their incidence rate.

In this prospective observational study, 143 children were studied post cardiac surgery in order to observe for biomarkers of AKI. The primary endpoint for this prospective trial was to assess the incidence of acute kidney injury in pediatric patients undergoing cardiac surgery with cardiopulmonary bypass. Secondly we wished to examine the risk factors associated with the development of AKI in pediatric post cardiac surgery patients and to assess outcomes in patients who develop AKI postoperatively, with regards to hospital stay, need for mechanical ventilation, inotropic support and in-hospital mortality. Acute kidney injury was found to develop in 25.2% of the study population. Most commonly affecting the younger children especially infants with lower preoperative weight and lengths. Intraoperatively a longer duration of surgical procedure and cardiopulmonary bypass times were associated with AKI. Post operatively, use of drugs with nephrotoxic potential, greater cumulative negative fluid balances and especially the development of sepsis and pump failure were significantly associated with AKI development. AKI was also associated with poorer outcomes with regard to longer ICU and hospital stays and need for prolonged ventilation. Thus AKI is an important factor to consider in a child undergoing cardiac surgery with cardiopulmonary bypass. Children at higher risk should be actively identified and monitored more vigorously. Appropriate and timely action for its prevention and treatment in the event of its development should be instituted for better outcomes.