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## **Preoperative Steroids in the Prevention of Post Cardiopulmonary Bypass-Associated Acute Kidney Injury**

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**Objectives:** Cardiac surgeries such as cardiopulmonary bypass (CPB) are life-saving procedures that have decreased the mortality from cardiovascular diseases however this procedure can induce systemic inflammatory responses and could lead to acute kidney injury (AKI). This has become an obstacle in the complete recovery of patients undergoing CPB. Several studies have been conducted to prevent or decrease the inflammatory response during CPB and some of these included the use of steroids. With various trials done to identify the effect of steroids among patients undergoing CPB, this meta-analysis aims to determine the effect of preoperative steroids in preventing AKI among patients undergoing CPB.

**Methods:** A meta-analysis of 8 randomized controlled trials were analyzed to determine prevention of acute kidney injury. This included an intervention of preoperative steroids vs placebo given to patients undergoing cardiopulmonary bypass.

**Results:** A total of 6258 participants received preoperative steroids prior to initiation of cardiopulmonary bypass while a total of 6286 participants received placebo. Several steroids such as dexamethasone, methylprednisolone, and bethamethasone were used in the various trials. For the steroid group, 2.88% of patients developed acute kidney injury while 3.4% of patients developed AKI in the control group.

**Conclusions:** Acute kidney injury is just one of the possible complications after performing a cardiopulmonary bypass. It is believed that the development of systemic inflammation contributes to AKI. Steroids have been used in decreasing systemic inflammation in several diseases and these have successful outcomes. In CPB, however, there have been conflicting results in the prevention of AKI. In this meta-analysis, the incidence of AKI was lower among patients, who received preoperative steroids, however the overall study was not significant to conclude the benefit of preoperative steroids in preventing AKI after performing CPB. It is suggested that additional research and study population be conducted.

Figure 1. Events of acute kidney injury

  
**KSN 2021**  
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