

The Reno - Protective Effect of Intraoperative Dexmedetomidine Infusion in Elective Coronary Bypass Graft Surgery

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Abstract: The Reno - Protective Effect of Intraoperative Dexmedetomidine Infusion in Elective Coronary Bypass Graft Surgery

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Background: Acute kidney injury (AKI) is a common and serious complication after cardiac surgery which increase morbidity and mortality. Dexmedetomidine has significant sympatholytic properties and ameliorating stress response. We hypothesized that dexmedetomidine can prevent acute kidney injury in patients undergoing elective CABG. **Methods:** This study was double-blinded, randomized controlled trial. Elective CABG patients with normal renal function were allocated

to dexmedetomidine (dexmed) or placebo group. The drugs were bolus at 0.5 mcg/kg in 20 minutes and infused at 0.4 mcg/kg/hr until the end of the operation. Anesthetic and surgical technique was similar in both groups. Serum creatinine, plasma NGAL and urine NGAL were collected and compared at 0, 6, 24 hours. **Results:** Total of 20 patients were enrolled and randomized into dexmed group (n = 10) and control group (n = 10). There were no differences in patient characteristic data. Serum creatinine

and urinary NGAL at 6 and 24 hours were not significantly different between groups. Plasma NGAL in dexmed group was significantly less than control group at 6 and 24 hours (149.5 vs 291.4; $p = 0.016$ and 118.5 vs 201.5; $p = 0.004$). Moreover, dexmed group had significantly higher urine output throughout the operation

(4.5 vs 2.4 ml/kg/hr.; $p = 0.011$). At 24 hours, we found AKI in 3 patients in the control group but none in the dexmed group ($p = 0.06$). **Conclusion:** We demonstrated that dexmedetomidine reduced AKI in elective CABG patients when using NGAL as a biomarker. We also found that dexmedetomidine helps promoting urine output.

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