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Comparative Study of Dopamine and Mannitol Effects on Renal Function During Cardiopulmonary Bypass by Using N-acetyl-β-D-glucosaminidase Assay

Onur DURAL[1]
Asuman ÖZKARA[2]
Bilge ÇELEBİOĞLU[1]
Meral KANBAK[1]
Gönenç CİLİV[2]
Ülkü AYPAR[1]
Departments of [1]Anesthesiology, [2]Biochemistry,
Faculty of Medicine, Hacettepe University,
06100, Ankara-Turkey

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Authors

medsci@tubitak.gov.tr

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Abstract: The protective roles of low-dose dopamine and mannitol infusion in the renal function of patients undergoing cardiovascular surgery were compared in 36 patients by measuring urine N-acetyl-β-D- glucosaminidase activity, serum and urinary creatinine, blood urea nitrogen (BUN) levels and urine output. The patients were randomly selected and received a continuous infusion of dopamine, 3 µg/kg/min (Group I), mannitol, 1 mg/kg/h (Group II), no medication (Group III) before the induction of anaesthesia. Urine N- acetyl-β-D-glucosaminidase activities, serum and urinary creatinine and BUN were determined preoperatively after aortic cross- clamping, and on the first and second postoperative days. Changes in urine N-acetyl- β-D-glucosaminidase activity or serum and urinary creatinine, and BUN levels were not statistically significant ($p>0.05$) between different groups. Our results revealed that, for the protection of renal function during cardiopulmonary bypass, on comparison, the prophylactic use of "low-dose" dopamine or mannitol did not display any marked superiority.

Key Words: Kidney: function. Enzyme: N- acetyl-β-D-glucosaminidase. Pharmacology: dopamine, mannitol. Surgery: cardiopul- monary bypass

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