#1924 - The Protective Effect of Losartan Against Kidney oxidative damage and Angiotensin II Expression in Rats with Unilateral Ureteral Obstruction (UUO)

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Body

Introduction: Renin-angiotensin system (RAS) plays a critical role in induction of kidney damage after ureteral obstruction. Thus, RAS inhibition can possibly ameliorate kidney dysfunction in patients with obstructive nephropathy. Unilateral ureteral obstruction (UUO) is a good experimental model for evaluation of pathophysiologic events in obstructive kidney. In the present study, the effect of losartan against kidney damage following UUO was evaluated in rats.

Method: 30 male albino Wistar rats were randomly divided into 3 groups: 1- sham-operated, 2- UUO, 3- losartan (15 mg/kg)+UUO. At the 4^{th} day of the experiment, the animals were anaesthetized with ketamine (70 mg/kg) and xylazine (7 mg/kg). Then, the abdomen was opened with a midline abdominal incision and the left ureter was ligated with 4-0 silk at two points and was cut between the ligatures to prevent urinary tract infection. The administration of losartan was initiated since the first day and was continued for two weeks after UUO. In sham-operated animals, laparotomy without ureteral ligation was performed. At the last day of the experiment, blood sample was collected from orbital sinus and the left kidneys were quickly removed. Renal expression of angiotensin II was detected by immunohistochemistry. Serum concentrations of urea and creatinine were determined.

Results: The results showed very weak expression of Ang II in renal tissues of the sham-operated animals. However, two weeks UUO significantly enhanced the expression of Ang II

in obstructed kidneys compared with sham group. Treatment of obstructed rats with losartan caused a significant decrease in renal Ang II expression when compared with UUO group. UUO caused a significant increase in renal MDA concentration and a significant decrease in total thiol content compared with the sham-operated animals. However, treatment of obstructed rats with losartan significantly reduced tissue lipid peroxidation as compared with the UUO group. Also, treatment of ureteral obstructed rats with losartan significantly attenuated the total thiol concentration in comparison with the UUO group.

Conclusions: The current study suggests the important role of angiotensin II in induction of kidney damage following ureteral obstruction. Therefore, RAS inhibition is possibly a good strategy for treatment of patients with obstructive nephropathy.

Keywords: Unilateral Ureteral Obstruction, Renin-Angiotensin System, Losartan

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