

## PP-025

### The effect of curcumin on renal function alterations following reversible unilateral ureteric obstruction in the rat

F.T. Hammad, L. Lubbad

*Faculty of Medicine and Health Sciences, United Arab Emirates University, Al Ain, United Arab Emirates*

**Introduction:** Few studies addressed the effect of curcumin on the obstructed kidney. However, its effect on the renal hemodynamic and tubular functions was not studied previously. Thus, the aim of this study was to investigate the effect of curcumin on the alterations in renal functional parameters following reversible unilateral ureteric obstruction in the rat.

**Methods:** Male Wistar rats underwent reversible left ureteric obstruction for 72 hours. Group Cm (n=7) received oral curcumin (200 mg/kg/day) dissolved in a vehicle, starting 5 days before and continued throughout the period of obstruction. Vx group (n=8) received the vehicle only. The renal functions were studied using clearance techniques, 3 days following the reversal of obstruction. Serum TNF- $\alpha$  was measured pre- and post-obstruction.

**Results:** The basal heart rate and mean arterial blood pressure were comparable among the 2 groups. The post-obstruction level of TNF- $\alpha$  was significantly higher than the pre-obstruction levels in both the Vx (27.9 $\pm$ 5.4 vs. 2.4 $\pm$ 0.2, P=0.005) and Cm (12.7 $\pm$ 2.3 vs. 2.1 $\pm$ 0.2, P=0.012) groups. However, the post-obstruction TNF- $\alpha$  in the Cm group was significantly lower than the Vx group (12.7 $\pm$ 2.3 vs. 27.9 $\pm$ 5.4, P=0.047).

In the Vx group, the glomerular filtration rate, renal blood flow, urine volume and urinary sodium excretion in the left obstructed kidney were significantly lower than those in the right kidney (0.60 $\pm$ 0.12 vs. 1.23 $\pm$ 0.15, 4.98 $\pm$ 0.46 vs. 7.17 $\pm$ 6.4, 11.5 $\pm$ 1.3 vs. 20.9 $\pm$ 3.1 and 2.7 $\pm$ 0.6 vs. 5.3 $\pm$ 1.0, respectively (P<0.05 for all variables). However, there was no significant difference in the fractional excretion of sodium between the two kidneys (1.7 $\pm$ 0.4 vs. 1.5 $\pm$ 0.2, P=0.64). The left kidney in the Cm group behaved similar to the Vx group. Furthermore, there was no difference in any variable when comparing the right and left kidneys among the groups.

**Conclusions:** The administration of curcumin during a relatively long period of reversible unilateral ureteric obstruction appears to have no significant protective effect on the haemodynamic and tubular glomerular functions when measured as early as 3 days following the reversal of obstruction despite the amelioration in some of the indicators of renal injury.

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