

Oltipraz Attenuates Renal Fibrosis Induced by Unilateral Ureteral Obstruction in Mice.

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OBJECTIVES

Renal fibrosis plays an important role in progression of chronic kidney disease. Recent study showed that nuclear factor E2-related factor 2 (Nrf2) activation increases glomerular filtration rate in diabetic patients. It is known that oltipraz, Nrf2 activator reduces oxidative stress, inflammation and fibrosis in various animal model including liver cirrhosis. We investigated whether oltipraz attenuate renal fibrosis induced by unilateral ureteral obstruction (UUO) in mice.

METHODS

Male C57BL/6 mice (8 weeks old, 24-26g) were divided into 4 groups; sham operated mice, oltipraz-treated sham mice (10mg/kg, intraperitoneal injection daily), untreated UUO mice, and oltipraz-treated UUO mice. We measured renal expressions of HO-1 and Nrf2 1 week after UUO surgery. Light microscopic examination of obstructed kidneys and immunohistochemistry for TGF- β and SMA were performed for the evaluation of renal fibrosis 1 week after UUO.

RESULTS

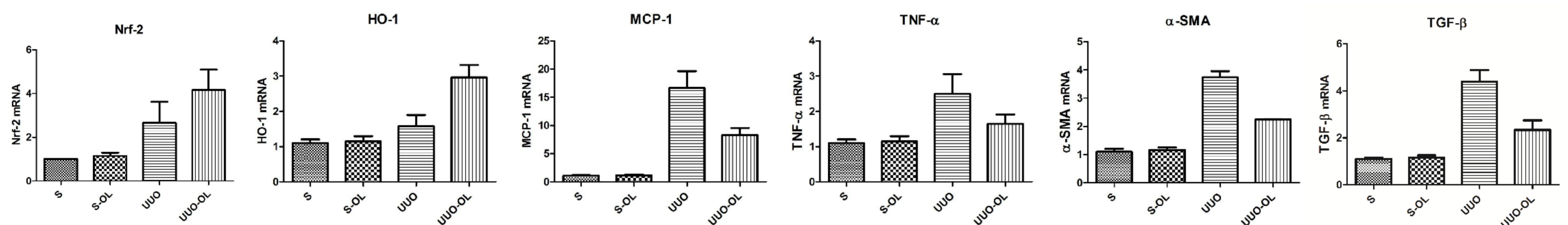


Figure 1. Renal gene and protein expressions of Nrf2 and HO-1 in oltipraz-treated UUO mice were significantly higher than those of sham operated and UUO mice. The levels of MCP-1, osteopontin (OPN), TGF- β and α -SMA mRNA expression of oltipraz treated UUO mice were significantly lower than those of untreated UUO mice

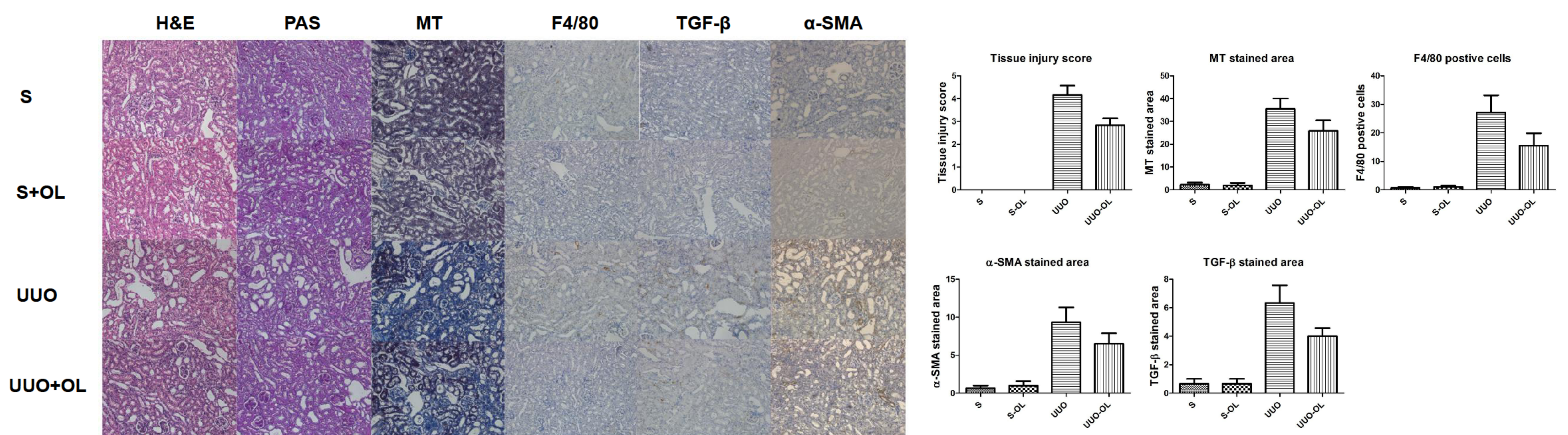


Figure 2. Oltipraz decreased significantly tubular injury score, Masson Trichrom stained area, and the expressions of TGF- β and α -SMA in immunohistochemistry compared to untreated UUO mice kidney. Renal F4/80 positive cells in oltipraz treated UUO mice kidney were significantly lower than that of untreated UUO mice kidney

CONCLUSIONS

In conclusion, the results of the present study suggest that oltipraz attenuates renal fibrosis induced by unilateral ureteral obstruction in mice.

