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Title: Protective effects of naringin against acute renal failure in rats

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ABSTRACT

To investigate the effect of naringin on acute renal failure, we used a rat model of acute tubular necrosis induced by glycerol. After deprivation of water for 24h, the rats received an injection with 10ml/kg body weight of 50% glycerol into the muscle of the rear limb. Naringin was then administered orally to the experimental rats (300mg/kg body weight/day). The rats with acute renal failure (ARF) showed arrested body weight gain and an increase in the kidney weight ($P<0.05$ for each), whereas administration of naringin attenuated the physiological changes induced by acute renal failure. However, significant improve was observed in the marked elevated levels of blood urea nitrogen and creatinine in ARF group ($P<0.05$ for each). Histological examination of the kidney sections taking from ARF group showed kidney tubules injury and a massive deposition of myoglobin in the tubules lumen, flattened epithelial cells, degenerated epithelial cells, detached cells in the lumen of the renal tubules and hemorrhagic changes. Also, the immunostaining of myoglobin and proliferating cell nuclear antigen, (PCNA) were strongly positive in ARF rats, but the weak positive stain was observed in ARF rats treated with naringin. The present study suggested that naringin has a protective action in rats injured by nephrotoxic agents, i.e. Glycerol and improves renal function in rats with ARF. From these findings, it is concluded that naringin may be a useful therapeutic agent for ameliorating ARF and possesses a better potential to counteract this oxidative stress.

Keywords: Naringin, acute renal failure, nephrotoxic agents