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The protective effect of rutin against renal toxicity induced by lead acetate

Abstract

Flavonoids are known to have powerful antioxidant activity that could play a protective role in oxidative stress-mediated diseases. Rutin (RT) is a flavonol glycoside composed of the flavonol quercetin and disaccharide rutinose. The protective effect of RT against nephrotoxicity induced by lead acetate was evaluated. Male albino rats of Wistar strain were used in this study. Animals were given lead acetate after a week of pretreatment with RT (50 mg/animal/day). Lead acetate exposure resulted in an increase in the uric acid, creatinine (CRN) and blood urea nitrogen (BUN) levels and a decrease in glutathione, superoxide dismutase, catalase and glutathione peroxidase (GPx) activities. Lead acetate treatment decreased GSH levels by 2-fold and the activities of GSH metabolizing enzymes decreased to a range of 2–2.5-fold in renal tissue ($p < 0.05$). These changes were reversed significantly in animals receiving pretreatment of RT. Treatment of rats with RT prior to the treatment with lead resulted in the recovery of reduced levels of GSH, GSH-metabolizing enzymes to almost 85–90%. RT has a beneficial impact on lead-induced toxicity due to its scavenging and antioxidant effect in rats.