Vitamin C, N, N-diphenyl-p-phenylenediamine and L-Cysteine Ameliorate the Pathological and Oxidative Stress-induced by Cisplatin in the Kidneys of Male Rats

Hossam M Omar, Sary Kh Abd-Elghaffar, Emad A. Ahmed, Sohair M.M. Ragab, Ahmed Y. Nasser

Abstract:

Cisplatin (CP) is a chemotherapy drug that is given to treat cancer. Oxidative stress has been proven to be involved in CP-induced nephrotoxicity. The present study was done to evaluate the role of Vit C, DPPD and L-cysteine (L-Cys) as antioxidants in the protection against CP-induced nephrotoxicity. Forty rats were divided into control and 4 treated groups injected with CP (8 mg/kg). Group 1 positive control, G2, G3 and G4 were treated with Vit C (100 mg/kg), DPPD (125 mg/kg) and L-Cys (100 mg/kg) respectively. Histopathological examinations revealed severe degenerative and necrobiotic changes in renal tubules and glomerulei of GI. These changes became mild in the other groups. The biochemical results indicated a significant increase in plasma urea and creatinine in GI. Lipid peroxides, total peroxides, superoxide anion levels and DNA fragmentation were significantly increased, however, the enzymatic antioxidant activities and the contents of non-enzymatic antioxidants were decreased compared with the control rats. Administration of Vit C, DPPD and Lcys with CP counteract the changes in oxidative stress markers in renal tissues of treated rats with CP. The present results conclude that DPPD, Vit C and L-Cys ameliorate the pathological and oxidative stress-induced by CP in the kidneys of male rats.

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