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Document Title : *EFFECT OF COENZYME Q10 ON ACUTE NEPHROTOXICITY OF CISPLATIN IN EXPERIMENTAL ANIMALS*

تأثير المرافق الإنزيمي كيو ١٠ على التسمم الكلوي الحاد الناتج عن السسبلاتين في الجرذان

Document Language : Arabic

Abstract : Cisplatin (cis-diamminedichloroplatinum (II)) is an effective agent against various types of solid tumors as testicular and ovarian carcinomas. Despite of its effectiveness, the dose that can be administered is limited by its nephrotoxicity. The purpose of this study was to examine the role of coenzyme Q10 in the prevention of cisplatin induced nephrotoxicity. In this study, adult male Sprague-Dawley rats were divided into four groups. Group 1: rats were injected with a single dose of cisplatin (7.5mg/kg). Group 2: rats were trated with coenzyme Q10 (125mg/kg) orally for 5 consecutive days. Group3: rats were treated with coenzyme Q10 as group 2 followed by the injection of cisplatin as in group 1. Group 4: rats were used as a control and treated with oil orally for the same time interval. The rats were killed 48h after cisplatin injection. Blood samples were collected and kidneys were isolated and homogenized for assessment of biochemical parameters. The results of this study showed that 48h after administration of cisplatin produced significant decrease in total body weight compared to the day before cisplatin injection whithout significant change in relative kidney weight. A significant elevation in BUN, creatinine and total thiol level was produced by single dose of cisplatin compared to normal control group. In addtion, tissue lipid peroxide, reduced glutathione and oxidized glutathione were significantly eleveted in cisplatin treated group. On the other hand, catalase and glutathione peroxidase activities in kidney tissue were significantly decreased by cisplatin. The level of tissue nitric oxide was significantly decreased with non significant change in its serum nitric oxide was detected after cisplatin administration. Treatment with coenzyme Q10 for 5 days before cisplatin prevented the decrease in body weight resulted in cisplatin treated group. Coenzyme Q10 ameliorated the increase in tissue lipid peroxide, reduced and oxidized glutathione as well as total thiol level. Moreover, the combination treated group showed that a significant increase in catalse activity compared to cisplatin treated group. In summary, oxidative damage as well as nitric oxide may be involved in the mechanisms of cisplatin-induced nephrotoxicity. The use of coenzyme Q10 in therapeutic dose my be beneficial since it confers some protection against this toxicity. This may attributed to its antioxidant properties.

Supervisor : د/ سامية بنت عبدالسميع شومان .د/ هناء بنت محمد قشلان

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