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Biochemical and Histopathological Assessment of Zinc Acetate-Induced Nephrotoxicity in Male Albino Rats

ABSTRACT

Despite the fact that zinc is recognized to be less hazardous than other heavy metals, e.g., cadmium, lead, mercury, and arsenic, it may cause acute and chronic toxicities in cases of exposure to high doses. To investigate the biochemical and histopathological toxic effects of zinc acetate on rats kidneys. Twenty-five healthy male albino rats were divided into five equal groups: Normal saline solution was given to the control group; groups 2, 3, 4, and 5 received zinc acetate (4, 8, 12, and 24 mg/kg), respectively. All the treatments were given intraperitoneally once every other day for 3 consecutive weeks for serum biochemical evaluation and renal histopathological assessment. There was a significant increment in serum urea concentration in group 5 in comparison with other groups, but there was no significant difference in creatinine concentration between all of the groups ($P \leq 0.01$). Histopathological examination of kidney sections of rats of different groups revealed different lesions that were more severe in the 4th and 5th groups. In conclusion, subacute zinc acetate toxicity produced dose-dependently significant effects on serum urea concentration in all the treated groups without any significant effects on creatinine concentration. This effect was reflected in renal histo-architecture, which was more severe in the 4th and 5th groups.