

Effect of zinc pretreatment on mercuric chloride-induced lipid-peroxidation in the rat-kidney

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摘要

Abstract

The effect of zinc on mercuric chloride-induced lipid peroxidation in the rat kidney was investigated. The rats received zinc acetate (2.0 mmol/kg, po) for 2 days before being given mercuric chloride (15 μ mol/kg, sc) and were killed 6, 12, and 24 hr after the last injection. Lipid peroxidation occurred in the rat kidney 12 hr after mercury administration, and this mercury-induced lipid peroxidation was significantly reduced by zinc pretreatment. A decrease in vitamin C and E contents in the kidney was observed 12 hr after the administration of mercury, and this decrease was prevented by zinc pretreatment. In the kidney of rats pretreated with zinc, the activities of the protective enzymes, glutathione peroxidase and glucose-6-phosphate dehydrogenase, were increased after mercury injection. Non-protein sulfhydryl content (mostly glutathione) also rose markedly. The results indicate that zinc not only induces metallothionein, but also increases protective enzyme activities and glutathione content, which would tend to inhibit lipid peroxidation and suppress mercury toxicity.