

ACUTE AFLATOXICOSIS IN THE RATS PRETREATED WITH CORTISOL
AND OVRAL-28

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ABSTRACT

Daily s.c. injection of cortisol at various doses (1.0, 2.5, 5.0 and 10.0 mg/kg BW) for 7 consecutive days caused an enhanced effect on aflatoxin B₁ (3.0 mg/kg BW) induced hepatic necrosis. At high doses of cortisol (5.0 and 10.0 mg/kg BW) pretreatment, AFB₁ produced a marked increase in mortality rate by 60 and 80% respectively within 48 hours. Its enhanced effect on hepatotoxicity of AFB₁ treatment, cortisol (10.0 mg/kg BW) enhanced AFB₁-induced hepatotoxicity by raising the activity of PGPT to 5.8 folds, PGOT to 7.8 folds and liver triglyceride to approx. 2.0 folds. Cortisol also significantly increased the activity of aniline hydroxylase from 6.34 ± 0.42 to 10.66 ± 1.05 μg p-aminophenol formed/20 min/g liver ($P < 0.01$) and slightly decreased the activity of p-nitroanisole-o-demethylase from 4.64 ± 0.49 to 3.42 ± 0.30 μmoles p-nitrophenol formed/20 min/100 mg protein ($P < 0.05$), but it could not induce any change in the activity of NADPH cytochrome c reductase or hepatic GSH content. However, cortisol seemed to have an interesting action to increase AFB₁-induced hepatic lipid peroxidation from 48.60 ± 4.82 to 134.11 ± 12.80 μg MDA/g liver ($P < 0.005$). It is possible that cortisol pretreatment causes an increase in AFB₁ active metabolite (AFB₁-2, 3-epoxide) formation resulted from an elevation of mixed function oxidases

which leads to membrane damage of endoplasmic reticulum, mitochondria, and lysosomes by lipid peroxidative process. In contrast, oral administration of 100 μ g Ovrail-28 for 16 consecutive days prior to a single i.p. administration of AFB₁ (3.0 mg/kg BW) did not change the severity of hepatic necrosis induced by AFB₁