

Effects of β -carotene on antioxidant status in rats with chronic alcohol consumption

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Abstract

This study examined the effects of β -carotene on antioxidant status in rats with chronic alcohol consumption. At the beginning of experiment (week 0), according to both the plasma aspartate aminotransferase (AST) and alanine aminotransferase (ALT) activities, rats (n = 24) were divided into 3 groups and fed with a standard diet (group C), a diet containing ethanol (group E), or a diet containing ethanol and β -carotene (group E+B). After 10 weeks, plasma AST and ALT, fat accumulation in the liver, antioxidant enzyme activities in erythrocytes and the liver, malondialdehyde (MDA), and α -tocopherol and retinol in plasma and hepatic samples were analyzed. The chronic alcohol diet significantly increased AST and ALT levels in plasma, and these changes were prevented by supplementing the diet with β -carotene. Glutathione (GSH) in erythrocytes and in the liver was significantly elevated in rats fed with a diet containing β -carotene. The results indicate that β -carotene supplementation can prevent ethanol-induced liver damage and increase GSH concentrations in erythrocytes and the liver.