# Effects of beta-carotene on cell viability and antioxidant status of hepatocytes from chronically ethanol-fed rats

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## Abstract

The purpose of the present study was to evaluate the effects of beta-carotene on the cell viability and antioxidant status of hepatocytes from chronically ethanol-fed rats. Rats in the ethanol group were given an ethanol-containing liquid diet that provided 36 % of total energy as ethanol, while rats in the control group were fed an isoenergetic diet without ethanol. After 4 weeks, hepatocytes were taken out and cultured for 24 h. Hepatocytes from the rats in the control and ethanol groups werecultured in medium without (HC, HE) or with beta-carotene (HC+B, HE+B). The results showed that lactate dehydrogenase leakage was significantly increased in the HE compared with that in the HC group. However, lactate dehydrogenase leakage of the HE+Bgroup was similar to that of the HC group. When compared with the HC group, activities of glutathione peroxidase and catalase in the HE group were significantly decreased by 54 and 31 %, respectively. Catalase activity in the HE+B group was significantly increased by 61 % compared with that in the HE group. However, activities of glutathione reductase and superoxide dismutase showed no difference among the groups. The level of glutathione in the HC+B and HE+B groups was significantly increasedto 155 and 143 % compared with those in the HC and HE groups, respectively. The concentration of lipid peroxides showed no difference among the groups. The present results demonstrate that beta-carotene improved the cell viability of hepatocytes, andincreased catalase activities and glutathione levels in hepatocytes from chronically ethanol-fed rats.