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Protective effect of IGF-1 on experimental liver cirrhosis-induced common bile duct ligation

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Abstract

Background/Aims: The causes of malnutrition in liver cirrhosis are multifactorial. Levels of IGF-1 (insulin like growth factor-1) that is a crucial regulator of intermediary metabolism decreases. The aim of this study was to analyze the effect of IGF-1 supplementation during liver cirrhosis induced by common bile duct ligation.

Methodology: Rats were divided into five different groups: One sham and four experimental groups. Rats in three of four groups were treated with 2mug/day IGF-1 with a different time of experiment in each group. Blood biochemical parameters, tissue malondialdehyde, glutathione levels and the activity of tissue antioxidant enzymes and conventional and immunohistochemical analysis of liver samples were studied for each group.

Results: Serum albumin, total protein, fibrinogen levels decreased and prothrombin time was prolonged in the bile duct ligated and transected experimental group but not in the IGF-I treated rats compared with the rats in sham group. Liver malondialdehyde levels significantly increased in control group but not in IGF-1 treated groups. The activities of antioxidant enzymes were decreased compared with the other groups. Histopathology findings of liver biopsy demonstrated intense degree fibrosis and overexpression of fibroblast growth factor and desmin in the control group but a lesser degree of those in the IGF-1 treated groups.

Conclusions: IGF-1 treatment improves liver function and decreases oxidative liver damage and histopathological findings. Further studies are required to delineate the mechanisms of protective effects of IGF-1.

Keywords

Author Keywords: IGF-1; liver cirrhosis; FGF; desmin; MDA; GSH; SOD; catalase; Gpx

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