PROTECTIVE ROLE OF CURCUMIN AGAINST DIMETHYLNITROSAMINE INDUCED HEPATIC FIBROSIS IN RATS

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Hepatic fibrosis is characterized by deposition of connective tissue components especially collagen in the liver. Curcumin, a polyphenol present in the rhizome of the plant *Curcuma longa*, is a naturally occurring phytochemical widely used in India as an anti-inflammatory agent. In the present investigation, we have studied the protective effect of curcumin against the decreased antioxidant status and accumulation of lipid peroxides in dimethylnitrosamine (DMN) induced hepatic fibrosis in rats. The liver injury was induced by intraperitoneal injections of DMN on three consecutive days of each week over a period of three weeks. The experimental animals were divided into two groups, one group received curcumin orally prior to injection. Various enzymatic antioxidants such as superoxide dismutase, catalase, glutathione peroxidase, glutathione-s-transferase and copper oxidase were studied in blood cell lysate as well as in liver samples on days 7, 14 and 21 in all groups after the start of the exposure. The major nonenzymatic antioxidants viz. glutathione, ascorbic acid; vitamin E, selenium and protein sulphydryl groups were also estimated in serum and liver tissue of both DMN and curcumin treated animals. The decreased activity of free radical scavenging enzymes such as superoxide dismutase, catalase, glutathione peroxidase, glutathione-s-transferase and copper oxidase, in DMN treated animals were returned to the normal level during concurrent administration of curcumin. Similarly, curcumin administration significantly enhanced the levels of most of the nonenzymatic antioxidants almost to the normal level. The rate of lipid peroxidation and collagen accumulation were also significantly reduced in curcumin treated animals when compared to the DMN administered group. The results suggest the protective role of curcumin against oxidative stress and free radical induced tissue injury in DMN induced hepatic fibrosis. In conclusion, curcumin may be used as an antifibrotic agent for the prevention of alcohol induced liver damage.

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