LYSOSOMAL FRAGILITY IN DIMETHYLNITOSAMINE INDUCED LIVER INJURY IN RATS

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The stability and integrity of lysosomal membrane is important in the maintenance of normal levels of lysosomal enzymes in tissues and body fluids. Increased lysosomal fragility can lead to changes in cellular and tissue metabolism. We have studied the alterations of liver lysosomal stability in dimethylnitrosamine (DMN) induced hepatic fibrosis in adult male albino rats. The β-glucuronidase levels were measured in the serum as well as in liver subcellular fractions after induction of hepatic fibrosis. The rate of release of β-glucuronidase at various time intervals at 37°C from lysosome rich fraction was taken as a measure of lysosomal membrane stability. The effect of DMN on lysosomal stability was also studied on control rat liver lysosomes. A significant raise was recorded in the β-glucuronidase levels in the serum, liver tissue and in all subcellular fractions except in the nuclear fraction. The rate of release of β-glucuronidase exhibited significant increases at various time intervals on all days. The maximum lysosomal fragility was recorded on day 21 after the start of DMN administration. In vitro studies demonstrated that DMN has no significant effect on liver lysosomal membrane stability. The results of the present investigation demonstrated that there is an increased rate of release of β-glucuronidase in DMN induced hepatic fibrosis, which may be attributed to decreased lysosomal stability.

(Abstract of the paper presented at the **66th Annual Meeting of the Society of Biological Chemists (India)** held at Visakhapatnam, India, December 22-24, 1997).