Dietary nucleotides have cytoprotective properties in rat liver damaged by thioacetamide.

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Abstract
Liver cirrhosis has been induced with thioacetamide administered via different routes in rats and other species. The oral intake of thioacetamide causes nodular liver cirrhosis in rats characterized by extensive fibrosis occupying most of the hepatic parenchyma. To characterize the cytological features of cirrhosis induced by thioacetamide, and the degree of recovery obtained with dietary nucleotides, we made a morphometric study of the hepatocytes in rats administered 300 mg/l of thioacetamide for 4 months, and in rats receiving the same hepatotoxic treatment but allowed a 2-weeks recovery period on a nucleotide-free diet or a 250 mg/100 g nucleotide-supplemented diet. Thioacetamide caused cell damage and affected the ultrastructure of hepatocytes leading to a decrease in cytoplasmic area together with increased nuclear and nucleolar size. Dietary supplementation with nucleotides favoured recovery, restoring the cytoplasmic (TN=491.7+/-9.6 vs TAA=305.1+/-3.7), nuclear (73.6+/-2.8 vs 97.4+/-2.9), and nucleolar area of damaged hepatocytes (5.6+/-0.3 vs 14.0+/-0.9). The injury from thioacetamide intake increased liver collagen, but dietary nucleotides prevented hepatic deposition of this protein. This study supports the hypothesis that dietary supplementation with nucleotides is decisive in ensuring hepatocyte recovery after thioacetamide-induced liver damage, and that dietary nucleotides have antifibrotic properties.

PMID: 9444963 [PubMed - indexed for MEDLINE]