Hepatic and biliary levels of glutathione and lipid peroxides following iron overload in the rat: Effect of simultaneous ethanol administration

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The administration of 125 mg of iron/kg (iron-dextran-Imferon) to fed rats was followed by an increase in the non-hem iron content in plasma and liver over a period of 22 hr, reaching a peak value after 6 hr. Plasma and hepatic iron levels were not modified by ethanol ingestion (5 g/kg). Iron and ethanol treatments enhanced liver lipid peroxidation (malondialdehyde (MDA) formation) by 70 and 35%, respectively, at 6 hr. Since the hepatic MDA formation increased by 92% after the joint iron-ethanol treatment, an additive effect in lipid peroxidation was suggested to occur in this condition. Both iron and ethanol treatments increased biliary levels and release of MDA, in the absence of changes in bile flow. These parameters were further enhanced by the joint iron-ethanol exposure, in that hepatic MDA levels and biliary MDA release were significantly correlated ($r=0.86$; $p<0.05$). Plasma MDA levels also increased after iron, ethanol, and iron-ethanol treatments, but they did not reflect the c