IS ANOREXIA IN THIOACETAMIDE-INDUCED CIRRHOSIS RELATED TO AN ALTERED BRAIN SEROTONIN CONCENTRATION?

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Anorexia or loss of appetite, one of the most typical symptoms observed in experimental and human cirrhosis, has been proposed to be associated with altered brain serotonin (5-HT) metabolism. In order to evaluate this hypothesis, brain 5-HT, its precursor tryptophan (TRP) and its metabolite 5-hydroxyindole-acetic acid (5-HIAA) were measured in brains of rats with thioacetamide (TAA)-induced liver cirrhosis. Thioacetamide at a dose of 500 mg/l in drinking water was administered for 6 weeks and during this period food intake was carefully measured in order to monitor the loss of appetite or decrease in food intake observed in cirrhosis. Concentrations of brain TRP, 5-HT and 5-HIAA were measured by HPLC with electrochemical detection. In TAA-treated rats, concentrations of 5-HT, TRP and 5-HIAA were increased in brain (44%, 33% and 36% of controls, p < 0.01). In plasma and liver of cirrhotic rats, TRP levels were increased (195% and 43%; p < 0.01). Plasma glucose and albumin levels were decreased (50%; p < 0.01 and 31%). Food intake, growth rate and locomotor activity of TAA-treated rats also decreased (73%, 22% and 73% of controls; p < 0.01).

The results of this study show that brain 5-HT concentration in rats is increased in TAA-treated rats and it may, therefore, play an important role in the pathogenesis of anorexia associated with TAA-induced cirrhosis.

Key words: anorexia, brain serotonin, thioacetamide, cirrhosis