EFFECT OF ALLOPURINOL AND HIGH-SUCROSE DIET IN LIVER LIPID CONTENT IN RATS

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In HepG2 cells, it has been demonstrated that uric acid increases lipogenesis through the inhibition of mitochondrial aconitase activity and the activation of ATP-citrate lyase. Lowering uric acid through allopurinol treatment reduces hepatic steatosis in ethanol treated-rats, high fat diet-fed Mongolian gerbils, fructose-fed rats and the Pound mouse. This study aims to evaluate the chronic effect of allopurinol on biochemical in rats treated with high sucrose diet. Wistar rats (~70g) received commercial diet and water ad libitum (control group) and commercial and water containing 30% of sucrose ad libitum (sucrose group) during 16 weeks. From 7th to 16th weeks each group was again divided and treated with allopurinol (30 mg/kg/day). Serum uric acid was measured using commercial kit (mg/dL). Liver lipids were extracted and determined the lipid content by gravimetric method, after solubilization in isopropanol the triglycerides and cholesterol were measured (mg/g liver). Adipose tissue was removed and weighed. Data (n=6) were analyzed by ANOVA Two Way, with statistical difference when P<0.05§. The serum uric acid reduced in the groups treated with allopurinol (Control: 1.3±0.2vs.0.65±0.07§; Sucrose: 1.4±0.1vs.0.4±0.1§) validating the model employed. The weight of the retroperitoneal adipose tissue was significantly higher in the groups treated with sucrose (4.1±0.8vs.7.1±0.6§), but the allopurinol did not affect this parameter (Control: 4.1±0.8vs.4±0.4; Sucrose: 7.1±0.6vs7.1±1.2). Sucrose induced an increase in liver triglycerides content (4.6±0.3vs.7.9±1.2§), but allopurinol did not induced changes (Control: 4.6±0.3vs.6.2±1.2; Sucrose: 7.9±1.2 vs 8.8±1.2). However, sucrose or allopurinol did not affect the total lipid content (Control: 47±5vs.51±3; Sucrose: 46±5vs 59±5) and cholesterol (Control: 1.8±0.1vs.2.1±0.1; Sucrose: 1.8±0.1vs.1.9±0.1) in liver. The results demonstrate that chronic reduction of acid uric does not provide benefits to liver triglycerides content induced by rich-sucrose diet in Wistar rats.

Keywords: allopurinol, high-sucrose diet, lipids.

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