

Hyperuricemia Effect On Glucose Metabolism In Rats

Mariano, R.M.S.¹; GARCIA, I.J.P. ¹; SANTOS, H.L. ¹; Chaves, V.E.¹

¹Universidade Federal de São João Del Rei (UFSJ), Divinópolis, MG, Brazil

INTRODUCTION: It has been suggested that hyperuricemia may perform an important role in hyperglycemia and insulin resistance. In hydrophobic environments, uric acid loses antioxidant ability and becomes a strong pro-oxidant. **OBJECTIVE:** To evaluate the hyperuricemia effect on glucose and insulin tolerance in rats and evaluate the lipid peroxidation in liver. **MATERIALS AND METHODS:** Rats Wistar Males (150-160g) received oxônico acid ip (500mg/kg at 8h and 20h) and uric acid (0.1 mmol/L) orally (Hyperuricemic group, n = 6) or saline ip (Control group, n=6) during 9 days. Fasted rats received glucose (1g/kg) i.p. or insulin (1.5U/kg) i.p. and glycemia was measured in different times. The concentration of malondialdehyde and of reduced glutathione in the liver homogenate was also measured. The differences were analyzed using the Student's t-test with $p \leq 0.05$. **RESULTS AND DISCUSSION:** In the glucose tolerance test, the hyperuricemia induced an increase in the glycemia in time 15 min (167 ± 10 vs 209 ± 12), 30 min (145 ± 5 vs 187 ± 11), 60 min (109 ± 64 vs 126 ± 6), 90 min (86 ± 4 vs 106 ± 4) and 120 minutes (79 ± 4 vs 100 ± 4), accompanied by an increase in the area under the curve ($14,070 \pm 299$ vs $15,512 \pm 675$). The insulin tolerance test, hyperuricemia induced an increase in the glycemia in time 20 min (49 ± 4 vs 60 ± 2) and 25 min (49 ± 3 vs 58 ± 3). We observed that the hyperuricemia induced a decrease in the reduced glutathione concentration (770.01 ± 25.18 vs 583.81 ± 28.86) in the liver and it was not observed changes in the lipid peroxidation assayed by malondialdehyde concentration (0.15 ± 0.006 vs 0.22 ± 0.06). Our results demonstrate that hyperuricemia induces intolerance to glucose, suggesting that uric acid alters glucose homeostasis. Also we confirmed a oxidative stress present by decreased of reduced glutathione but without lipid peroxidation, suggesting that uric acid may be protection lipid membrane. **CONCLUSION:** New experiments will be conducted to evaluate the serum insulin concentration and the stress oxidative.

Keyword: hyperuricemia, insulin resistance, lipid peroxidation
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