

论文

胰岛素抵抗大鼠高死亡率与Klotho表达关系的研究

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摘要:

目的 通过链脲佐菌素(STZ)腹腔注射, 建立胰岛素抵抗大鼠模型, 探讨胰岛素抵抗大鼠Klotho的表达变化与死亡率的关系。方法 出生当日Wistar大鼠80只, 随机选取20只为正常对照组(CN组, n=20), 其余60只腹腔注射STZ复制胰岛素抵抗模型。选取40只设立胰岛素抵抗组(IR组, n=20)、氨基胍联合川芎嗪治疗组(TMP+ AG组, n=20)。分别在造模8、24、32周短尾取空腹血检测血糖(PG)、糖化血清蛋白(GSP)。造模32周后, 取其肾脏实时荧光定量RT-PCR, 检测Klotho mRNA的表达, Western blot法和免疫组织化学染色方法检测Klotho蛋白表达。结果 与胰岛素抵抗组相比, 氨基胍联合川芎嗪治疗组大鼠肾脏中Klotho表达明显上升, 死亡率明显降低, 差异有统计学意义(P<0.05); 与正常对照组相比, 胰岛素抵抗组Klotho表达明显降低, 死亡率明显升高, 差异有统计学意义(P<0.05)。结论 胰岛素抵抗大鼠肾脏Klotho的表达水平与死亡率相关。

关键词: Klotho; 死亡率; 胰岛素抵抗; 氨基胍; 川芎嗪; 大鼠, Wistar

Relationship between high mortality and altered expression of Klotho in insulin resistance rats

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Abstract:

Objective To establish insulin resistance model by intraperitoneal injection of streptozotocin (STZ) and investigate the relationship between high mortality and altered expression of Klotho in insulin resistance rats. Methods Selecting 20 from 80 Wistar rats born on the day for the normal control group (CN group, n=20), Streptozotocin was injected into abdominal cavity to induce insulin resistance in both insulin resistance group and treated group in remaining 60 Wistar rats. Selecting 40 to establish insulin resistance group (IR group, n=20), Tetramethylpyrazine and aminoguanidine treatment group (TMP + AG group, n=20). Plasma glucose, glycosylated serum protein were detected by taking blood at 8 weeks, 24 weeks, 32 weeks respectively after model. After model of 32 weeks, Klotho mRNA was measured by RT-PCR, The expression of Klotho protein in the kidney was detected by immunohistochemistry and Western-blot. Result sThe expression of Klotho mRNA and protein of kidney increased significantly in TMP+AG group (P<0.05), the mortality rate dropped markedly in comparison with those in insulin resistance group(P<0.05). The expression of Klotho mRNA and protein of kidney increased significantly in insulin resistance group and the mortality rate increased in comparison with those in control group(P<0.05). Conclusion The level of Klotho expression was negatively correlated with the mortality rate in insulin resistance rat.

Keywords: Klotho; Mortality; Insulin resistance; Aminoguanidine; Tetramethylpyrazine; Rats, Wistar

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- Klotho; 死亡率; 胰岛素抵抗; 氨基胍; 川芎嗪; 大鼠, Wistar

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