

论文

锌对高糖高脂饲料喂养大鼠胰岛素敏感性影响

刘信艳¹, 吴蕴棠¹, 孙忠¹, 孙丽莎², 王永明¹, 桑倩¹, 张娟¹, 刘川¹

1. 天津医科大学公共卫生学院营养与食品卫生系, 天津 300070;
2. 天津医科大学总医院

摘要:

目的 探讨不同剂量锌对高糖高脂饮食大鼠胰岛素敏感性的影响。**方法** 健康雄性SD大鼠68只,随机分为正常饲料组($n=29$)和高糖高脂组($n=39$);喂养17周后正常饲料组和高糖高脂组再分别随机分成5组,分别给予蒸馏水、5、10、15、30 mg/kg锌灌胃,持续7周;测定大鼠血糖、空腹胰岛素(FINS)和糖化血红蛋白水平(HbA_{1c}),计算稳态模型胰岛素抵抗指数(HOMA-IR)和胰岛素敏感指数(ISI)。**结果** 正常饲料组和高糖高脂组大鼠在灌胃前后血糖差异均无统计学意义;与灌胃前比较,锌灌胃后高糖高脂组FINS、HOMA-IR均有不同程度升高($P<0.05$),高糖高脂+10、15 mg/kg锌组灌胃后FINS分别为(13.574±2.297)、(11.050±1.654)μIU/mL,均低于其他各组($P<0.05$);与灌胃前比较,锌灌胃后高糖高脂组ISI水平有不同程度降低,高糖高脂+15 mg/kg锌组灌胃后ISI水平为(-1.733±0.075),均低于其他各组($P<0.05$)。**结论** 锌可在一定程度上提高高糖高脂饲料喂养大鼠胰岛素敏感性,但不同剂量锌效果存在差异。

关键词: 锌 高糖高脂饲料 大鼠 胰岛素抵抗 胰岛素敏感性

Influence of zinc on insulin sensitivity in rats fed with high sucrose and fat diet

LIU Xin-yan, WU Yun-tang, SUN Zhong, et al

Department of Nutrition and Food Hygiene, School of Public Health, Tianjin Medical University, Tianjin 300070, China

Abstract:

Objective To investigate the effect of different dose of zinc on insulin sensitivity in rats fed with high sucrose and fat diet. **Methods** Totally 68 healthy male Sprague-Dawley rats were randomly allocated to two groups: normal diet group ($n=29$) and high-sucrose-fat diet group ($n=39$). After 17 weeks, the rats of the two groups were randomly assigned to five groups, each group was administered with distilled water or zinc at dose of 5, 10, 15 or 30 mg/kg daily by gavage for 7 weeks. Fasting plasma glucose, fasting plasma insulin (FINS) and glycohemoglobin (HbA_{1c}) were detected. Then the homeostasis model assessment for insulin resistant (HOMA-IR) and insulin sensitive index (ISI) of each group were calculated. **Results** Compared with normal diet group, the glucose of high-sucrose-fat diet groups was insignificantly different before or after the gavage. FINS and HOMA-IR were significantly increased among high-sucrose-fat diet groups after zinc administration ($P<0.05$), while the FINS for the group of 10 mg zinc was 13.574±2.297 μIU/ml and that of 15 mg zinc group was 11.050±1.654 μIU/ml, both lower than other zinc level groups ($P<0.05$). ISI were significantly decreased among high-sucrose-fat diet groups after zinc administration, and that for the group with 15 mg zinc gavage was -1.733±0.07530, significantly lower than that of other groups ($P<0.05$). **Conclusion** Zinc could at some degree improve insulin sensitivity in rats fed with high-sucrose-fat diet, depending on the dose.

Keywords: zinc high sucrose and fat die rat insulin resistance insulin sensitivity

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通讯作者: 吴蕴棠

作者简介:

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