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论文

复配式粗杂粮对胰岛素抵抗大鼠LCN-2表达影响

韩淑芬, 张红, 迟静, 刘亚琪, 周思宇, 翟成凯

东南大学公共卫生学院营养与食品卫生系, 江苏南京210009

摘要：

目的 探讨全谷豆复配式粗杂粮对高脂膳食诱导胰岛素抵抗大鼠肝脏和脂肪组织中载脂蛋白2(LCN-2)影响.方法 40只雄性SD大鼠随机分为阴性对照组、高脂模型组、米面组和粗杂粮组,以相应饲料连续喂养8周,测定各组大鼠血清空腹血糖(FBG)和胰岛素(FINS)水平,并计算胰岛素抵抗指数(HOMA-IR);Westernblotting检测各组大鼠肝脏和脂肪组织中LCN-2和过氧化物酶体增殖体激活受体-γ(PPAR-γ)蛋白表达.结果 与阴性对照组比较,高脂模型组和米面组血清FBG和FINS水平明显升高(P<0.05).高脂模型组和米面组HOMA-IR分别为(10.39±1.63)和(10.34±1.36),明显高于阴性对照组(6.85±1.33);与高脂模型组和米面组比较,粗杂粮组HOMA-IR(6.81±1.37)明显下降,粗杂粮组LCN-2在肝脏和脂肪组织中表达明显低于高脂模型组和米面组,PPAR-γ则相反.结论 全谷豆复配式粗杂粮可以激活胰岛素抵抗大鼠PPAR-γ蛋白,进而降低脂肪因子LCN-2表达,改善胰岛素敏感性.

关键词： 全谷豆复配式粗杂粮 胰岛素抵抗 载脂蛋白2 过氧化物酶体增殖体激活受体-γ

Impact of whole grain compound on insulin resistance and level of lipocalin-2 in rats fed with high fat/cholesterol diets

HAN Shu-fen, ZHANG Hong, CHI Jing

Department of Food Hygiene and Nutrition, School of Public Health, Southeast University, Nanjing 210009, China

Abstract:

Objective To explore the effect of whole grain compound on insulin resistance and level of lipocalin-2 (LCN-2)in liver and epididymal adipose tissues of rats fed with high fat/cholesterol diets.Methods Forty Sprague-Dawlay rats were randomly divided into control group,model group,white rice/processed wheat starch group,and whole grain compound group.All groups were given different experimental diets for 8 weeks.The serum fasting blood glucose(FBG) and fasting insulin(FINS)were measured and homeostasis model assessment of insulin resistance(HOMA-IR)was calculated.Protein expression of LCN-2 and peroxisome proliferator-activated receptor-γ(PPAR-γ)in liver and epididymal adipose tissues were analyzed by western blotting.Results The insulin resistance model of SD rats was successfully established.Compared with the control group,serum FBG and FINS levels were significantly increased in white rice/processed wheat starch group and model group(P<0.05).HOMA-IR values of white rice/processed wheat starch group and model group were 10.39±1.63 and 10.34±1.36.The rats fed with whole grain compound diet showed a decreased HOMA-IR level(6.81±1.37)compared with white rice/processed wheat starch group and model group.Protein expression of LCN-2 in whole grain compound group was significantly lower than those of other two groups,too.However,the level of PPAR-γin whole grain compound group was higher than that of other two groups.Conclusion Whole grain compound could improve glucose metabolism and insulin sensitivity through activating protein expression of PPAR-γand reducing relative level of LCN-2 in the liver of rats.

Keywords: compound whole grain insulin resistance lipocalin-2 PPAR-γ

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通讯作者: 翟成凯,E-mail:zck@seu.edu.cn

作者简介:

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