[Effects of berberine on the pancreatic beta cell apoptosis in rats with insulin resistance].

[Article in Chinese]

Wu S, Lu FE, Dong H.


Institute of Integrative Traditional Chinese & Western Medicine, Tongfi Hospital, Tongji Medical College, Huazhong University of Science & Technology, Wuhan.

Abstract

OBJECTIVE:

To explore the effects of berberine on the pancreatic β cell apoptosis in rats with insulin resistance (IR).

METHODS:

IR Wistar rat model was established by feeding with high fructose diet. After 6-week treatment of berberine, oral glucose tolerance test (OGTT) was performed. Then fasting insulin level (Fins) was detected and insulin sensitivity index (ISI) calculated. The islet was isolated and purified. The pancreatic p3 cell apoptosis was detected by terminal deoxynucleotidyl transferase-mediated dUTP-biotin nick end labeling assay (TUNEL). The apoptosis-related protein ASK1 and Caspase-12 expressions were examined by immunohistochemical assay.

RESULTS:

Compared with the normal group, the blood glucose at 0 and 1 h increased, the Fins increased and ISI decreased, the blood lipids were disarranged, the pancreatic beta cell apoptosis increased, and ASK1 and Caspase-12 protein expressions increased in IR rats. Compared with the model group, the blood glucose at 0 and 1 h and the Fins decreased, ISI increased, the disarranged blood lipids were improved, the pancreatic beta cell apoptosis decreased, and the ASK1 expression decreased, but with no obvious change in the Caspase-12 expressions in the berberine group.

CONCLUSIONS:
Berberine could alleviate IR state in IR rats and inhibit pancreatic 13 cell apoptosis. Its mechanism might be correlated with the inhibition of ASK1 protein expressions.

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