

论文

有2型糖尿病家族史的正常糖耐量者胰岛α、β细胞第一时相分泌功能的变化

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摘要:

目的 探讨2型糖尿病患者的正常糖耐量亲属的胰岛α细胞及β细胞第一时相分泌功能的变化及其影响因素。方法 选取有2型糖尿病家族史的正常糖耐量正常者40例为观察组(FH+组), 无2型糖尿病家族史的健康志愿者55例为对照组(FH-组), 分别采用氧化酶法测空腹血糖(FBG)及服糖后2h血糖(P2hBG), 改良比色法测游离脂肪酸(FFA), 化学发光法测胰岛素(INS), 双抗体夹心ABC-ELISA法测胰高血糖素(GC), 相应方法测定左旋精氨酸(L-ARG)刺激后2、4、6min INS与GC的变化, 并计算稳态模型胰岛素抵抗评估指数(HOMA-IR)。结果 ①两组INS与GC均于2min达分泌峰值, 4min开始下降; ②与FH-组相比, FH+组P2hBG、FINS、HOMA-IR及FFA显著升高(P<0.05); INS峰倍数明显下降(P<0.05); 但空腹GC和峰值倍数均无显著性变化(P>0.05); ③相关结果分析显示: INS第一时相分泌峰倍数与P2hBG和FFA呈正相关(r分别为0.274, 0.356, P均<0.05)。结论 遗传背景下, 2型糖尿病发生主要源于β细胞的功能下降。胰岛素峰倍数可能成为2型糖尿病发生、发展的重要预测因素。

关键词: 糖尿病家族史; 胰岛α细胞; 胰岛β细胞; 早相功能

Alterations of first-phase secretion function of islet alpha and beta cells in subjects with normal glucose tolerance and family history of diabetes

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Abstract:

Objective To explore the alterations and their implications of first-phase secretion function of islet alpha and beta cell in subjects with normal glucose tolerance, and, family history of diabetes. Methods 40 relatives, with normal glucose tolerant and family history of type 2 diabetes, were enrolled in the observation group (FH+), while 55 healthy volunteers were in the control group (FH-). Fasting blood-glucose(FBG) and 2-hour postprandial sugar(P2hBG) were determined by enzyme technique. Free fatty acid(FAA) was detected by improved colorimetry. Insulin was detected by chemoluminescence immunoassay, while the ABC-ELISA technique was applied to determine glucagon on an empty stomach and at 2, 4, 6min after L-ARG stimulation. Results ① The peak value of insulin and glucagon secretion were at 2 minutes, and began to decrease at 4 minutes in the two groups. ② Compared with the FH-group, P2hBG, FINS, HOMA-IR and FFA were significantly higher (all P<0.05), and the peak factor of insulin was obviously lower in the FH+ group (P<0.05). There were no differences of FGC and the peak factor of glucagon (P>0.05) between the two groups. ③ Correlation analysis showed the peak factor of insulin had positives collinearity with P2hBG and FFA due to that correlation coefficient r were 0.274 and 0.356, respectively (P<0.05). Conclusions In genetics, type 2 diabetes mellitus results from the exhaustion of function of beta cells' first phase secretion. The peak factor of insulin may be an important predictor for the occurrence and development of type 2 diabetes.

Keywords: Family history of diabetes; First phase secretion; Islet alpha cell; Islet beta cell

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