

节点文献

早期营养不良对大鼠成年后胰岛素抵抗和糖耐量异常的影响

Malnutrition during the early phase of life causes insulin resistance and impaired glucose tolerance in adult rats



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【摘要】 目的 探讨早期营养不良大鼠成年后胰岛素敏感性和糖代谢变化。方法 建立早期营养不良大鼠动物模型;给予孕期 14d 大鼠半量饲料饲养至哺乳期结束,造成其子鼠早期营养不良;对成年子鼠行腹腔内注射葡萄糖耐量试验和高胰岛素正常血糖钳夹术。结果 早期营养不良组(试验组)子鼠与对照组子鼠比较,糖耐量试验各时间点血糖升高 ( $P < 0.01$ );试验组子鼠稳态葡萄糖输注速率值 ( $2.8 \pm 5$ )  $\text{mg} \cdot \text{kg}^{-1} \cdot \text{min}^{-1}$  较对照组子鼠 ( $4.0 \pm 7$ )  $\text{mg} \cdot \text{kg}^{-1} \cdot \text{min}^{-1}$  显著降低 ( $P = 0.002$ )。结论 早期营养不良致大鼠成年后糖耐量受损 (IGT) 和胰岛素抵抗 (IR)。

【Abstract】 Objective An animal model of rats with malnutrition during the early phase of life was developed in order to explore the influences of malnutrition on insulin sensitivity and glucose metabolism at their adult stage. Methods Pregnant female rats were offered 50% of control food intake during the last week of pregnancy and lactation, so as to induce an animal model of offspring rats with malnutrition during the early phase of life. An intraperitoneal injection glucose tolerance test and a hyperinsulinemic-euglycemic clamp were performed. Results The early malnourished group (experimental group) offspring rats compared with control group offspring rats, the blood glucose levels during the glucose tolerance test at each time point were significantly higher ( $P < 0.01$ ); the steady-state glucose infusion rate value ( $2.8 \pm 5$ )  $\text{mg} \cdot \text{kg}^{-1} \cdot \text{min}^{-1}$  of the experimental group offspring rats was significantly lower ( $P = 0.002$ ) than that of the control group offspring rats ( $4.0 \pm 7$ )  $\text{mg} \cdot \text{kg}^{-1} \cdot \text{min}^{-1}$ . Conclusion Early malnutrition caused insulin resistance (IR) and impaired glucose tolerance (IGT) in adult rats.

【关键词】 营养不良; 糖耐量受损; 胰岛素抵抗;

【Key words】 Malnutrition; Impaired glucose tolerance;