

论文

实验性肥胖及糖尿病大鼠模型

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摘要:

本文报告用小剂量链脲霉素(25 mg/kg)给雌性大鼠静脉注射,使大鼠糖耐量异常,然后加喂高热量食物,引起动物肥胖,饲养8或18周,可形成类似II型糖尿病的肥胖大鼠模型。

关键词: 肥胖 糖尿病 实验大鼠模型 链脲霉素 高糖—脂肪食物

AN EXPERIMENTAL RAT MODEL OF OBESITY AND DIABETES

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Abstract:

Female rats were given a low dose of streptozotocin (25~30 mg/kg, iv) followed by a high sucrose-fat diet containing 52% sucrose, 22% fat, 18% protein and 4.8 cal./g chow. After being fed for 8 or 18 weeks, these rats showed more marked gain in body weight and accumulation of fat in adipose tissue as compared to those of the control group. Fatty liver, high serum triglyceride and cholesterol levels, and significant impairment of glucose tolerance and insulin resistance were also observed in the experimental group. Furthermore, microscopic examination of the pancreatic islets revealed hypertrophy and degranulation of beta cells, as well as transformation of acinar cells into beta cells at the end of 18 weeks' feeding. Diffuse intercapillary glomerulosclerosis of the kidney, a typical complication of diabetes was also observed. It appears that there are many similarities between this animal model and the human non-insulin-dependent diabetes mellitus (NIDDM) of the obesity type. We presume that this model may be used as a tool, not only for the study of the relationship between diabetes and obesity and some complications of diabetes, but also for the study of the pharmacological effects of some hypoglycemic agents.

Keywords: Diabetes Experimental rat model, Streptozotocin High sucrose—fat diet Obesity

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