

Effects of momordica charantia on pancreatic histopathological changes associated with streptozotocin-induced diabetes in neonatal rats.

ABSTRACT

The aim of this research was to determine the effects of *Momordica charantia* (MC) fruit aqueous extract on pancreatic histopathological changes in neonatal STZ-induced type-II diabetic rats. Diabetes mellitus was induced in one day Sprague-Dawley neonatal rats using a single intraperitoneal injection of streptozotocin (STZ) (85 mg/kg body weight) and monitored for 12 weeks thereafter. The diabetic rats were separated into three groups, as follows: the diabetic control group (i.e. nSTZ), the diabetic group (i.e. nSTZ/M) - which was orally given 20 mg/kg of MC fruit extract, and the diabetic group (i.e. nSTZ/G) - that was treated with glibenclamide, 0.1 mg/kg for a period of four weeks. At the end of treatment, the animals were sacrificed and blood samples were collected from the saphenous vein to measure the blood glucose and serum insulin level. The pancreatic specimens were removed and processed for light microscopy, electron microscopy examination and immunohistochemical study. The results of this study showed that MC fruit aqueous extract reduced the blood glucose level as well as glibenclamide and increased the serum insulin level in the treated diabetic rats ($P < 0.05$). The fruit extract of MC alleviated pancreatic damage and increased the number of β -cells in the diabetic treated rats ($P < 0.05$). Our results suggest that oral feeding of MC fruit extract may have a significant role in the renewal of pancreatic β -cells in the nSTZ rats.

Keyword: Diabetes; Neonatal rats; Streptozotocin; Pancreas; B-cells; *Momordica charantia*.