

Effect of Insulin versus Green Tea on the Parotid Gland of Streptozotocin Induced Diabetic Rats

Authors : H. El-Messiry, M. El-Zainy, D. Ghazy

Abstract : Diabetes is a metabolic disease that results in a variety of oral health complications. Green tea is a natural antioxidant proved to have powerful effects against diabetes. The aim of this study was to compare between the effect of insulin and green tea on the Parotid gland of streptozotocin induced diabetic Albino rats by using light and transmission electron microscopy. Forty male Albino rats were divided into control group and diabetic groups. The diabetic group received a single injection of 40 mg/kg of streptozotocin intra-peritoneal under anesthesia and was further subdivided into three subgroups: The diabetic untreated subgroup which was untreated for two weeks, the insulin treated subgroup which has received insulin subcutaneously in a daily dose of 5 IU/kg body weight/day for two weeks and a green tea treated subgroup received a daily dose of 1 ml/ 100 gm body weight intragastrically for two weeks. Rats were terminated and parotid glands were dissected and processed for light and transmission electron microscopic examination. Histological examination of the diabetic untreated subgroup revealed acinar cells with pyknotic and hyperchromatic nuclei with cytoplasmic vacuolations. Ultrastructurally, acinar cells showed nuclear pleomorphism, dilated rough endoplasmic reticulum and swollen mitochondria with damaged cristae. Inflammatory cell infiltration was detected both histologically and ultrastructurally. Ducts showed signs of degeneration with loss of their normal outline and stagnated secretion within the lumen. However, insulin and green tea treated subgroups showed minimal degenerative damage and were almost similar to the control with minimal changes. Treatment of the parotid gland of the streptozotocin induced diabetic rats with GT was closely comparable to the traditional insulin therapy in reducing signs of histological and ultrastructural damage.

Keywords : diabetes, green tea, insulin, parotid

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