# THE POSSIBLE EFFECT OF OMEGA-3 FATTY ACIDS VERSUS INSULIN ON EXPRESSION OF ACTIVATED CASPASE-3 AND RUSSELL BODIES DEVELOPMENT IN BUCCAL MUCOSA OF STREPTOZOTOCIN-INDUCED DIABETIC ALBINO RATS

*Prof. Amany Rabie ,Marwa M.Abdel-Hameed*

**Abstract**

Background: Damage of tissue repair and dysfunction of the oral mucosa are usually associated with the diabetic conlition.Apoptosis plays a functional role in limiting diabetic repair. Russell bodies, an uncommon finding that may be associated with chronic inflammatcry conditions. Although insulin is the mainstay of diabetes treatment, it has prominent side effects. Episodes of severe hypoglycemia and increased mortality rate are associated with insulin therapy. Cod liver oil (CLO) is an important source of long-chain omega-3 (o-3) fatty acids that have antioxidant and anti-inflammatcry properties. Objective: The present study was designed to determine the adaptive apoptotic alterations accompanying diabetes in the buccal mucosa with the possibility of occurrence of the so-called Russell bodies and the passible role of long-chain ro-3 fatty acids versus insulin supplementation in enhancement of the buccal mucosa in streptonaccin (STZ)-induced diabetic rats. Design: Sixty adult male Swiss albino rats (X00-250 gm) were selected for this study. The animals were randomly divided into four groups (fifteen rats each): Group I (Control group), Group II (Diabetic untreated snip), Group Ill (Insulin treated group) and Group IV (Cod liver oil treated group). At the end of the experimental period (four weeks), the rats were sacrificed and the specimens were obtained from the mucosa of the cheek of both sides. The sections were examined histologically, immunohistochemically and histomorphometrically. Statistical analysis: Data obtained from histomorphometric analysis were statistically described in teams of mean standard cleaiation (2 SD).
Results: Histopathologic examination of Group I revealed the no histological features of the buccal mucosa. In Group II several histological changes in the epithelial layer of the buccal mucosa were noticed. These changes include; atrophy in the epithelium, evidences of cells undergo degeneration, nuclear changes, ill-defined cell membrane, croplasonc' exudations,

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