

Effect of diabetes mellitus on cementum periodontal interface in Streptozotocin-induced diabetic rat model

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Abstract

Objective

Diabetes Mellitus is well known to be associated with several oral complications. Thus, this study investigated the effect of diabetes on the cementum-periodontal interface by light and scanning electron microscopy.

Methodology

This investigation was carried out on twenty eight male albino rats weighing from 200 to 220 g. Animals received intraperitoneal single dose of 100 mg/kg (diabetic): fourteen animals that were rendered diabetic by intraperitoneal single dose of streptozotocin 40 mg/kg sacrificed 3 weeks after detection of diabetes. Plasma glucose level >300 mg/dl confirmed diabetes after 3 days. Half of lower jaws specimens were processed for H&E examination by light microscopy of cementum-periodontal interface. From the other half of specimens; extracted mandibular first molars were examined by SEM for changes of cementum surfaces.

Results

Comparing to control group, diabetic rats showed periodontal fibers disorganization and degeneration with loss of Sharpey's fibers attachments. Increased cementoid, resorptive areas of both cementum surface and alveolar bone were evident in addition to the alterations of bone trabeculae.

Conclusions

Diabetes mellitus was associated with variable deleterious effects on periodontium. The histological and scanning electron microscopy changes were most obviously on PDL and least on cementum.

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