

عنوان مقاله:

Therapeutic effects of diosgenin on alveolar bone loss and apoptosis in diabetic rats with experimental periodontitis

محل انتشار:

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نویسندگان:

Alper Kızıldağ - Department of Periodontology, Faculty of Dentistry, Pamukkale University, Denizli, Turkey

Aysan Lektemür Alpanb - Department of Periodontology, Faculty of Dentistry, Pamukkale University, Denizli, Turke

Melih Özdedec - Department of Dentomaxillofacial Radiology, Faculty of Dentistry, Dokuz Eylül University, İzmir, Turkey

Tuğba Aydın - Department of Periodontology, Faculty of Dentistry, Atatürk University, Erzurum, Turkey

Özlem Özmene - Department of Veterinary Pathology, Faculty of Veterinary Medicine, Burdur Mehmet Akif Ersoy University, Burdur, Turkey

خلاصه مقاله:

Objective(s): The present study aims to evaluate the efficacy of administered diosgenin (DG) which has anti-oxidant and anti-inflammatory effects, on alveolar bone loss (ABL) and apoptosis in diabetic rats with periodontitis. Materials and Methods: Forty male Wistar albino rats (n=40) were divided into five subgroups; control (non-ligated), periodontitis (P), diabetes mellitus (DM), P+DM, and P+DM+DG. To stimulate experimental periodontitis, a ligature was embedded at the gingival margin of the lower first molars for each rat, and diabetes was induced by streptozotocin (STZ) for DM groups. Then, DG (96 mg/kg daily) was performed on the P+DM+DG group by oral gavage for 29 days. At day 30, all animals were euthanized and the distance from the cement-enamel junction to the alveolar bone margin was measured using cone-beam computed tomography as ABL. In addition, immunohistochemical analyses were used to evaluate the expression levels of alkaline phosphatase (ALP), osteocalcin (OCN), bone morphogenetic protein 2 (BMP-2), receptor activator of NF-κB ligand (RANKL), collagen type I (Col-1), B-cell lymphoma-2 (Bcl-2), and Bcl-2-associated X protein (Bax). Results: Induction of periodontitis and diabetes significantly increased ABL ($P < 0.05$). DG administration significantly reduced ABL, expression of RANKL and Bax, and enhanced the expression of ALP, OCN, BMP-2, Bcl-2, and Col-1 in the P+DM+DG group compared with the P+DM group ($P < 0.05$). Conclusion: It is revealed that DG considerably enhanced bone formation and contributed to periodontal healing in this experimental study performed in diabetic rats.

کلمات کلیدی:

alveolar bone loss, Anti-oxidant, Diabetes Mellitus, Experimental, Periodontitis, Therapeutics

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