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The effect of local administration of simvastatin on healing of rat extraction socket (histological, immunohistochemical and ultrastructural study)

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Studies concerning healing of extraction sockets revealed that sockets are filled with new bone by as much as two thirds in 40 days and completely filled with new bone in 10 weeks. There have been many studies demonstrating the bone-promoting effect of simvastatin local application in animal models. Simvastatin is shown to increase bone volume, bone formation rate, and bone compressive strength. The use of statins for bone regeneration is a promising and growing area of research. Statin drugs have become a mainstay in the treatment of high cholesterol since the discovery in the 1970s that molecules produced by *Penicillium citrinum*, called citrinin and compactin (Mevastatin), are potent inhibitors of an important enzyme in the cholesterol production pathway, 3-hydroxy-3-methylglutaryl-CoA reductase (HMG-CoA reductase). The first experimental evidence in an animal model of the osteo-modulator effect of statins was reported by Mundy et al, who demonstrated that treatment with simvastatin resulted in a significant increase (up to 2–3 times compared with controls) in the rates and bone formation markers, and that the effect of statins were comparable to that induced by treatment with bone morphogenetic protein-2 (BMP-2) and fibroblast growth factor, which are known stimulants of bone metabolism. The aim of this study was to examine the influence of simvastatin on bone healing in extraction socket of first molar in rat mandibles, where the specimens will be processed for scanning electron microscopy, light microscopy and immunohistochemical detection of Vascular Endothelial Growth Factor and Fibronectin.

Biography

Younna Mohamed Sherif Abdel-Nabi has completed her MSc from Alexandria University and a Diploma in Professional Healthcare Management from The American University in Cairo. She is an Asst. Lecturer of Oral Biology and Dental Morphology at the Faculty of Dentistry, Pharos University in Egypt. She has managed to publish one paper in the *Alexandria Dental Journal*. She is a young dedicated Researcher in the field of Bone Regeneration.

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