

Histological Evaluation of the Healing process of Auto Grafted Mandibular Bone Defects in Rats under Treatment with Zoledronate

Ideh talimkhani

Hamadan University of medical science, Iran

ABSTRACT

This study aims to evaluate the healing process of autografted mandibular bone defects in rats treated with zoledronate (ZOL). A total of 180 Wistar rats were divided into four groups: group L received intravenous infusion of two doses of 0.06 mg/kg ZOL, nine weeks apart; group H received 0.06 mg/kg ZOL, while groups C and NC received normal saline at three-week intervals for nine weeks. Three weeks following the last infusion, a unilateral mandibular bone defect (5 mm) was created. Except in the NC group, all defects were repaired with autologous iliac bone graft. Fifteen animals from each group were sacrificed on postoperative Day 20, Day 40, and Day 60. Graft healing was scored using a histological grading system (ranging from 1 to 6). Histological evaluations performed on postoperative Day 60 showed that the mandibular defects were mainly repaired with fibrous tissue in the NC and H groups ($93.00\% \pm 7.51\%$ and $82.67\% \pm 13.08\%$, respectively) and with bone in the C and L groups ($75.33\% \pm 14.20\%$ and $92.67\% \pm 8.84\%$, respectively). The percentage of fibrous tissue and bone as well as the healing score of the NC and H groups were significantly different ($P = 0.001$) from those of the C and L groups. However, these were not different between neither the NC and H groups nor the C and L groups. Based on the results of the present study the hypothesis can be established that there also might be a dose-dependent effect of ZOL on the healing of bone grafts in humans. This hypothesis has to be verified or rejected in clinical trials.

Biography:

Ideh Talimkhani has completed her doctorate of general dentistry from Hamadan University of medical science at the age of 24. At the age of 31 she became specialist in oral and maxillofacial

surgery from same university. Now she is assistant professor in medical university of Kurdistan This research is the thesis topic of her doctorate of general dentistry that was supervised by Mohammad reza Jamal pour and was accepted in journal of oral and maxillofacial surgery in July 2019.