



DOI: <http://dx.doi.org/10.21270/archi.v5i0.1334>

## Zer-006

### Alveolar bone repair of rats: a microtomographical, molecular and immunohistochemical analysis

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This study aimed to evaluate the expression of mRNA and immunostaining of OPG and RANKL during the alveolar repair process in rats and microtomographical analysis of volumetric parameters in chronological periods (7, 14 and 28 days). To develop this study, we used 30 adult male Wistar rats divided into three periods of analysis after extraction of the upper incisors. After euthanasia, analysis of the following morphometric parameters of the jaws were made: bone volume (BV) Percentage of bone volume (BV / TV), trabecular thickness (Tb.Th), Separation of trabecular bone (Tb.Sp) and percentage of total bone porosity (Po-tot). In addition to the immunohistochemistry and molecular analysis of expression of OPG and RANKL proteins. Bone volume (BV and BV / BT) and the thickness of the trabeculae (Tb.Th) progressively increased ( $p = 0.015$ ,  $p < 0.001$ ;  $p < 0.001$ ), therefore there was a gradual decrease in Tb.Sp parameters ( $p < 0, 05$ ) and E-tot ( $p < 0.001$ ). The immunostaining for OPG and RANKL showed moderate labeling for the periods analyzed. In the molecular analysis at 28 days there was a significant increase in OPG expression ( $p < 0.05$ ) decrease of RANKL and RANKL / OPG ratio ( $p < 0.05$ ). It is concluded that OPG and RANKL are important during the healing process of bone tissue for activation of the basic multicellular units. Furthermore, tridimensional parameters show that bone tissue formed during the alveolar repair process present satisfactory characteristics in quality and quantity over the post-extraction periods.

**Descriptors:** Bone Regeneration; Alveolar Process; Rats.