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### **Improvement of alveolar bone healing characteristics of osteopenic rats underwent to strontium ranelate therapy**

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This study aimed evaluate alveolar bone healing in osteopenic rats treated with strontium ranelate. Thirty-three three months's old female rats were selected and divided into three groups: OVX (animals underwent to ovariectomy with no drug treatment); SHAM (animals underwent to fake surgery with no drug treatment) and OVX-SR (animals underwent to ovariectomy treated with strontium ranelate). Firstly, animals underwent to bilateral ovariectomy to induce osteopenic condition. Drug treatment started at 30 days after, during the all experimental period. Thirty days after, it was performed extraction of the right upper incisor tooth, to further evaluation of alveolar healing. Animals from decalcified group were euthanized at 14 days after tooth extraction, and its samples were destined to histological and immunohistochemistry analysis. Animals from calcified group were euthanized at 60 days and its samples were destined to confocal microscopy and micro-tomography analysis. Histological results showed that OVX-SR group had the better aspect of new bone formation, with few number of trabecular bone and poor presence of connective tissue compared to OVX group. Immunohistochemistry results showed an intense labeling of OPG for OVX-SR group and intense labeling of RANKL for OVX group. Regarding confocal microscopy analysis, it was possible observed that OVX-SR group showed a significance greater amount of alizarin precipitation compared to another both groups (Tukey test –  $P < 0.05$ ). About micro-tomographic parameters, OVX-SR group showed high values for BV/TV (Tukey test –  $P > 0.05$ ) and Tb.Th (Tukey test –  $P < 0.05$ ) and lower values for Tb.Sp, Po.Tot and Tb.N (Tukey test –  $P > 0.05$ ). It was concluded that strontium ranelate improves microscopy and morphologic aspects on alveolar bone healing of osteopenic rats.

**Descriptors:** Strontium; Osteoporosis; Ovariectomy.