

## Fluoride Effect in Bone Resorption in Dental Alveoli in Rats. Receptor Activator of NF- $\kappa$ B Ligand and Osteoprotegerin Analysis.

Fernandes, M.S.<sup>1</sup>, Yanai, M.M.<sup>1</sup>, Cestari, T.M.<sup>1</sup>, Leite, A.L.<sup>1</sup>, Taga, R.<sup>1</sup>, Iano, F.G.<sup>1</sup>, Buzalaf, M.A.R.<sup>1</sup>, Oliveira, R.C.<sup>1</sup>.

<sup>1</sup>Departamento de Ciências Biológicas, Faculdade de Odontologia de Bauru, Universidade de São Paulo, São Paulo, Brasil.

The objective of the study was to evaluate comparatively alterations in bone resorption (RANKL/RANK/OPG system) of rats chronically exposed to fluoride (F). Four groups of 80-day-old *Wistar* rats (n=5 per group) received for 60 days drinking water containing 0 (control), 5, 15 or 50 ppm F. Histological analysis showed new bone formation (30 days post-operatively) in animals after treatment with fluoride (5, 15 and 50 ppm F) and control group. The 50 ppm F group showed less new bone formation when compared with the others. The results of morphometric analysis showed increased volume density of new bone, between 7 and 30 days, in groups control (12.2% to 60.8%), 5 ppm (3.8% to 49.4%), 15 ppm (22.0% to 62.2%) and 50 ppm F (6.5% to 48.7%). Concomitantly, the volume densities of connective tissue and blood clot decreased, between 7 and 30 days, in groups control (connective tissue 58.1% to 31.34%; blood clot 29.6% to 7.8%), 5 ppm (connective tissue 55.2% to 40.9%; blood clot 40.8% to 9.7%), 15 ppm (connective tissue 27.1% to 35.8%; blood clot 50.8% to 1.9%) and 50 ppm F (connective tissue 20.5% to 38.0%; blood clot 73.0% to 13.3%). The results of immunohistochemistry analysis showed increased of RANKL and decrease of OPG in bone in dental alveoli (21 and 30 days post-operatively, group 15 and 50 ppm). Data show that F in high concentrations in the drinking water can impair bone repair and promote increase in bone resorption in rats.

**Key-words:** receptor activator of NF- $\kappa$ B, osteoprotegerin, bone resorption, fluoride.

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