

**Abstract 1824**

Immunohistochemical Analysis of the Effects of Zoledronic Acid on Oral Mucosa with Experimentally Induced Periodontal Destruction.

Type: Research presentation

Topic: a) Periodontology / Aetiology and Pathogenesis

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**Background & Aim**

The effect of bisphosphonates on the resorption process of normal bone tissue has been thoroughly investigated, however their effect on inflammatory lesions in the periodontal tissues and the relationship between pre-existing periodontal inflammation and zoledronic acid hasn't known yet. The aim of this single-blind randomized controlled in-vivo study is to examine histologically and immunohistochemical effects of zoledronic acid on periodontal tissues of rats with experimentally induced periodontitis.

**Methods**

Thirty Sprague-Dawley rats were assigned in test and control groups. Test group animals were injected with nitrogen containing bisphosphonate whereas controls received saline. Experimental periodontitis was induced by placing a ligatures. The animals were sacrificed at day 63. Immunohistochemical examination was carried out on the samples that was obtained from free gingival margin and attached gingiva. Sections from paraffin blocks were stained with hematoxylin-eosin and immunohistochemically with primer antibodies TNF- $\alpha$ , IL6, MMP9 and VEGF and examined under light microscope .

**Results**

Zoledronic acid use in experimental periodontal destruction increases MMP-9 release. ( $p = <0,001$ ). In periodontal destruction group TNF- $\alpha$  was significantly higher in zoledronic acid group. VEGF difference between periodontal destruction and periodontal healthy group in control group was statistically higher ( $p = <0,001$ ). There were no statistically differences for IL- 6.

**Conclusion**

Findings of this study (especially TNF- $\alpha$  and MMP9 ) may indicate that existence of periodontal inflammation during zoledronic acid intake contributes to tissue destruction. However, the results of this study should be interpreted in caution since the use of drug is tested on animals that are otherwise healthy.

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