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Original Articles

Expression of IL-1 β , MMP-9 and TIMP-1 on the Pressure Side of Gingiva under Orthodontic Loading

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Abstract

Objectives: To test the hypothesis that orthodontic pressure does not induce gene transcription of IL-1 β , MMP-9, and TIMP-1 in pressure gingival soft tissue.

Materials and Methods: A total of 14 male Wistar rats were used with three rats as no appliance controls and another three as the sham appliance group. On the 7th and the 14th day after orthodontic loading on the maxillary left molar, four rats were sacrificed, respectively. Maxillary right first molars served as the contralateral control side. A real-time RT-PCR for the excised gingiva was performed to measure the mRNA of IL-1 β , MMP-9, and TIMP-1.

Results: Compared with the contralateral side, IL-1 β mRNA from the pressure side significantly increased on the 7th day, then decreased on the 14th day ($P < .05$). MMP-9 and TIMP-1 mRNA showed a significant constant increase on both the 7th and the 14th day ($P < .05$).

Conclusions: The hypothesis is rejected. Orthodontic loading led to increases in IL-1 β , MMP-9, and TIMP-1 mRNA in pressure side gingiva in rats.

Keywords: [Pressure](#), [gingiva](#), [real-time RT-PCR](#), [IL-1 \$\beta\$](#) , [MMP-9](#), [TIMP-1](#)

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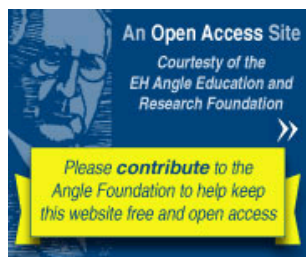
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