

عنوان مقاله:

۴ The effects of laser irradiation and fluoride therapy on demineralization resistance of enamel around orthodontic brackets

محل انتشار:

دوفصلنامه ارتودنسی ایران، دوره 3، شماره 3 (سال: 1387)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

Aim: The demineralization of enamel adjacent to orthodontic brackets is a clinical problem which can lead to some esthetic concerns after the treatment. The present study investigated the effect of laser, fluoride and combination of two techniques on the demineralization of enamel adjacent to orthodontic brackets. **Materials and Methods:** In this in vitro study, ۶۰ healthy human premolars were selected and the brackets were bonded to them. The specimens were randomly assigned to ۴ groups (n=۱۵): topical APF application, laser irradiation, Laser + fluoride and control specimens. Er,Cr:YSGG laser was irradiated at ۱۲.۵ mJ/cm^۲ pulse energy without water spray While APF gel was applied on the specimen surfaces for ۴ minutes. All specimens were demineralized for ۱۰ days in a ۰.۲M acetate buffer solution and the calcium content were subsequently determined with atomic absorption spectrometry. The data were subjected to analysis of variance and Tukey post hoc test. **Results:** The mean calcium content of specimens with APF fluoride application was ۶.۵۲ ± ۱.۲۴۱ PPM, in laser was ۶.۶۶ ± ۰.۶۴ PPM, in laser + fluoride specimens was ۶.۲۱ ± ۰.۷۷ PPM and in control ones was ۷.۰۹ ± ۰.۵۶ PPM, The calcium content of specimens subjected to laser irradiation and fluoride was significantly lower than control specimens ($p=۰.۰۲۹$), while no other significant differences were noted in the next comparisons. **Conclusion:** Er,Cr:YSGG laser irradiation does not increase acid resistance of enamel around orthodontic brackets with mentioned parameters, so, it is not recommended for clinical usage. Although, fluoride application following laser irradiation significantly increased acid resistance of specimens compared to control

کلمات کلیدی:

Er, Cr:YSGG laser, fluoride, demineralization, Acid resistance

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