

Effect of CO₂ laser and casein phosphopeptide amorphous calcium phosphate (CCP/ACP) paste on micro-hardness of demineralized enamel**Zahra Khamverdi**

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CO₂ laser and application of casein phosphopeptide amorphous calcium phosphate (CPP/ACP) have been suggested to prevent enamel demineralization and increase resistance to caries. There is a gap of information on the comparison of the efficacy of laser and CPP-ACP. The purpose of this study was to compare the effect of CO₂ laser irradiation and CPP/ACP application on micro-hardness of demineralized enamel. 30 sound maxillary extracted teeth were selected. The crowns were cut at the cement enamel junction and were then mesiodistally sectioned into facial and palatal halves. Specimens were then mounted in self-polymerizing acrylic blocks measuring 4x4 mm in such way that the enamel surface was exposed. After a pH cycling model, the specimens were randomly divided into four groups (n=15) as follows: G1: without treatment (control), G2: CO₂ laser, G3: CPP/ACP and G4: laser plus CPP/ACP treatment. The micro-hardness of each specimen was measured using Vickers hardness testing (500 gr loads, 5 seconds, three points). Data were analyzed using ANOVA and Tukey's tests ($\alpha=0.05$). The mean value of micro-hardness for demineralized enamel in groups two to four were significantly greater than the value for group one (control) ($P<0.05$). The mean value in groups two and three were not significantly different ($P>0.05$). Significant difference was found in micro-hardness of group four with two and three groups ($P<0.05$). It was concluded that CO₂ laser irradiation, application of CPP/ACP and combination of both increased the micro-hardness of demineralized enamel.

Biography

Zahra Khamverdi has completed her graduation from Isfahan University. She is a Professor in Operative Dentistry department from Dental Faculty, Hamadan University of Medical Sciences. She has given presentation in the field of Operative Dentistry, Aesthetic Dentistry and Dental Materials in international and national conferences and published more than 35 papers in scientific journals and has been serving as a member of Dental Research Center.

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