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THE EFFECT OF CARBAMIDE PEROXIDE BLEACHING GEL CONTAINING REMINERALIZATION AGENTS ON THE BOND STRENGTH OF UNIVERSAL ADHESIVES TO ENAMEL

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Objectives: The aim of this study was to examine the effect of carbamide peroxide bleaching gel containing remineralization agents on the bond strength of universal adhesives to enamel.

Materials & Methods: 135 extracted human third molars were divided into five groups to receive treatments during 14 days, as follows: no bleaching treatment; 10% carbamide peroxide (CP); 10% CP containing 0.11% fluoride; 10% CP containing casein phosphopeptide-amorphous calcium phosphate (CPP-ACP); and 10% CP containing CPP-ACP and 0.11% fluoride. The buccal surfaces of all teeth were etched with 37% phosphoric acid, and each group was divided into three subgroups to receive the adhesive resins: All bond universal; Scotchbond Universal and Adper Single Bond 2. Then restored teeth were sectioned to create resin-enamel beams. These beams were subjected to the micro-tensile bond strength (μ TBS) test, and assessed for failure mode under scanning electron microscopy.

Results: The highest mean μ TBS of the composite resin to enamel was observed in the control group (25.9 MPa) and the lowest in the fluoride-containing bleaching group (17.2 MPa). Adper Single Bond 2 adhesive subgroups have the highest μ TBS (19.7 MPa) and All Bond Universal adhesive subgroups have the lowest μ TBS (16.8 MPa).

Conclusion: The carbamide peroxide bleaching gel containing a remineralizing agent decreased μ TBS. Delay for at least two weeks after the end of bleaching would minimize the presence of remaining oxygen that could negatively impact resin polymerization. In addition, using fluoride-containing bleaching materials should be avoided to reduce the loss of bond strength.

Biography

Arman Salehi obtained his Doctorate of Dental Surgery (DDS) from Kerman Dental School (2007), Iran. He obtained his PhD degree from Department of Operative Dentistry, School of Dentistry, Isfahan University of Medical Sciences, Iran. He is working as an Assistant Professor for the same department, Rafsanjan University of Medical Sciences, Iran. He has around ten national and international publications and has attended various conferences. He has his own private practice in Rafsanjan city.

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