Influence of experimental provisional cements containing zeolite, bone hydroxyapatite and linoleic Acid on bond strength of composite to dentin in vitro.

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Abstract
PURPOSE: to evaluate the dentin bond strength of a composite resin material after the removal of two experimental cements containing zeolite, bone hydroxyapatite and linoleic acid, and one conventional glass-ionomer cement intended as provisional cements.
MATERIALS AND METHODS: forty extracted caries-free, erupted permanent third molars were used. Experimental provisional cements containing zeolite and bone hydroxyapatite (BHA) and one conventional glass-ionomer cement (GIC) were placed on the dentin surfaces and covered with tinfoil. Cement-covered dentin surfaces were stored in distilled water at 37°C ± 2°C for seven days. After this period, temporary cements were mechanically removed, dentin surfaces were rinsed in distilled water and dried with an air syringe before adhesive application. Dentin bonding agent was applied according to the manufacturer’s instructions and the adhesion test was performed according to ISO TR 11405.
RESULTS: the following shear bond strengths for the composite material were obtained: no treatment applied (control, group 4): 17.30 ± 1.37 MPa; provisional cement containing BHA (group 2): 15.03 ± 3.44 MPa; GIC (group 3): 14.13 ± 2.85 MPa; provisional cement containing zeolite (group 1): 11.29 ± 2.71 MPa. The difference between groups 1 and 4 the control group was significant, where as
the statistical analysis showed no significant difference between the control and BHA groups (ANOVA, Tukey’s, p > 0.05).

CONCLUSION: in clinical applications where the previous application of provisional cements is necessary, material choice may influence the bond strength of the subsequent composite resin restoration.

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