Effect of different conditioning protocols on the adhesion of a glass ionomer cement to dentin.

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Abstract

AIM: The purpose of this study was to assess the effect of different surface treatments on the shear bond strength (SBS) of a resin modified glass ionomer cement (RMGIC) to dentin. METHODS AND MATERIALS: Forty human third molar teeth were randomly divided into four groups (n=10). The occlusal enamel was removed to obtain a flat surface of dentin. Each group was treated as follows: Group 1: 1.5% polyacrylic acid (positive control); Group 2: 1.5% phosphoric acid followed by 1% sodium hypochlorite (NaOCl); Group 3: 1.5% APF gel; and Group 4: no conditioning (negative control). Fuji II LC glass ionomer was bonded to dentin using a cylindrical mold. Samples were thermocycled and debonded using a shear force with a crosshead speed of 1.0 mm/min. Data were analyzed using one-way analysis of variance (ANOVA) and Tukey tests (a = 0.05). RESULTS: The mean SBS in Groups 1 through 4 were 11.0±2.3, 8.7±1.8, 8.0±1.4, and 4.7±1.3 MPa, respectively. There were significant differences in the SBS between Group 1 with other groups (P<0.05). There were no statistically significant differences between Groups 2 and 3, but the SBS of both of them were significantly higher than that of Group 4 (P<0.05). CONCLUSION: Although the dentin SBS of Fuji II LC after conditioning with APF and phosphoric acid followed by NaOCl was greater than the unconditioned group (Group 1), polyacrylic acid yielded the best result. CLINICAL SIGNIFICANCE: Proper conditioning of dentin is effective in promoting close adaptation of RMGIC to dentin.

Reaxys Database Information

Indexed Keywords

EMTREE drug terms: acrylic acid resin; biomedical and dental materials; carbopol 940; dentin bonding agent; Fuji II LC cement; glass ionomer; hypochlorite sodium; phosphoric acid; resin

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Medline is the source for the MeSH terms of this document.

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