Phosphoric Acid Containing Chlorhexidine Compromises Bonding of Universal Adhesive.

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Abstract

PURPOSE: To examine the influence of phosphoric acid containing chlorhexidine on the dentin bond stability of a universal and a 2-step etch-and-rinse adhesive.

MATERIALS AND METHODS: Eighty sound bovine incisors were randomly assigned to 8 groups (n = 10) according to: phosphoric acid (37% phosphoric acid [CTR] or 37% phosphoric acid with 2% chlorhexidine [CHX]); adhesive (Scotchbond Universal Adhesive [SBU] or Adper Single Bond 2 [SB2]); and water storage time (24 h and 6 months). Both acids and adhesives were applied to flat dentin surfaces (following manufacturer’s instructions) upon which composite cylinders were built up (0.72 mm2). After storage in distilled water at 37°C for 24 h or 6 months, the composite cylinders were submitted to microshear bond strength (µSBS) testing. Bond strength data (MPa) were analyzed using three-way ANOVA and post-hoc Tukey’s test (α = 5%).

RESULTS: The interaction among factors was significant (p = 0.012). Both adhesives showed similar 24-h bond strengths regardless of the phosphoric acid. After 6 months, similar values were found for both materials when control phosphoric acid was used, but CHX phosphoric acid produced statistically significantly lower bond strengths for SBU. SB2 bond strength was not affected by acid type.

CONCLUSION: Phosphoric acid containing chlorhexidine induced premature bond strength degradation of Scotchbond Universal Adhesive.

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