Pretreatment with Sodium Fluoride Maintains Dentin Bond Strength of a Two-Step Self-Etch Adhesive after Thermal Stressing.

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Abstract

PURPOSE: To evaluate the effect of sodium fluoride and chlorhexidine digluconate on the composite-dentin bond strength of a self-etch adhesive after thermocycling.

MATERIALS AND METHODS: Eighteen human third molars were prepared to expose a flat dentin surface and were divided into 3 groups (n = 6) according to the 3 cavity cleaning solutions: distilled water, 2% chlorhexidine digluconate (CHX), or 1.23% sodium fluoride (NaF). Solutions were rubbed onto dentin surfaces for 60 s, followed by bonding with Clearfil SE Bond, and a 5-mm-thick composite crown buildup. Bonded teeth were stored in distilled water for 24 h and then longitudinally sectioned to obtain bonded sticks. Half of the specimens were immediately tested in tension at 0.5 mm/min, while the remaining specimens were tested after 60,000 thermal cycles. Data were analyzed using two-way ANOVA and the Holm-Sidak method.

RESULTS: There was no significant difference between the groups after 24 h (p > 0.05). Thermocycling resulted in significant bond strength reduction for distilled water and CHX (p < 0.05). When 24 h bond strengths were compared to the thermocycling group, NaF maintained its bond strength (p > 0.05), while significant reductions were observed for distilled water and CHX (p < 0.05).

CONCLUSIONS: Pretreatment with NaF maintained the bond strength of Clearfil SE Bond to dentin after 60,000 thermal cycles, but pretreatment with CHX did
not.

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