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Effect of Repeated Container Lid Opening on Dentin Shear Bond Strength of Two Dentin Adhesive Systems

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Abstract:

Objective:

Comparing the effect of repeated opening of the container lid of two dentin adhesive systems, Prime&Bond NT (P&B NT) and IBond (IB), on shear bond strength.

Materials and Methods:

Intact bovine lower incisors (n=60), fixed in acrylic were randomly divided into six groups (n=10). Groups I and II were set as control groups. P&B NT and IB were applied on the samples after five days a week, three times a day for two weeks of use in groups III and VI; and after four weeks of use in groups V and VI. The samples were evaluated by a universal testing-machine (Instron, cross-head speed 1 mm/min) and stereomicroscope.

Results:

There was no significant difference between the bond strengths in any of the three P&B NT. The mean amount of the shear bond strength for IB after 60 times of use (15.31 MPa) was significantly lower than that at the baseline (23.51 MPa). There was no significant difference between IB at the baseline and after 30 times of use (19.26 Mpa), and also between IB after 30 times of use and after 60 times of use. All P&B NT groups showed significantly higher shear bond strengths when compared with their similar IB groups in IB.

Conclusion:

Repeated use (60 times) of the all-in-one adhesive container seems to reduce dentin shear bond strength. Therefore, containers with a lower content of the same adhesive or a single-dose of the adhesive are preferred.

Keywords:

Acetone, Dentin-Bonding Agents: Prime and Bond NT: Dental Bonding Shear Strength

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