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Abstract

LIMA, F醬io Garcia et al. One-bottle adhesives: *in vitro* analysis of solvent volatilization and sealing ability. *Braz. oral res.* [online]. 2005, vol.19, n.4, pp. 278-283. ISSN 1806-8324. doi: 10.1590/S1806-83242005000400008.

The aim of this study was to compare the solvent volatilization rate and evaluate the sealing ability of different one-bottle adhesives that were in constant clinical use - an ethanol/water-based adhesive (Single Bond, 3M/ESPE - SB) and an acetone-based adhesive (Prime & Bond 2.1, Dentsply/Caulk - PB). Nine bottles of each agent were collected from the clinics of a dental school, and new ones were used as controls. The weight of all bottles and of empty bottles was determined using an analytical balance. A drop of each solution was dispensed onto the balance, taking its initial weight (IW) and, after 10 min, its final weight (FW). The IW/FW ratio was used to determine the solvents volatilization rate. The bottles with the highest evaporation levels (SB Control and PB Control) and with the lowest evaporation levels (SB Test and PB Test) of each agent were applied in Class V restorations with margins in dentin. Specimens were thermocycled and immersed in a 0.5% basic fuchsin solution. Dye penetration was evaluated under magnification and the data were submitted to the Kruskal-Wallis test. Solvent volatilization was faster for the acetone-based adhesive. IW/FW ratios ranged from 1.239 to 1.515 for SB, and from 3.488 to 6.476 for PB. The PB-Control and SB-Control groups exhibited similar microleakage patterns. The highest dye penetration scores were found for the PB-Test group ($p < 0.05$). Results indicate that the sealing ability can be affected by the repeated opening of acetone-based adhesive bottles.

Keywords : Dentin-bonding agents; Dental leakage; Solvents; Evaporation.

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