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Dentin bond durability and water sorption/solubility of one-step self-etch adhesives

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Abstract:
The purpose of this study was to evaluate the dentin bonding durability of three HEMA-containing one-step self-etch adhesives after one-year water storage and to measure the amounts of their water sorption/solubility. OptiBond All-In-One (OP), Bond Force (BF) and Clearfil S^3 Bond (S^3) were applied to the dentin surfaces according to manufacturers' instructions. Bond strengths to dentin were determined using μTBS test after water storage for 24 hours, six months, and one year. In addition, water sorption and solubility of the polymerized adhesives were measured. The μTBS of S^3 and OP significantly decreased after one year. On the other hand, for BF there were no significant differences in μTBS between all storage periods. There were significant differences in water sorption and solubility among the adhesives (BF>S^3>OP). The initial amounts of water sorption and solubility of the three adhesives did not affect their bonding durability to dentin.

Key words:
One-step self-etch adhesives, Dentin bonding durability, Water sorption/solubility

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