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Abstract

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The purpose of this study was to evaluate the influence of intrapulpal pressure simulation on the bonding effectiveness of etch & rinse and self-etch adhesives to dentin. Eighty sound human molars were distributed into eight groups, according to the permeability level of each sample, measured by an apparatus to assess hydraulic conductance (Lp). Thus, a similar mean permeability was achieved in each group. Three etch & rinse adhesives (Prime & Bond NT - PB, Single Bond -SB, and Excite - EX) and one self-etch system (Clearfil SE Bond - SE) were employed, varying the presence or absence of an intrapulpal pressure (IPP) simulation of 15 cmH_2O. After adhesive and restorative procedures were carried out, the samples were stored in distilled water for 24 hours at 37癈, and taken for tensile bond strength (TBS) testing. Fracture analysis was performed using a light microscope at 40 X magnification. The data, obtained in MPa, were then submitted to the Kruskal-Wallis test (a = 0.05). The results revealed that the TBS of SB and EX was significantly reduced under IPP simulation, differing from the TBS of PB and SE. Moreover, SE obtained the highest bond strength values in the presence of IPP. It could be concluded that IPP simulation can influence the bond strength of certain adhesive systems to dentin and should be considered when *in vitro* studies are conducted.

Keywords : Adhesives; Dentin permeability; Dental bonding; Smear layer.

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