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### Abstract

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
Effect of surface treatments on the bond strength of a zirconia-reinforced ceramic to composite resin. *Braz. oral res.* [online]. 2007, vol.21, n.1, pp. 10-15. ISSN . doi: 10.1590/S1806-83242007000100002.

The objective of this study was to evaluate the tensile ( $\sigma_t$ ) and shear bond strength ( $\sigma_s$ ) of a glass-infiltrated alumina-based zirconia-reinforced ceramic (IZ - Vita In-Ceram Zirconia) to a composite resin, testing the hypothesis that silica coating (SC - Cojet, 3M-Espe) produces higher bond strength values than other ceramic surface treatments. Specimens were fabricated and tested according to the manufacturers' instructions, and to ISO6872 and ISO11405 specifications. Sixty IZ disk specimens were polished through 1  $\mu$ m and divided into 3 groups (n = 20) according to the following surface treatments: HF - 9.5% hydrofluoric acid (Ultradent) for 1 min; SB - sandblasting with 25- $\mu$ m aluminum oxide particles for 10 s; SC - silica coating for 10 s. Silane (3M-Espe), adhesive (Single Bond, 3M-Espe) and a composite resin cylinder (Z100, 3M-Espe) were applied and polymerized to the treated bonding area (3.5 mm in diameter). Ten specimens from each group (n = 10) were tested for  $\sigma_t$  and ten specimens were tested for  $\sigma_s$ , using a universal testing machine (EMIC DL 2000) at a crosshead speed of 1 mm/min. The data were statistically analyzed by ANOVA and Tukey tests ( $\alpha = 0.05$ ). The mean and standard deviation values (MPa) and statistical groupings for  $\sigma_t$  were: HF -  $3.5 \pm 1.0a$ ; SB -  $7.6 \pm 1.2b$ ; and SC -  $10.4 \pm 1.8c$ . For  $\sigma_s$ , the values were: HF -  $10.4 \pm 3.1A$ ; SB -  $13.9 \pm 3.1B$ ; and SC -  $21.6 \pm 1.7C$  ( $p < 0.05$ ). The groups presented the same statistical ranking of mean values for both test methods. The SC-treated IZ ceramic presented a significant increase in mean bond strength values for both test methods, confirming the study hypothesis.

Keywords : Ceramics; Composite resins; Tensile strength; Shear strength.

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