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Influence of argon laser polymerization on shear resistance of ceramic brackets

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Abstract

The aim of this study was to evaluate the shear strength of ceramic brackets, according to three variables: adhesive systems (TransbondTM XT kit; TransbondTMPlus Self Etching Primer / 3M Unitek® and ClearfilMT SE Bond / Kuraray® bases of brackets (Mystique®; Resolve® / GAC®) and light sources (LED / Laser and Argon). To this, 84 premolars were divided into three groups (n = 28), according to the adhesive system used; and subdivided into two subgroups (n = 14), (n = 7), respectively, according to the type of bracket and the light source. The teeth were embedded in PVC pipes of ¾ inch, with special gypsum stone, perpendicular to the ground and pipes. The brackets were fixed on the exposed crowns. The teeth were stored at 37° C for 24 hours and then subjected to 1,000 thermal cycles with 30 seconds in each bath (5°C and 55°C). The shear test was performed on Shimadzu testing machine at a speed of 0.5mm/min. The enamel surfaces were qualified through the ARI (adhesive remnant index). Data were subjected to statistical analysis ANOVA, Tukey and Kruskal-Wallis ($p < 0.05$). The results showed that: For the adhesion force: the conventional TransbondTM XT kit was superior to self-etching at the Mystique® base; The Resolve® base obtained a performance statistically superior to Mystique®; LED was statistically superior to laser when in the Resolve® base and adhesive TransbondTM Plus Self Etching Primer. For the IRA: the only significant association occurred in LED, for TransbondTMPlus Self Etching Primer sticker and score 0, in which Resolve®base was superior to Mystique®. It was concluded that the argon laser did not influence the shear strength, nor in the ARI scores.

Biography

Téssia Richelly Nóbrega Borja de Melo has completed her PhD in Laser Dentistry in 2015. She has been working as a Professor of Undergraduate and Graduate Studies in Orthodontics, Integrated College of Patos, Brazil. She is the Editorial Board Member and Scientific Reviewer of The Open Brazilian Dentistry Journal. She has experience in teaching, scientific research and publications.

Publications

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