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Surface treatments affect on bond strength between panavia v5 and four CAD/CAM lithium silicate-based glass ceramic

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Objective: The aim of this study to evaluate and compare the effect of different surface treatments on the bond strength of four CAD/CAM lithium silicate-based glass ceramic.

Material and Method: eighty specimens of lithium silicate-based glass ceramic (LSGC) (IPS e. max[®] CAD (Ivoclar-Vivadent, Liechtenstein, Schaan), Vita Suprinity[®] (Vita Zahnfabrik, Bad Säckingen, Germany), Celtra Duo[®] (Dentsply, Hanau-Wolfgang, Germany) and nice (Straumann, Basel Switzerland). All specimens were highly polished. All specimens assigned to following groups (1) Control (C) no treatment. (2) Sandblasted (SB) with 50 µm Al₂O₃ for 10s. (3) Hydrofluoric acid etched (HF) with 5% Hydrofluoric acid for 20s, and 30s according to manufacture recommendations. (4) SB + HF. Resin cement (Panavia V5, Kuraray Noritake Dental, and Okayama, Japan) was applied and light cure for 5s. The specimens were submitted in distilled water at 37 °C for 30 days and subjected to a micro-shear test. Atomic force microscopy used to evaluate the surface roughness. Data were analyzed by 2-Way Anova and Tukey test ($\alpha = 5\%$).

Result: Sandblasted (SB) demonstrated a rougher surface on Celtra and Vita While. SB+HF showed significantly higher bond strength for Celtra and Vita ($p < .05$). Both sandblasted and SB+HF produced higher surface roughness for e.max and nice. However, etching and SB+HF demonstrated higher bond strength for both e.max and nice.

Conclusion: SB+HF increase the bond strength for both Vita and Celtra, however there is not significant different of bond strength between etching and SB +HF for e.max and nice.

Biography

Muna Bebsh has completed her bachelor at age 22 years from Tripoli University in Libya and she pursued her study for master degree in dental material at Faculty of dentistry University of Manitoba, She had five poster presentation and 2 journal papers under review.

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