Shear bond strength of self-adhering flowable composite on dentin surface as a result of scrubbing pressure and duration

Abstrak:

Background: Self-adhering flowable composite is a combination of composite resin and adhesive material. Its application needs a scrubbing process on the dentin surface, but sometimes it is difficult to determine the pressure and duration of scrubbing. Purpose: This study was aimed to analyze the effect of scrubbing pressure and duration on shear bond strength of self-adhering flowable composite to dentin surface. Methods: Fifty-four mandibular third molars were cut to get the dentin surface and divided into nine groups (n = 6). Dentin surface was scrubbed with 1, 2, and 3 grams of scrubbing pressure, each for 15, 20, and 25 seconds respectively. Composite resin was applied incrementally and polymerized for 20 seconds. All specimens were immersed in saline solution at 37°C for 24 hours. Shear bond strength was tested for all specimens by using Universal Testing Machine (Shimadzu AG-5000E, Japan) at a crosshead speed of 1 mm/minute and analyzed by ANOVA and Post Hoc Test Bonferroni. The interface between self-adhering flowable composite and dentin was observed with a Scanning Electron Microscope (JEOL JSM 6510LA). Results: The highest shear bond strength was obtained by 3 grams scrubbing pressure for 25 seconds or equal to applying the brush applicator in 0° relative to dentin surface. Conclusion: Increasing the scrubbing pressure and duration will increase the shear bond strength of self-adhering flowable composite resin to dentinal surface. The highest shear bond strength was obtained when the applicator in 0° relative to dentin surface.

Keyword:

Daftar Pustaka:

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