



Effect of rewetting agent on dentinal microtensile bond strength

Hee-Young Kang*, Young-Gon Cho

Department of Conservative Dentistry, College of Dentistry, Cho Sun University, Gwangju, Korea

I. Objectives

This study investigated the effect of rewetting agent on dentinal microtensile bond strengths (μ TBS), using one bottle adhesives.

II. Materials and Methods

Non caries human molars were sectioned to exposed the superficial dentin surfaces, etched 15 seconds using 32% phosphoric acid and 10 seconds rinsed. Samples were randomly divided into two groups according to adhesives (Single Bond, One-Step) used. Each group were subdivided into five groups by different dentin surface treatment: 15 second dry (D), blot dry (BD) or 15 second dry and rewetted with distilled water (DW), Gluma Desensitizer (GD) and Aqua-Prep (AP) during 30 second, respectively. After adhesive application and curing, composite resin was built up on the bonding surface. Each tooth was vertically (X and Y axis) sectioned to obtain stick with 1 mm² cross sectional area. μ TBS were determined, and the mean bond strength were statistically compared using one-way ANOVA and Tukey HSD test at the 0.05 probability level.

III. Results

1. In the Single Bond group, the mean μ TBS of GD, AP and BD were significantly higher than that of DW ($p < 0.05$). And the mean μ TBS of DW was significantly higher than that of D ($p < 0.05$).
2. In the One-Step group, the mean μ TBS of AP, GD, BD and DW were significantly higher than that of D ($p < 0.05$). And the mean μ TBS of DW was significantly lower than that of AP ($p < 0.05$).
3. Under same dentin surface treatment, One-Step was significantly higher μ TBS than Single Bond when rewetted with DW ($p < 0.05$).
4. Mean μ TBS of GD, AP and BD were higher than those of DW and D on different dentin treatment ($p < 0.05$).

IV. Conclusions

The data suggest that different dentin surface treatment and rewetting agents affected μ TBS of adhesives used. Gluma Desensitizer and Aqua-Prep could be successfully used as rewetting agents. Distilled water could be acceptable as a rewetting agent in acetone based adhesive only.