IN VITRO COMPARATIVE EVALUATION OF SHEAR BOND STRENGTHS OF FOUR DIFFERENT BULK FILL RESTORATIVE MATERIALS TO DENTIN

By

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ABSTRACT

Title: In vitro comparative evaluation of shear bond strengths of four different bulk fill restorative materials to dentin.

Aim : To evaluate and compare shear bond strengths Activa pronto , Beautifill II, Type IX GIC and Cention N to dentin.

Methodology : 60 caries free permanent premolars extracted for orthodontic or periodontal reasons were collected and were mounted in a cold cure acrylic resin. Occlusal enamel was trimmed using diamond burs and the the specimens were divided into 4 random groups Group A Activa Pronto, Group B – Beautifill II ,Group C – Fuji Type IX GIC and Group D – Cention N. The materials were manipulated according to the manufacturers instructions and were mounted on the exposed dentinal surface. Shearbond strength testing was done using Universal Testing Machine. Data were obtained and were statistically analysed.

Results : There was a statistically significant higher Shear Bond Strength (MPa) among Group B, 14.98 +-3.598 (Beautifill II) when compared to Group A(Activa Pronto) 10.07 +-2.06 ($P<0.001$), Group C 4.93 +- 1.58 (GC fuji gold label Type 9 GIC) ($P<0.001$) and Group D11.46+-3.33 (Cention N) ($P<0.001$).

Conclusion: Under the limitations of this study ,among the materials tested it was found that Beautifill II (Giomer) showed the highest shear bond strength, suggesting its better bonding ability to dentin. Activa Pronto also possess good bonding ability when compared to GIC but not as good as the Giomer.

Key words : Bioactive composites ; Giomer ; Bulkfill ; Nanohybridcomposite ; Glass ionomer ; shear bond strength ; Cention N .