

The effect of Chlorhexidin, EDTA and saline on the composite bond strength to the root dentin of the primary anterior teeth

Abstract

Background: Introduction: one of the available treatment options for restoring severely damaged anterior primary teeth is using composite posts. For placing the post, intracanal space should be prepared by various irrigators to create a proper and strong bond between the post and intracanal space as well as the post and the composite resin. The purpose of this study was to determine the effect of chlorhexidine, EDTA and saline on the bond strength of composite to dentin of anterior primary teeth

Material & Methods: 33 anterior primary teeth were prepared and were randomly divided into 3 groups. Group 1: the teeth were rinsed with saline solution for 60 seconds. Group 2: 2% chlorhexidine solution was used for the irrigation of the root canal for 60 seconds. Group 3: EDTA was used for the irrigation of the root canal for 60 seconds; then the next steps were done for all three groups as follows: First application of bonding agent (G premio; 3M ESPE) ; air drying for 5 seconds; and light curing for 10 seconds. After preparing and placing the composite inside the canals, samples were thermocycled. The bond strength was determined by "Push out" test using universal machine. The data obtained from the study were analysed using the statistical software "SPSS V.20" and one_way analysis of variance ($P < 0.05$).

Finding: There was a statistically significant difference between the mean bond strength of the group 1 (normal saline) and the other two groups (EDTA & Chlorhexidine) and the variable mean bond strength of the normal saline group was lower than the other groups (P .value < 0.001). There wasn't significant statistically difference between the mean bond strength of the EDTA and chlorhexidine groups (P .value < 0.05). As a result, the most adhesive failure was observed in the normal saline group. cohesive and mixed failure were more common in the chlorhexidine and EDTA groups than in the normal saline group.

Conclusion: Due to this study normal saline has the lowest average bond strength compared to the chlorhexidine and EDTA groups.

keywords: bond strength, Composite, EDTA, Root dentin