

The Effect of Antioxidant and Delayed Bonding Time on Shear Bond Strength of Composite Restoration after Bleaching Procedure

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This study determined the shear bond strength of a nanohybrid composite resin to bleached enamel immediately, after antioxidant treatment and 1 week later by using different adhesive systems and after shear bond strength test, the failure modes were observed by using stereomicroscope and SEM. After 20 specimens were separated as the control group (Group 13, 14), Groups 13 were bonded with self – etch Clearfil Tri S Bond, groups 14 were bonded with total – etch Adper Single Bond 2. The remaining 120 specimens were randomly assigned to two bleaching groups (Opalescence Xtra Boost and Beyond Max) of 60 specimens each. Each bleaching group was divided into three subgroups of 10 specimens each. Groups 1, 4, 7, 10 consisted of specimens bonded immediately after bleaching. Groups 2, 5, 8, 11 specimens were treated with an antioxidant agent, %10 sodium ascorbate while groups 3, 6, 9, 12 were immersed in artificial saliva for 1 week after bleaching. They were then subjected to 10000 thermal cycles. The shear bond strength was measured Zwick Z010 (Zwick GmbH, Ulm, Germany) Universal Testing Machine. For the statistical analysis One-Way Anova, Tukey HSD, Student t Tests were used. According to the result of this study, bleaching agents affect the bond strength of composite to bleached enamel negatively and reduced bond strength effectively reversed by 1 week delayed bonding. No statistically significant differences in shear bond strength of self-etch and total-etch groups were noted.

Key words: Adhesive agents, antioxidant, artificial saliva, bleaching, shear bond strength