PENGARUH TEKNIK PEMBERSIHAN DAN ADHESIF PADA GIGI PASCA BLEACHING YANG DIAPLIKASI SODIUM ASKORBAT
35% TERHADAP KEKUATAN GESER PELEKATAN RESIN KOMPOSIT
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PENGARUH TEKNIK PEMBERSIHAN DAN ADHESIF PADA GIGI PASCA *BLEACHING* YANG DIAPLIKASI SODIUM ASKORBAT 35% TERHADAP KEKUATAN GESER PELEKATAN RESIN KOMPOSIT

INTISARI

Bleaching intrakoronal dengan hidrogen peroksida 35% meninggalkan sisa radikal bebas yang menurunkan kekuatan ikatan resin komposit. Aplikasi sodium askorbat 35% kombinasi surfaktan 0,4% digunakan untuk menetralkan radikal bebas, namun dapat membentuk kristal yang mengganggu proses adhesi. Penelitian ini bertujuan mengevaluasi pengaruh teknik pembersihan dan teknik adhesif terhadap kekuatan geser pelekatan resin komposit pasca *bleaching* intrakoronal.

Empat puluh gigi premolar mandibula sesuai kriteria dilakukan *bleaching* menggunakan hidrogen peroksida 35% selama 5 hari dicuci, dikeringkan, selanjutnya diaplikasikan sodium askorbat 35% kombinasi 0,4% surfaktan 2 kali aplikasi, tiap aplikasi 5 menit. Selanjutnya gigi dibagi 2 kelompok teknik pembersihan, kelompok 1 tanpa agitasi, kelompok 2 dengan agitasi. Setelah pembersihan sodium askorbat masing-masing kelompok dibagi 2 sub kelompok A direstorasi resin komposit dengan teknik *etch-and-rinse*, sub kelompok B direstorasi dengan teknik *self etch*. Selanjutnya gigi diuji kekuatan geser pelekatan dengan *Universal Testing Machine*, data diuji dengan ANAVA dua jalur lalu dilanjutkan uji LSD.

Uji ANAVA dua jalur menunjukkan terdapat pengaruh teknik pembersihan, teknik adhesif terhadap kekuatan pelekatan resin komposit dan terdapat interaksi antara keduanya ($p< 0,05$). Hasil uji LSD menunjukkan kekuatan geser pelekatan resin komposit pada hampir semua pasangan kelompok memiliki perbedaan yang signifikan, kecuali antara kelompok IA dan IB. Kesimpulan penelitian ini pembersihan kristal askorbat dengan agitasi manual dan penggunaan teknik adhesif *etch-and-rinse* terbukti meningkatkan kekuatan geser pelekatan resin komposit pada gigi pasca *bleaching*, terdapat interaksi antara teknik pembersihan dan teknik adhesif terhadap kekuatan pelekatan resin komposit.

Kata Kunci: agitasi, sodium askorbat, adhesif, kekuatan geser resin komposit

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THE EFFECT OF CLEANING TECHNIQUES AND ADHESIVES ON POST BLEACHING TEETH APPLIED WITH 35% SODIUM ASCORBATE TOWARD SHEAR BOND STRENGTH OF COMPOSITE RESIN

ABSTRACT

Intracoronal bleaching with 35% hydrogen peroxide leaves residual free radicals that can reduce the bond strength of resin composites. The application of 35% sodium ascorbate combined with a 0.4% surfactant is used to neutralize these free radicals, however, it may result in the formation of ascorbate crystals that interfere with the adhesive process. This study aimed to evaluate the effect of different cleaning techniques and adhesive strategies on the shear bond strength of resin composite restorations following intracoronal bleaching.

Forty mandibular premolars that met the inclusion criteria were subjected to bleaching with 35% hydrogen peroxide for five consecutive days, followed by rinsing and drying. A 35% sodium ascorbate solution combined with 0.4% surfactant was then applied twice, with each application lasting five minutes. The specimens were subsequently divided into two cleaning-technique groups: Group 1 without agitation and Group 2 with agitation. After sodium ascorbate cleaning, each group was further divided into two subgroups: Subgroup A restored with a resin composite using the etch-and-rinse technique, and Subgroup B restored using a self-adhesive technique. The shear bond strength of all samples was then tested using a Universal Testing Machine. The data were analyzed using two-way ANOVA followed by an LSD post-hoc test.

The two-way ANOVA test showed that there are significant effects resulting from both the cleaning technique and the adhesive technique on the shear bond strength of composite resin, as well as a significant interaction between these factors ($p < 0.05$). Post hoc LSD analysis revealed that nearly all group pairs exhibited significant differences in shear bond strength, except for groups IA and IB. In conclusion, ascorbate crystal cleaning with manual agitation and the use of the etch-and-rinse adhesive technique were shown to enhance the shear bond strength of composite resin in bleached teeth, with a significant interaction observed between the cleaning and adhesive techniques.

Keywords: agitation, sodium ascorbate, adhesive, shear bond strength, composite resin