Influence of storage conditions of bonding agent on the microleakage of resin composite restoration

*Paninee L., *Hansa T., Chalermpol L. Department of Operative Dentistry

This study evaluated the effects of different storage conditions of acetone based bonding agents (Prime & Bond NT, Dentsply, USA) on microleakage of Class V resin composite restorations. Forty human premolar specimens with margins in both enamel and cementum were divided into 4 groups with 10 each. Four conditions of bonding agents were prepared; group 1 bonding agent stored in room temperature as a control group, group 2 bonding agent kept in open container for 1 hour, group 3 bonding agent stored at 65°C for 12 hours, and group 4 bonding agent wtored at -2±2°C for 12 hours. Resin composites (Esther X, Dentsply, USA) was restored on the preparing CI V cavities. After restoration, specimens were stored in 37°C water, thermocycled for 500 cycles between 5°C and 55°C, then immersed in 2% Methyleneblue solution for 48 hours. They were sectioned longitudinally through the restorations. The degrees of color penetration were assessed by pictures of sectioned teeth which recorded under microscope (X 50) using two independent evaluators. The data were analyzed by Kruskal-Wallis Test and Mann-Whitney U Test at significant level α = 0.05. It can be concluded that degrees of color penetration at restorations' margins in all groups were not significantly different. Color penetration at dentin margin of restorations in all experimental groups showed significantly greater degree than those at dentin margins.

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