ON MICROLEAKAGE OF COMPOSITE RESTORATIVE MATERIAL WITH TWO DIFFERENT BONDING AGENTS AND DIFFERENT AGING PERIODS (IN VITRO STUDY)

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Abstract

This in vitro study was conducted to evaluate the effect of new modified Carisolv gel with two different bonding systems (Clearfill SE bond which is a fifth generation self etching bond and NT bond which is fifth generation one bottle system) on the sealing ability of one type of composite restorative material (Z100).

96 extracted human sound upper premolars were collected ,the roots of teeth were sectioned and each crown was embedded in acrylic block and only 1.7 mm from the buccal surface was exposed then it was grounded to expose the dentin surface.Cl V Cavity was prepared on the buccal surface after exposing dentin surface . The teeth were randomly divided into four groups, two experimental and two control.

Experimental groups (using Carisolv)

Group A using Carisolv +clearfill SE bond

Group B using Carisolv +NT bond

Control groups (without Carisolv)

Group C using clearfill SE bond without Carisolv

Group D using NT bond without Carisolv

After the teeth were filled ,each group was subdivided into three subgroups, 1st subgroup (8 cavities) aged 1 day and thermocycled for 10 cycles,2nd subgroup (8 cavities) aged 7 days and thermocycled for 70 cycles,3rd subgroup (8 cavities) aged 30 days and thermocycled for 300 cycles.

The buccal surfaces of the teeth were painted with 2 layers of nail varnish except 1mm around the restoration. The teeth were immersed in the 0.5 basic fuchsine dye for 24 hours in the water bath at 37°C ,then they were longitudinally sectioned in a buccolingual direction and the extent of the dye penetration was recorded using stereomicroscope.

The data were statistically analyzed using non parametric statistic (Chi-square test, Kruskal Wallis, Mann-witney test), the results revealed that all samples showed marginal leakage but at different levels.The result showed that new modified Carisolv gel acts to reduce microleakage for samples treated with clearfill SE bond and aged for one day and subjected to thermo cycling for 10 cycles. There was no statistically significant difference between two types of bonding at each time interval; the result also showed that aging and thermocycling affect significantly on increasing micro leakage for all groups except for group which was treated with clear fill SE bond.