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^{99m}Tc in the evaluation of microleakage of composite resin restorations with SonicFill^{TM}. An *in vitro* experimental model

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ABSTRACT

Introduction: The composite SonicFillTM (Kerr/Kavo) is indicated for posterior restorations, with a single increment up to 5 mm due to reduced polymerization shrinkage, thus reducing working time. Aim: Evaluation of marginal microleakage with SonicFillTM. Method and Materials: There were sectioned sixty noncarious human molars in the occluso-cervical direction. Class V cavities were prepared on each tooth with gingival margin walls in a standardized way. The specimens were divided into 4 groups: group 1—restored with SonicFill^{TM} (Kerr/Kavo), group 2—restored with Filtek^{TM} SupremeXTE (3M ESPE), group 3—the cavities were not restored; group 4—restored with SonicFill^{TM} (Kerr/Kavo). In groups 1, 2 and 4 the enamel was conditioned with 37% orthophosphoric acid and applied the self-etch adhesive system Clear- fill^{TM} SE BOND (Kuraray). The specimens were stored in distilled water at 37?C for 7 days. After, the specimens, were immersed in a solution of 99mTc-Pertechnetate and the radioactivity was assessed with a gamma camera. The nonparametric Kruskal-Wallis and Mann-Whitney test with Bonferroni correction at a significance level of 5% were used for the statistical analyses. Results: There are significant differences between the positive and negative control groups and between these and experimental groups ($p < 0.05$). There are no statistically significant differences between the specimens restored with SonicFill^{TM} and Filtek^{TM} SupremeXTE. Conclusion: The new composite SonicFill^{TM} and Filtek^{TM} SupremeXTE showed no difference concerning dye penetration. The Sonic- Fill^{TM} restorative system showed no influence in concerning microleakage.

KEYWORDS

Posterior resin Composites; Composite Restorations; Polymerization Stress; Polymerization Shrinkage; Microleakage; Thermocycling

Cite this paper

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