Abstract

Effect of silver diamine fluoride (SDF) on microleakage of composite resin in anterior deciduous teeth

Introduction: Behavioral control problems generally make restorative treatment of Early Childhood Cries in young children difficult or impossible. One of the preventive interventions is the use of silver diamine fluoride, which works uniquely in the prevention of caries. SDF was not accepted by patients due to aesthetic issues; One of the proposed materials to minimize this side effect was composite resin, which is used as a cover over the SDF layer, but there is still evidence of concerns about the bonding properties of composite resin to decayed dentin that has been pretreated with SDF.The present study aims to investigate the effect of using silver diamine fluoride on composite resin microleakage in anterior primary teeth.

Materials and methods: In this experimental study, 40 deciduous canine teeth extracted for orthodontic reasons collected. Class V cavity with a size of 1.5 x 2 x 3 mm created on the middle third of the buccal surface of the teeth. The samples was divided into two groups based on the treat or non-treat of SDF inside the cavity. In the first group, cavities treated with 38% SDF solution, and in the second group, the cavities washed with distilled water. Then the teeth restored with composite resin. The teeth entered the thermal cycle then they immersed in 1% methylene blue solution for 24 hours. A stereomicroscope used to evaluate the degree of dye penetration. T_TEST, chi-square, Monte Carlo test, and fishers exact statistical tests used for data analysis. After collecting, the samples entered into SPSS software version 25 for analysis.

Result: The frequency of microleakage in the occlusal and cervical walls and the overall microleakage of the teeth in both experimental and control groups did not show any statistically significant difference. (P-value > 0.05). The use of SDF as a pretreatment before the restoration of anterior milk teeth with composite resin will not have any significant effect on the amount of microleakage of composite restoration.

Key words: microleakage, silver diamine fluoride, composite resin, dental caries