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Comparison of Caries Occurrence Between Resin Based and Glass Ionomer Based Pit and Fissure Sealants, in Young Permanent Molars After One Year Application

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Abstract

The use of anatomic grooves or pits and fissures on the occlusal top of permanent grinder, retains food scraps and increases the formation of caries. Sealing and fastening these exposed regions with pit-and fissure sealants has the potential to avert the occurrence of these carious spots on teeth. The tools used for such process have the shape of resin based and glass ionomer cement (referred to as MB hereafter). This study aims to compare white spot index (WDSI) after applying resin based and fissure sealant glass ionomer, and to determine the more efficient types of material over a long period of time method. This study uses experimental pre-test and post-test methods. The research population consists of grade 1 and elementary students from the Elementary School No.2, Central Cepak, Padang. Samples were obtained through purposive sampling. The research involves 2 types of sample each of which consists of 30 children who were given resin based sealant application as well as glass ionomer (ICDAS-II index was used to assess white spot index for lower permanent teeth). The research data was analyzed with SPSS Statistics through unpaired t-test. The result shows that there is no major distinction between resin based sealant application and glass ionomer cement (mean difference score application = 0.23). This study concludes that resin based sealants and glass ionomer cement constitute valuable pit and fissure sealant materials. The reaction of these materials must be evaluated over a longer period to determine the most suitable material and to confirm the application is needed.

Keywords: caries occurrence, resin based, glass ionomer based pit-and fissure sealants (on permanent molar)

1. Introduction

A film of plaque is easy to shed by many circumstances. Such persistent bacterial biofilm causes the demineralization and the damaging of the hard tissues through the production of lactic acid originating from bacteria. The fermentation of the food remains trapped on the tooth. Roughly 70% of the population of the world still suffer from dental caries (Karpinski & Sekaradewi, 2013).

Tooth problems such as WHO category of high prevalence of cavity infection in Indonesia. According to the household health survey (SKRT) caries prevalence coverage 90.05% in 2004. Based on the 2013 Basic Health Research (RISKESDAS) DMFT index was 4.0 nationwide (Indonesia) in 4-7 years old West Sumatera. DMFT index according to age. The 2007 Padang Basic Health Research prevalence caries on the occlusal surface of 6-7 years old children in West Sumatera (52% prevalence). Data as recent as 2011 show a prevalence of 56%.

Cavity is the final phase of a continuing decrease of the mineralized structure of a tooth. It is a localized infection, beginning on the surface of plaque and fiber as non-specific opportunistic infection. These are the decisive factors in the development of dental infection (Cory-Morra, Lerner, & Emswiler, 1974, p. 286-290). Regression period from the cavity to caries is 4-11 months (mean) on smooth surfaces (as reported by the authors in 11 months). Peak prevalence for the prevalence of caries occur 3 years after the last preventive pit-and fissure sealant application (more rapidly than unsealed surface) occurs. Proper oral hygiene and frequent application of fluoride containing oral care product on the tooth surface (white spot) lesions (mean) on the occlusal surface of deciduous teeth occur in 3 weeks (Heyman, 1994, p. 80) & Gillette (1973).

Competing Interests Statement

The authors declare that there are no competing or potential conflicts of interest.

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