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Effectiveness of seven types of sealants: Retention after one year

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Statement of the Problem: Nowadays there is a shift from treatment to prevention of caries thus resulting in conservation of tooth structure. There are two main strategies used to deal with deep pits and fissures; topical fluoride application, and pit and fissure sealants. Topical fluoride application is more effective in smooth surfaces of the tooth, while pit and fissure sealant is used successfully in the occlusal surface. The aim of this study is to determine the retention rate and pattern of seven pit and fissure sealants placed on the occlusal surface of newly erupted first permanent molars after three, six, nine and 12 months.

Materials & Methods: 70 children with the age group 8-10 years were enrolled in this study. The inclusion criteria for enrolment in this study were: Good oral hygiene, cooperative children with no caries in their teeth, and fully erupted first permanent molar. The exclusion criteria were: Bad oral hygiene, uncooperative, children having caries in their teeth and mentally challenged children. They divided into seven groups (m=10) according to the type of the sealant. The four permanent first molar of each children were sealed. The sealant was applied according to the manufacturers' instructions. Clinical evaluation was carried out at three, six, nine and 12 months. The clinical observations were divided into three categories; TR (total retention), PR (partial retention) and TL (total loss).

Results: Resin based sealant performed better than glass ionomer based sealant except for Ketac Molar Easymix. At three months there was no significant difference among all the tested groups ($P>0.05$), while at six, nine and 12 months, there was a high significant difference ($P<0.001$). Glass carbomer sealant showed the least retention rate at all intervals.

Conclusion & Significance: With exception of Ketac Molar Easymix, resin based sealers performed better than glass ionomer based sealers. Proper application of pit and fissure sealant will decrease the chance for caries development in newly erupted teeth

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