"Efficacy of caries removal by conventional and a new chemo-mechanical method Papacárie® in reducing cariogenic flora in primary molars and its effect on behaviour of children. A comparative study."

by

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Abstract

Background and objectives:

Dentistry has very commonly been associated with pain and discomfort. Fear of needle pricks and drilling machines make most children apprehensive about going to the dentist. The chemo-mechanical caries removal method was mainly developed to surpass such inconveniences. This process not only results in the removal of just the infected dentin, but also preserves sound dentin structure, with no pulpal irritation or patient discomfort and a better patient acceptance. This study was aimed to determine the effectiveness of Papacárie®, a new chemomechanical method for caries removal as compared to the Conventional method in terms of microbial flora, time, amount of tissue removal, child behaviour, child's pain perception and child's preference of treatment. Thus giving an overview of its application and scope in the field of pediatric dentistry.

Methodology

The study was carried out in Dept. of Pediatric Dentistry S. D. M. College of Dental Sciences, Sattur, Dharwad, Karnataka. 60 primary molars of 30 children were selected from the Dept. OPD having either deciduous dentition or mixed dentition. The study sample was divided into two groups A and B having 30 teeth in each group. Group A received Conventional method of caries removal and Group B received Papacárie® method of caries removal.

The preparation time for both the methods were recorded with the help of a stop watch. The maximum cavity entrance size was measured and recorded before and after the treatment with the help of a divider and digital Vernier caliper in both the methods. Behaviour scores for each group were determined with Wright's modified Frankel's behaviour rating scale before, during and after the treatment in both methods. After complete caries excavation the dentin samples were collected from each tooth and microbial culture was done for Total Bacterial Count and Lactobacilli Count. The child was interviewed and recorded after each treatment procedure regarding whether he/ she felt any pain or discomfort and also method prefered by the child.

Results and Discussion

After statistical analysis it was observed that no significant difference was there between both the method in terms of microbial growths and reduction in Total Bacterial Count and Lactobacilli Count ($P>0.05$). Papacárie® method took more time during preparation of cavity than Conventional method ($P<0.05$). The difference in cavity entrance size was comparatively lesser in the Papacárie® method ($P<0.05$). When comparing the behavioural score before, during and after the treatment there was a significant difference in behaviour seen in the Conventional method ($P<0.05$) but not in the Papacárie® method ($P>0.05$). The number of children who felt pain in Papacárie® method was significantly lesser than the Conventional method ($P<0.05$). There was no statistically significant difference in the treatment prefered by the child ($P<0.05$).

Conclusions

Thus it can be concluded that Papacárie® method of caries removal can be used as an effective alternative technique for removing caries from teeth in children. It helps to preserve dental tissue, appeared to be more comfortable for most of the children, reduced pain during treatment, although the clinical time spent in the treatment was longer than the Conventional method.

Key words- Papacárie®; Chemo-mechanical caries removal; Caries removal time; Size of the opening of the cavity; Cariogenic flora; Behaviour assessment; Pain; Preference.