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The Comparative Study of the Treatment for Carious Primary Molars- A Survey Among General Dentists and Pedodontists

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Abstract:

Introduction:
Dental caries is a multifactorial infectious disease of the tooth which is commonly seen in children as the primary teeth have thinner enamel than permanent teeth.There are various methods of treating primary molar caries such as Hall's technique which is method that uses Preformed metal crowns cemented to the tooth without using anaesthesia or removing the dental caries followed by conventional restoration technique.

Aim and objective:
A study was conducted; to know which treatment option is commonly practiced by general dentists and pedodontists.

Materials and methods:
The study conducted was a qquestionnaire survey-consisting of 6 questions and 60 dentists participated in the study which comprised of - general dental practitioners and Pedodontists from Chennai, Tamil Nadu, India
The results were compiled using Microsoft Excel 2007.

Results:
Out of 60 dentists that took part in the study, 85% of both general practitioners and pedodontists preferred using conventional dental restoration over any other treatment option.

Conclusion:
Conventional dental restoration is most preferred but Hall's technique also proves to be the new alternative non invasive treatment for carious primary molars.

Key Words: conventional technique, dental caries, Hall's technique, pedodontists

INTRODUCTION:

Dental caries is one of the most common infectious diseases of childhood, which leads to pain and tooth structure loss [1].Caries is a main problem in children of various age groups and posed as a serious public health issue in both the developing and developed nations. Dental caries that begin during the early age of the child are usually left untreated and progress to more serious issues such as damage to the localized structures like developing permanent teeth and children with congenital cardiovascular disease, immunosuppression or immunodeficiency are at larger risk of complications due to the dental disease. Dental caries has many detrimental effects like loss of sleep, interference with nutrition, behavioural changes and poor aesthetics [2, 3].This later affects the life of the child and family leading to some major social and economic consequences [4].

Nowadays various treatment options have arose to treat caries but the successful management of caries is a problem regarding care, behavioural issues and definitive care until the exfoliation of the affected tooth. Scientific research continues to go full speed ahead in identifying the best practices for diagnosis, treatment and prevention of this disease and traditional methods involving removal of caries in a surgical manner are slowly being replaced by lesser invasive techniques that remove most of the infected dentin and isolate the cariogenic bacteria from its nutrient source which are proving to show better treatment outcomes [5,6].

Primary molars are more prone to caries due to its occlusal morphology, as food tends to accumulate in the pits and fissure regions of the molars. The tooth once infective with caries has more chances of affecting the pulp as, the pulp to crown ratio is greater than that of permanent teeth, providing reduced protection to the pulp from caries, and primary molars with the marginal ridge breakdown have been shown histopathologically to have pulpal inflammation (Duggal et al.2002).

AIM:

The aim of the study by the means of a questionnaire was to determine which treatment option is usually opted for the treatment of these carious primary molars and also how the treatment varies between general dentists and pedodontists.

MATERIALS AND METHODS:

The study was designed to evaluate which treatment option is often preferred for the treatment of carious primary molars among general dentists and pedodontists in Chennai. The study was focused on the age group of the children, type of caries involved and the clinical success of the treatment procedure. A total of 60 dentists volunteered and successfully the survey was completed. The study group presented were from two specific fields of dentistry: 50% general practitioners of dentistry and 50% paediatric dentistry.

The questionnaire used in the study was written in English and consisted of a total of 6 questions.

The results were compiled using Microsoft Excel 2007.

Table 1

The table lists the questions of the questionnaire

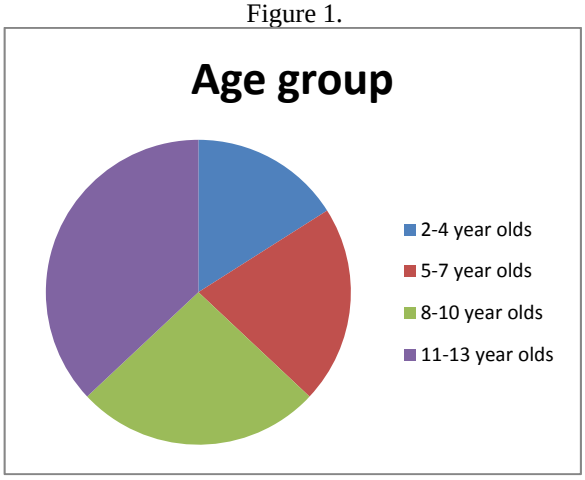
1.	The age group of the children that visit the dentist to treat caries
2	The type of caries commonly seen
3.	Type of treatment option preferred
4.	Type of treatment option preferred for Class 2 caries
5.	Efficacy of the treatment option preferred
6.	Opinion on Hall's technique

RESULTS:

A total of 60 dentists out of which 30 were general dentists and 30 were pedodontists were approached and all 30 of them participated in the survey.

Age group:

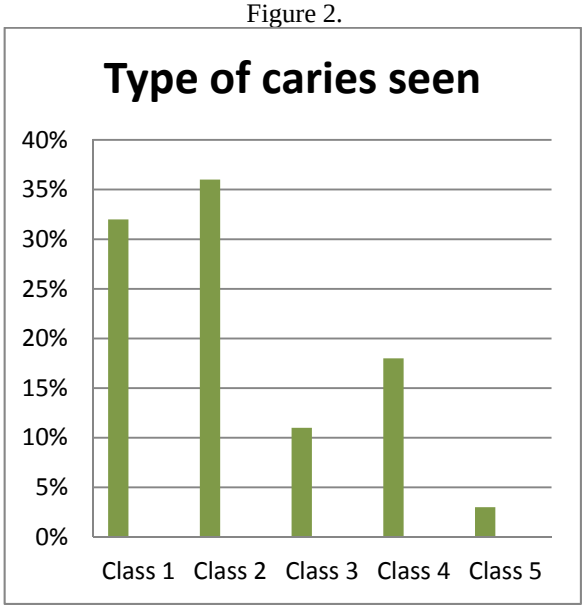
Figure 1.



About 16% of 2-4 years old,21% of 5-7 years old,26% of 8-10 years old and majority of 37% of 11-13 years old visit the dentist regularly to treat dental caries.

Type of caries seen:

Figure 2.



Class 2 caries is mostly commonly treated among children followed by Class 1, Class 4,Class 3 and Class 5.

Treatment Option preferred:

For the treatment of dental caries most dentists prefer doing a dental restoration (85%) and the remaining (15%) prefer to select the treatment option based on the type and severity of dental caries.

For the specific treatment of Class 2 caries, again most of the surveyed dentists prefer dental restoration (87%) , with the remaining 13% opting for Halls technique stainless steel crown. No dentist wanted to leave the Class 2 dental caries untreated but dental extraction was only preferred if the tooth was severely damaged.

Clinical success of the treatment preferred:

Majority of the dentists stated that the Dental restoration with amalgam showed superior clinical success especially for the primary molars. Therefore the conventional dental restoration is most preferred.

Opinion on Hall's technique:

About 57 out of 60 dentists surveyed knew about Hall's technique as the preformed metal crown given for treating Class 2 caries in primary teeth but did not prefer to use this technique. The pedodontists also preferred doing conventional dental restoration rather that Hall's technique as better treatment outcomes were obtained but only used Hall's technique if the specific conditions were present ensuring isolation of the infective tooth.

Discussion:

Restorative care of dental caries is only part of the solution; it should be effective in terms of managing the disease and its acceptability to children, their carers and dentists. In children, restorative care of carious primary molars is difficult as the techniques used might not pleasing to them as conventional restoration and extraction require administration of local anaesthesia. Therefore treatment suggested by the dentist is based on the ability of the child to cope with the dental procedure and which treatment option gives the best outcome [7].

Conventional Dental restoration:

Conventional dental restoration is a technique where a restorative material such as Amalgam, composite, GIC etc are placed in a prepared cavity where the caries was present to restore the function, integrity and morphology of the missing tooth structure.

Dental amalgam is the most commonly used restorative material used in posterior teeth for over 150 years and still is continued to be used throughout the world today. The use of dental amalgam has declined due to the safety concerns for mercury. Evidence shows that for Class 1 and Class 2 restoration, amalgam is considered to be efficacious for primary teeth having a life span of about seven years approximately.

Composites are also another type of restorative material known for its aesthetic purposes and have been replacing amalgam for the restorations of carious lesions. Studies have shown that Class 1 composite restorations are successful but for Class 2 restorations not enough data has been collected.

Glass Ionomer cement is also used but it is specified for high caries risk population [8].

The only drawback for conventional dental restoration is that it's a procedure that requires local anaesthesia, drilling and filling which leads to dental anxiety.

Hall's Technique:

This method involves the usage of preformed metal crowns that are filled with Glass Ionomer cement and pushed onto the tooth surface with no caries removal, local anaesthesia and tooth preparation. The absence of LA and the rotary devices makes this procedure a time saving and less demanding on the child and the dental team, this technique has the potential to improve compliance in young children and reduce their anxiety with the treatment. Hall's technique is mainly used for the treatment of Class 2 Caries where there is extensive demineralization. The aim of Hall's technique is to isolate the carious lesion to one particular tooth to prevent spreading to other teeth. Evidence also claims that preformed metal crowns have a greater longevity than amalgam.

A clinical trial conducted in Scotland (Innes & Evans et al2007,2011) compared the Hall's crown with the traditional restorative technique and the studied indicated that 92% of the teeth with Hall Technique were successful compared to 52% of the teeth with conventional restoration. Some of the cases where this technique is contradicted: when the tooth is close to exfoliation, when the patient is known to allergic or sensitive to nickel and if there is pulpal involvement.

Only pedodontists are trained in this technique and the general dental practitioners prefer doing conventional dental restorations [7].

CONCLUSION:

Dental caries is a common dental disease seen in most children; there are different techniques to treat the caries depending on the site and amount of tooth structure loss. From the study it was concluded that most dentists which involves the general practitioners and the pedodontists both prefer to use conventional restorative treatment but Hall's technique also proves to be an alternative and non-invasive method for the treatment of dental caries and requires further evaluation through randomized control clinical trial before it can be generally recommended.

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