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Comparative Evaluation Of Pattern Of Caries In Primary Maxillary First Molars And Mandibular First Molars In Children

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Abstract: The aim of this study is to assess the pattern of caries in primary maxillary and mandibular first molar in children visiting a University Dental Hospital.Dental caries is a significant oral health problem in children which compromises the overall well being of the child. The pattern of caries distribution in the deciduous teeth is not symmetrical with some teeth being more prone to decay as compared to others. In this present study, the various patterns of Dental Caries in primary maxillary and mandibular first molars will be assessed and comparative evaluation is done.A Sample of 566 patients visiting the hospital were taken (The University Dental Hospital). The Data is collected from Dental Information Archiving Software. All the case sheets were reviewed and clinical findings are recorded. The data is then tabulated and analysed with the help of SPSS and Excel.In this study it is observed that the patients with the caries on maxillary molars (63.4%) are more affected with caries then the people affected with caries on the mandibular molars (36.6%). It is also observed that the people with class 2 caries in the first molars. Class 1 caries (22.6%) were predominant than class 2 caries (13.6%). To one more observation , there was only (0.35%) for people affected with class 5 caries in mandibular molar . Whereas in maxillary molars , none of the people were affected with class 5 caries. Within the limits of the study , it is concluded that the patients with caries on maxillary first molars are more affected than the people affected with caries on mandibular first molars.

Keywords: Maxillary 1st molar , Mandibular 1st molar , Dental caries and class 1,2 and 5.

INTRODUCTION

Dental caries is a multifactorial disease and crippling affliction of oral cavity. It is a most prevalent and chronic disease (Selwitz, Ismail and Pitts, 2007). Dental caries progress when the production of acids by bacteria , acting on the dietary carbohydrates (Iles, no date). It is a significant oral health problem in Chennai. Dental caries is a preventable disease (Govindaraju, Jeevanandan and Subramanian, 2017a). These dental caries occur mostly among children. It also occurs mostly on molars(Jeevanandan and Govindaraju, 2018) It can occur from the age of 2 years (Govindaraju, 2017a; Jeevanandan and Govindaraju, 2018). It is most common in children of age group 2 to 12 years of age . Paediatric dentistry holds the age group upto 17 years of age.

The pattern caries distribution in the deciduous teeth is not symmetrical with some teeth being more prone to decay as compared to the others(Govindaraju, 2017b) (Dikshit, 2018). Dental caries is one of the most common early childhood diseases. It is at least five times more common than asthma (‘Caries risk assessment and individualized caries prevention’, 2012)(Christabel and Linda Christabel, 2015)(Lakshmanan et al., 2020). Dental caries not only lead to tooth damage but it is also associated with various morbid conditions of the oral cavity and other specific problems (Govindaraju, Jeevanandan and Subramanian, 2017b).

The prevalence of dental caries varies with age , so -cio economic status , race, food and oral habits (Murray and Majid, 1978). The habits like prolonged bottle feeding , frequent use of commercial foods , junk foods or fast foods , stick foods (Subramanyam et al., 2018)(sweets , hoclates) and also due to insufficient use of fluoride toothpaste (Somasundaram, 2015; Govindaraju, Jeevanandan and Subramanian, 2017b).

Decay present in primary dentition is the best predictor of decay , which will appear in the permanent dentition(Packiri, 2017). The location of caries differs in each case (Jeevanandan, Ganesh and Arthilakshmi, 2019). It is based on the factors like tooth morphology, bacterial ecology at the sites and saliva (Gurunathan and Shanmugaavel, 2016; Veerale Panchal, Jeevanandan and Subramanian, 2019). Most of the cases the caries occur on the molars as per the review of previous articles (Ravikumar, Jeevanandan and Subramanian, 2017)(Govindaraju, Jeevanandan and Subramanian, 2018)Our team has rich experience in research and we have

collaborated with numerous authors over various topics in the past decade (Deogade, Gupta and Ariga, 2018; Ezhilarasan, 2018; Ezhilarasan, Sokal and Najimi, 2018; Jeevanandan and Govindaraju, 2018; J et al., 2018; Menon et al., 2018; Prabakar et al., 2018; Rajeshkumar et al., 2018, 2019; Vishnu Prasad et al., 2018; Wahab et al., 2018; Dua et al., 2019; Duraisamy et al., 2019; Ezhilarasan, Apoorva and Ashok Vardhan, 2019; Gheena and Ezhilarasan, 2019; Malli Sureshbabu et al., 2019; Mehta et al., 2019; Rajendran et al., 2019; Ramakrishnan, Dhanalakshmi and Subramanian, 2019; Sharma et al., 2019; Varghese, Ramesh and Veeraiyan, 2019; V. Panchal, Jeevanandan and Subramanian, 2019; Gomathi et al., 2020; Samuel, Acharya and Rao, 2020)
This present study was undertaken with the aim of assessing the caries pattern in both primary maxillary and mandibular first molars. The children of a particular age group were taken from data and were analysed. This study will create awareness and pave the way for early diagnosis and treatment.

MATERIALS AND METHODS

This study was a retrospective institution based study, conducted in Saveetha dental college. The study data was obtained from the online Dental Information Archiving Software of Saveetha Dental College. All the required data like Gender, types of Caries pattern were collected. Total sample size of the study was 566.The study included paediatric patients who visited the Saveetha Dental College during the time period- December 2019 to March 2020 . The advantage of collecting data was easy and flexible data retrieval . Ethical approval was obtained by the institutional ethical board at Saveetha University . The data was examined and verified by two examiners and subjected to statistical analysis.
Statistical Analysis : The data was analysed using IBM SPSS software version 20.0 . Descriptive statistics and comparison was performed using Pearson chi square test. $p<0.05$ was considered as statistically significant.

RESULTS AND DISCUSSION

All the required data like Gender, types of Caries pattern were collected and analysed using the data was collected and analysed using the data from the software used in saveetha dental college.Total sample size of this study is 566. In this study we observe that (63.5%) of the maxillary first molar , then the caries on the mandibular first molar (36.6%). The assessment is similar to the study done by Dermirci (Demirci, Tuncer and Yuceokur, 2010).

Fig.1: Bar chart depicting the frequency of both mandibular and maxillary first molar and association with caries pattern. X axis represents the percentage of type of first molars affected with caries and Y axis represents the number of patients with Caries status on the molar . This graph shows that high severity of patients affected with caries on maxillary first molar than the mandibular first molar.

The various caries patterns were analysed. It was observed that people with caries on maxillary first molars , predominantly (33.21%) of them had class 1 caries. The study, contraindicating our study, was given by Eigbobo. J (Eigbobo and Etim, 2015). The Mandibular 1st molar were observed for the caries pattern and found that there were (22.6%) people affected with class 1 caries than the people with class 2 caries on the mandibular first molar (13.6%) (Govindaraju, Jeevanandan and Subramanian, 2017b). No study shows contraindicating the statement.

The previous study supported the statement comparatively , more class 1 caries (75%) then class 2 caries (25%) by Horowitz HZ (Horowitz, Heifetz and Poulsen, 1977). The upper teeth are more prevalent than the lower teeth for both the genders. The study supporting this statement was given by Hamza M (Hamza et al., 2020).

It was also observed that about (0.35%) of people were affected with class 5 caries (mandibular 1st molar) and none of them were affected with class 5 caries on the maxillary 1st molar. A similar study indicating this statement was given by Violet B Tumer (Turner, 1952).

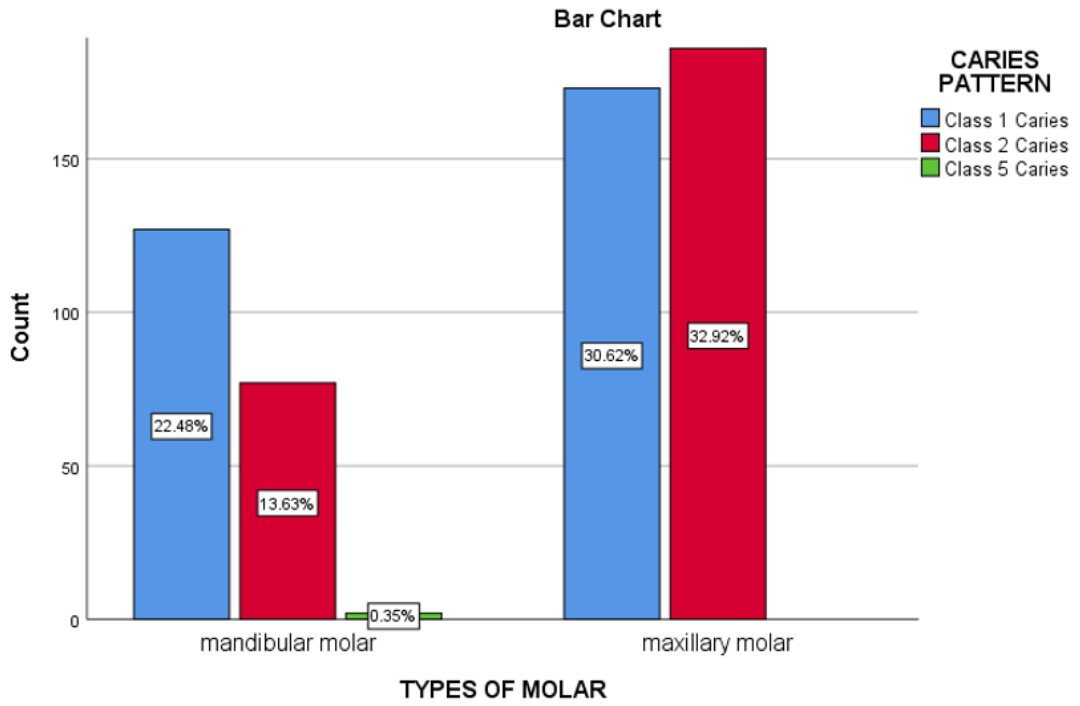

Fig.2 : Bar chart depicting the frequency of both mandibular and maxillary first molar and association with types of caries pattern. X axis represents the percentage of patients affected with caries on both Maxillary and Mandibular first molar. Y axis represents the types of Caries pattern status on maxillary and mandibular first molar. This graph shows the percentage of Class 1, 2 & 5 Caries pattern in both Mandibular and Maxillary First molar. Blue colour indicates the class 1 caries in both maxillary and mandibular first molar and Red colour indicates the class 2 caries in both mandibular and maxillary molar. Green colour indicates class 5 caries on both maxillary and mandibular molars. Maxillary molars have a higher percentage of Class 2 caries (32.92%) compared to mandibular molars. This was found to be statistically significant. Pearson's chi square value - 25.164 , p value - 0.0 (<0.05) .

From graph 2 we can see the percentage of people affected with caries 1, 2 and 5 on the mandibular first molar and also in maxillary first molar. It's clear that people with caries in the maxillary first molar are more affected . There are certain limitations for this study. The sample size and duration of the study can be expanded to get better resists and interpretation. This study helps in raising awareness about caries pattern and its comparative occurrence among clinicians and patients. It also helps in early diagnosis of Dental caries to provide better treatment options for the patients. Further research should be done to study among a wider or larger population.Our institution is passionate about high quality evidence based research and has excelled in various fields ((Pc, Marimuthu and Devadoss, 2018; Ramesh et al., 2018; Ezhilarasan, Apoorva and Ashok Vardhan, 2019; Ramadurai et al., 2019; Sridharan et al., 2019; Vijayashree Priyadharsini, 2019; Mathew et al., 2020)

CONCLUSION

Within the limits of this study, we observed that 63.4% patients were affected with caries on the maxillary first molars and the patients with mandibular molar 36.6 %. Hence it is concluded that patients with caries on maxillary first molars were predominantly affected 63-4% than the patients with caries on mandibular first molar 36.6%. Thus this study will create awareness and knowledge about the caries and its occurrence .It also helps in early diagnosis and treatment.

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