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TO DETERMINE DENTAL DEFECTS & PERIODONTAL STATUS OF PATIENTS WITH CLEFT LIP & CLEFT PALATE – A CROSS-SECTIONAL STUDY

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ABSTRACT Introduction: The aim of this study will be to assess the prevalence of dental defects and periodontal status in Cleft patients up to 18 years old children in Rajasthan. Materials and methods: The sample consisted of hundred cleft patients in the study group and hundred patients in the control group of under 18 years of age. Clinical examination was performed on all the patients to detect dental defect using m-DDE index. Student's t-test was used to compare the means between cleft group and the control group. The Chi-square test was employed to determine statistical differences in frequencies between the two groups and also, we have evaluated the prevalence rate of dental defects according to their age criteria. Results: Poor oral hygiene and periodontal status was observed in cleft patients, respectively. In all tested dental defects, a higher frequency of dental anomalies was noted in the cleft patients as compared with the controls. There was also some significant difference in dental anomalies according to their age variations. Conclusion: This study shows that cleft children have higher prevalence of dental anomalies than normal children. It's essential that the patient with a cleft is monitored closely with regular follow up. Education about oral health must be given repeatedly.

KEYWORDS :

INTRODUCTION

Oro-facial clefts are a major public health problem affecting 1 in every 500 to 1000 births worldwide[1,2]. According to World Health Organization (2001), every 2 minutes a child is born with a cleft and in India alone three infants are born every hour with clefts[3,4]. Affected children have a range of functional as well as aesthetic problems. These includes difficulties in breast feeding due to improper oral seal, swallowing and nasal regurgitation, other associated problems are hearing difficulties due to abnormalities in the palatal musculature, and speech difficulties due to nasal escape and articulation problems[4,5].

Children with clefts rarely escape dental complications. Since these children and their parents give more importance to the surgical correction of their clefts and neglect their dental health, they tend to have more decayed and missing teeth, and poor oral health as compared to that of normal children [6,7]. However, reports on the oral health status of children affected by clefts have for the most part been limited to clinical samples, have lacked control comparison groups and have been very selective in terms of oral health aspects studied.

This initiated our present study to determine differences in the periodontal & gingival health, and enamel defects in children with and without cleft in Rajasthan.

AIM AND OBJECTIVES:

The aim of this study is to assess the prevalence of developmental defects of enamel and periodontal status in Cleft patients up to 18 years old children in Rajasthan.

To evaluate the prevalence of developmental defects using modified developmental defects of enamel index (m-DDE). To evaluate the periodontal health using community periodontal index of treatment needs (CPITN).

MATERIALS AND METHOD:

Hundred healthy patients visiting the Department of Pediatric and Preventive Dentistry, Darshan Dental college and Hospital, Udaipur under the 18 years age were selected. Ethical clearance was obtained from the Ethical committee to perform clinical and Radiological examination on patients._Selection of Participants were done with Inclusion Criteria Patients willing to participate in the study, Patient up to the age of 18 years, patients who have already been diagnosed with cleft. Exclusion Criteria Patients who are un-cooperative or not willing for the study and surgically treated patients.

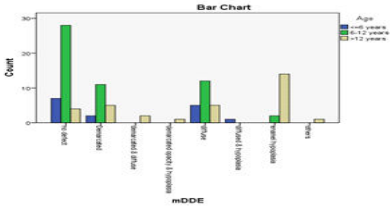
The study was carried out on a total number of 100 cleft children patient from new born to 18 years with mean age (10.64±3.94) in cleft care center located in the suburbs area of the city of Rajasthan. There was a total of 100 patients, including 54 boys and 46 girls, with cleft lip and/or cleft palate. To evaluate the oral health status, two groups divided in to control group and study group. Developmental defects was diagnosed clinically without radiograph. The developmental defects of enamel was compared in between study group & control group. The Modified Developmental Defects of Enamel Index (FDI, 1992) was used to classify and diagnose the changes in the enamel of the teeth examined. Buccal, occlusal or incisal and lingual or palatal surfaces of all teeth were examined and enamel defects were assessed according to three indicators such as hypoplasia of the enamel diffused and demarcated opacities. A surface with a single abnormality <1 mm in diameter was classified as normal. To compare the actual & potential problem of periodontium of study group & control group CPITN index was used. The CPITN was modified for the primary dentition through the substitution of the following index primary teeth for the recommended permanent teeth - the second primary molars in the posterior sextants (55; 65; 75; 85) and a central primary incisor (51; 71) in the anterior sextants. Substitute teeth were selected for missing teeth using the following rules based on criteria recommended for the permanent dentition (Ainamo et al, 1982); if in a posterior sextant, one of the two index teeth was absent, then the examination was based on the remaining index tooth. o if in the anterior maxillary sextant 51 was absent then 61 was substituted; if both 51 and 61 were absent the worst score from the remaining incisors was recorded. Similarly in the mandible, 81 was substituted if 71 was missing and so on. o if all teeth in a sextant were missing or only one functional tooth remained in an anterior sextant, the sextant was not recorded.

OBSERVATIONS, CALCULATION & STATISTICAL ANALYSIS:

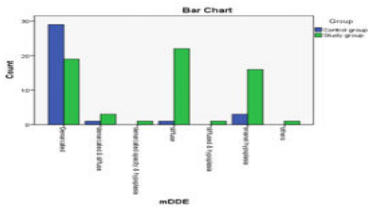
Data was analyzed using Statistical Package for Social Sciences (SPSS) version 21, IBM Inc. Descriptive data was reported for each variable. Descriptive statistics such as mean and standard deviation for continuous variables was calculated.

In this study a total number of 100 cleft children patient from new born to 18 years with mean age (10.64±3.94) were collected from the cleft care center located in the suburbs area of the city of Rajasthan. There were a total of 100 patients in the study group, including 54 boys and 46 girls, with cleft lip and/or cleft palate. To evaluate the oral health status. The data were analyzed by SPSS (21.0 version). CHI-Square test was done to compare all the categorical variables and the independent t-test to compare the two groups. Level of statistical significance was set at p-value less than 1.

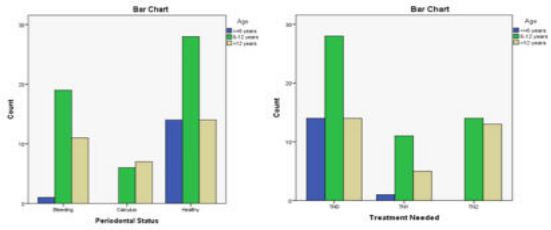
RESULT:



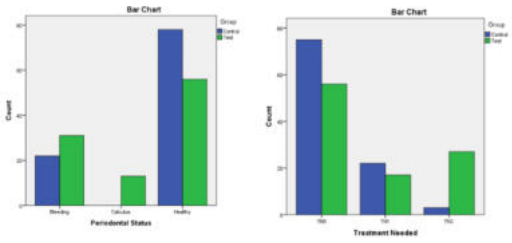
Graph 1: Intragroup comparison of m-DDE of study group



Graph 2: Intergroup comparison of mDDE of study group with the control group



Graph 3: Intragroup comparison of CPITN in study group



Graph 4: Intergroup comparison of CPITN of study group with the control group

DISCUSSION:

In the present study, 68 out of 100 cases came from rural areas whereas only 32 cases came from urban areas of the Western states of India. Although this can be a chance, the possibility is reduced since the recruitment was spread out over one year. For definitive conclusion of whether frequency of cleft defects is higher in the rural setting in India, population-based studies are required as have been done in the United States and China[7].

This was a comparative cross-sectional study of children with and without clefts matched for sex and age. Although this was time consuming it enabled a reasonably large and representative sample to be obtained. To our knowledge, this was the first study to determine the levels of dental defects and periodontal disease in adolescents with CLP in Rajasthan. Assessment of oral health status is essential for the planning of appropriate preventive and restorative care to maintain optimal oral health of individuals with CLP.

Enamel Defects: Maciel et al., 63 found that the prevalence of defects was higher on the cleft side than on the noncleft side, and higher in permanent teeth than in deciduous teeth. These findings may have been related to the pathological processes responsible for clefts, as well as the exposure of permanent teeth to potential prenatal and postnatal etiological factors for longer periods than deciduous teeth. The present study supports the hypothesis that the same factors underlying the incidence of clefts may also be responsible for the increased prevalence of enamel defects in these individuals. We analyzed the presence of enamel defects across all quadrants in both cleft and non-cleft groups. The results indicated a significant increase in the prevalence of enamel defects in the cleft group.

Periodontal Health: Oral disease represents a major health problem among patients with orofacial clefts. The prevalence and severity of oral disease among cleft group were higher when compared to the general population. In the study we had observed that poor periodontal health and oral cleanliness more prevalent in children with cleft defects. These results may be due to low physical abilities, consequent difficulties in tooth brushing, limited understanding on the importance of oral health management, difficulties in communicating oral health needs and fear of oral health procedures.

The present study demonstrated the healthy periodontium in study group with 56% , 31% gingival bleeding. We also found that, among 100 study subject group 17% needed oral hygiene instructions, 27% requires oral prophylaxis and oral hygiene instructions. Our results were attributed to the study done by Saini Monika et al.8 who had evaluated oral hygiene status in cleft children and found similar results. Poor oral hygiene makes intensive efforts necessary to improve hygiene and prevent further pocketing. Thus, the cleft patients must themselves be held for adequate oral hygiene and future state of their teeth.

The limitations of this study primarily comprise the general limitation of cross-sectional studies, in that all enamel defects in all individuals in both groups were evaluated at a single, specific time. Other developmental risk factors (e.g., malnutrition and birth weight) that might influence enamel formation were not controlled in this study. Furthermore, no corresponding mechanism studies were performed to investigate reasons underlying the association between cleft presence and occurrence of enamel defects.

CONCLUSION:

Children with cleft tend to fare worse in terms of dental defects, gingival & periodontal health than normal healthy children. These findings have implication in advocation for oral health care for children with clefts.

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