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Evaluation of oral health and dental caries status among haemophilic children in Trivandrum, South India

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ABSTRACT

***Aim**: The present study was conducted to assess the oral health and dental caries status of children with Hemophilia and compared to controls. **Materials and Methods**: Questionnaires were distributed to parents of both the groups to assess factors like dietary habits, brushing frequency of the children, educational level and the dental hygiene habits of parents. The Decayed, Missed and Filled tooth surfaces (DMFT, DMFS, dmft, dmfs) scores of permanent and primary dentition were recorded in 42 children with Hemophilia in the age range of 6 to 12 years and compared with 50 healthy children in the same age group. Data was analyzed using Chi-square, Kruskal Wallis and Independent t-test. **Results**: The brushing frequency of haemophilic children and their parents was found to be less when compared with the control group. Patients of the study group were significantly more caries prone and had poor oral hygiene when compared to controls ($p< 0.05$). **Conclusion:** It can be concluded by this study that children with Hemophilia had a significantly higher prevalence of dental caries and poor oral hygiene when compared to controls which might be attributed to the lack of proper oral hygiene habits and lack of motivation of parents regarding the importance of good oral hygiene.*

Key Words: *Children, Hemophilia, Oral health.*

I. Introduction

Hemophilia is a group of inherited coagulation disorders characterized by a defect in the clotting mechanism. Hemophilia is inherited as an X-lnked recessive trait and exists in two main forms, Hemophilia A due to deficiency of Factor VIII and Hemophilia B due to deficiency of Factor IX. Hemophilia A is the most common of these and accounts for about 80% of bleeding disorders [1]. Males are affected and the trait is

carried in the females without clinical evidence of the disease. Severe clinical bleeding is seen when the Factor VIII level is less than 1% of normal [2]. Fear of bleeding on tooth brushing and during dental procedures lead to negligence of dental care by the hemophiliacs. The two main dental diseases affecting every person including those with congenital bleeding disorders are dental caries and gingivitis [3]. Patients with haemophilia require special attention and care during dental procedures. The present study was undertaken to evaluate the oral health and dental caries status of children with haemophilia in comparison to that of normal children and to assess the influence of other factors by means of a questionnaire

II. Materials and Methods

In the present descriptive- cross sectional study, the study group included 42 children with Hemophilia in the age range of 6 to 12 years, who were registered with a Hemophilia society in Trivandrum, South India. The control group included 50 healthy children in the age range of 6 to 12 years from a private school in the same region as that of the study group.

All procedures performed in the study involving human participants were approved by the Ethics committee of the institution. Informed consent was obtained from the parents for inclusion in the study.

Inclusion and Exclusion criteria: Children affected with haemophilia were only included in the study. Other bleeding disorders and systemic diseases were excluded.

Questionnaires were distributed to parents of the participants of both the groups prior to examination. Questions included the type and severity of hemophilia, dietary habits and brushing frequency of children, education and dental hygiene habits of parents.

Clinical evaluation of all the subjects was done based on Type III WHO Dental examination criteria. Plaque index (Silness & Loe), Decayed-missing-filled teeth (DMFT), Decayed-missing-filled-surface (DMFS) index (WHO Modified) in permanent teeth and dmft and dmfs indices in primary teeth were recorded.

DMFT and dmft indices were evaluated with the use of a blunt explorer and a flat dental mirror with the tactile and visual technique.

Plaque index (Silness & Loe) was used to evaluate gingival inflammation and the findings were recorded

Statistical Analysis was performed using the Statistical Package of Social Sciences (SPSS), version 21 and the observations were analyzed using the Chi-square test, Kruskal-Wallis test and Independent t-test. Probability value, $p< 0.05$ was considered statistically significant.

III. Results

In the study group, the mean dmft and DMFT scores were 3.60 ± 3.04 and 3.17 ± 2.29 respectively whereas in the control group the mean dmft was 2.20 ± 2.26 and DMFT score was 0.56 ± 0.97. Higher mean dmft and DMFT scores were recorded in the study group compared to control group and the difference between them was statistically significant with $p \leq 0.05$.

The mean DMFS score of study group was 4.12 ± 2.94 and that of control group was 0.58 ± 1.01 and thus a statistically significant difference ($p= 0.001$), $p \leq 0.05$ was noted between the two groups whereas there was no significant difference in the dmfs scores between the study and control groups.

The mean Plaque index (PI) of study group was 0.71 ± 0.19 when compared to the mean 0.50 ± 0.21 of the control group which was statistically significant ($p \leq 0.05$).

Thus the Plaque index, DMFT, dmft and DMFS scores of haemophilic children were significantly higher than the control group. No significant difference in the dmfs scores was noted. (Table I)

The DMFT, DMFS dmft, dmfs and PI scores revealed no significant differences between the groups with severe, moderate and mild types of haemophilia (Table II).

In this study as assessed by the questionnaire, children with haemophilia consumed less cariogenic food when compared to that of normal children. Brushing frequency was less in haemophilic children. Inter group comparison of maternal and paternal educational level revealed no significant difference. Brushing frequency of the parents of haemophilic children was found to be less than the parents of normal children. (Fig 1)

IV. Discussion

Hemophilia is the most common inherited bleeding disorder characterized by a defect in clotting mechanism. It is a sex linked recessive characteristic transmitted by asymptomatic female carriers and manifested only in males. Hemophilia A can be classified as severe (less than 1% of normal factor VIII activity, moderate (1-5%) of normal factor VIII activity or mild (5- 25%) of normal factor VIII activity. In the developing countries, children with congenital coagulation disorders refrain from use of tooth brush to avoid gingival bleeding as they are more concerned with their medical health than dental health. On the other hand, in developed countries there is a possible explanation of good oral health, low caries experience by comprehensive haemophilic centres which provide children regular periodic dental check ups, preventive dental programmes and oral hygiene instructions from an early age [4]. Good oral hygiene is the most important factor to prevent gingival and periodontal diseases. In our study, brushing frequency was found to be less in children with haemophilia than normal children. This is in accordance with another study by Alpkilic etal who reported that the prevalence of tooth brushing was significantly lower in haemophilic children when compared to healthy control group [5].

Parents can play an important role in providing good oral health by helping the children with proper brushing technique. At young ages, parents are the best individuals that can easily prevent the occurrence of a large number of teeth problems in their children [6]. In the present study, there was no significant difference in the parent educational level between the two groups but the brushing frequency of the parents of hemophilic children was found to be less than the parents of normal children. In a study by Alpkilic etal, intergroup comparison for maternal educational level revealed no significant difference, whereas paternal educational level and families' financial circumstances were statistically lower in the haemophilic group than in the control group [7].

Knowledge and understanding of oral health of hemophilic children is very essential to reduce the dental treatment needs of them [3]. However, only a few studies in India have assessed the dental caries status in these children and have given varying results [3, 8].

In this study when we compared the overall findings it was found that the PI, DMFT, DMFS and dmft scores of hemophilic children were higher than the control group. In agreement to our study Azhar etal reported higher dmft/ DMFT in hemophilic patients in Pakistan compared to control group. The possible explanation given is the lack of evidence based hygiene practices and oral care, mainly due to lack of diagnostic facilities at health centres [9].

Contrary to our study, Boyd and Kinirons reported lower caries prevalence in 2 – 15 year old haemophilic children in both primary and permanent dentition [10]. Similarly, Sonbon etal found that a significantly greater proportion of children with severe hemophilia were caries free compared with control group [11]. The lower dental caries prevalence in these studies indicate that regular intervention and preventive measures could contribute to better oral health in haemophilic children.

The dmfs scores in our study group were not significantly different from the control group whereas the DMFS scores were higher in hemophilics than in controls. This is in accordance to another study by Katayoun Salem and this might be attributed to the higher prevalence rate of interproximal caries in deciduous teeth [12]. However DMFS index was significantly higher than that in control group which could be due to the lower rate of use of dental floss and tooth picks. However, in a study by Salem and Eshgi, DMFT, DMFS, dmft and dmfs

did not exhibit significant differences, but there were more restored teeth in subjects with haemophilia compared to controls.

The PI, DMFT, DMFS, dmft and dmfs scores showed no significant differences between the groups with mild, moderate and severe types of hemophlia in our study. Similar results were obtained in a study by Alpkilic etal in which the Gingival index (GI), PI, DMFT and DMFS scores revealed no significant difference between the groups with severe, moderate and mild types of haemophilia. However, values of dmft and dmfs scores in patients with mild hemophilia were found to be significantly higher than those with moderate and severe hemophilia [7].

V. Conclusion

The haemophilic children in our study had a high caries prevalence and poor oral hygiene status when compared to controls which could be due to lack of proper oral hygiene habits, lack of motivation of parents as observed in our study. A combined effort by the children, parents, pediatric dentists and the associated haemophiliac societies goes a long way in the improvement of oral health status of haemophilic children and reduce the future treatment needs in them.

Limitations

Further studies with larger sample size are required to fully understand the oral health status and other influencing factors in hemophilic children.

Recommendations

Children with hemophilia should be educated about the importance of oral care, proper brushing technique and use of oral hygiene aids like dental floss at an early age. Parents should be made aware of the importance of preventive oral care. Routine dental examination and preventive measures like topical fluoride therapy need to be employed to reduce the dental caries experience. Lack of early intervention due to inaccessibility to dental care, fear of bleeding in treating haemophilic children among dentists are some of the factors which need to be pondered over for ensuring better dental care to these patients.

References

[1.] Saxena S, Shashikiran ND. Prevalence of dental caries and treatment needs among haemophilic children of Kota city, Rajasthan, *Ann Esse Dent, 2(12,* 2010, 18-21.
[2.] Patton L. Bleeding and Clotting disorders. In: Greenberg MS, Glick M, Ship JA (eds). Burket's Oral Medicine, 11th ed. (Hamilton, BC Decker Inc, 2008) 419.
[3.] Harrington B. Primary dental care of patients with haemophilia, *Hemophilia, 6 (Suppl 1),* 2000, 7-12.
[4.] Zwain AMH, Ameen MMA. Oral health status and caries related microflora among children with congenital coagulation disorders -comparative study, *Journal of Babylon/ Pure and Applied Science, 20,* 2012, 335-342.
[5.] Alpkilic Baskirt E, Ak G, Zulfikar B. Oral and general health related quality of life among young haemophilia patients, *Haemophilia, 15(1),* 2009, 193-198.
[6.] Karimi M. The importance of Dental Floss in improving children's oral health, *CPQ Dentistry, 1,* 2018, 1-6.
[7.] Alpkilic Baskirt E, Albayrak H, Ak G, Pinar Erdem A, Sepet E, Zulfikar B. Dental and Periodontal health in children with Hemophilia, *JCD, 000:(000),* 2009, 1-4.
[8.] Gaddam KR, Nuvvula S, Nirmala S, Kamatham R. Oral health status among 6 to 12 year old haemophilic children- an educational intervention study, *Hemophilia, 20(4),*2014, 338-41.
[9.] Azhar S, Yazdanie N, Muhammad N. Periodontal status and IOTN interventions among young haemophiliacs, *Hemophilia, 12(4),* 2006, 401-4.
[10.] Boyd D. Kinirons M. Dental caries experience of children with haemophilia in Northern Ireland, *Int. J. Paediatr Dent, 7(3),* 1997, 149-53.
[11.] Sonbol H, Pelargidou M, Lucas VS, Gelbier MJ, Mason C, Roberts GJ. Dental health indices and caries related microflora in children with severe haemophilia, *Hemophilia ,7(5),*2001, 468-74.
[12.] Salem K, Seyyed Khamesi S, Aminian M. Evaluation of Oral and Dental health status in Hemophilic children and Adolescents in the city of Rasht, *J Pediatr Res, 5(4),*2018, 182-186.

TABLE 1
Plaque, DMFT, DMFS, dmft and dmfs scores of Study and Control group

	Study group (n=42)	Control group (n=50)	Independent t- test	P- Value
Age	8.81 ± 2.00	9.06 ± 1.97	0.60	0.54
PI	0.71 ± 0.19	0.50 ± 0.21	1.98	**0.05***
DMFT	3.17 ± 2.29	0.56 ± 0.97	6.83	**0.001***
DMFS	4.12 ± 2.94	0.58 ± 1.01	7.44	**0.001***
dmft	3.60 ± 3.04	2.20 ± 2.26	2.46	**0.013***
dmfs	8.14 ± 8.58	5.58 ± 6.43	1.59	0.115

TABLE II
Plaque and dental caries scores in mild, moderate and severe Hemophiia

	Mild	Moderate	Severe	Kruskal –Wallis test	P- Value
Age	8.43±1.72	8.00±2.04	9.35±1.97	2.03	0.144
PI	0.57±0.23	0.60±0.21	0.56±0.17	0.16	0.852
DMFT	3.57±3.36	3.83±2.41	2.70±1.82	1.10	0.341
DMFS	4.29±4.03	4.92±2.68	3.65±2.74	0.73	0.487
dmft	4.00±2.89	4.08±3.60	3.22±2.84	0.38	0.684
dmfs	9.00±6.98	11.25±12.3	6.26±6.20	1.40	0.258

Figure 1

Brushing frequency of parents of haemophilic children found to be less than that of control group