

Comparative analysis of oral health and treatment necessities in hemophilia individuals of Davangere population — A case control study

Varsha Kanjani¹, Rajeshwari G. Annigeri², Suresh Hanagavadi³,
Manjunath M R²

¹Department of Oral Medicine and Radiology, Vyas Dental College and Hospital, Jodhpur, Rajasthan, ²Department of Oral Medicine and Radiology, College of Dental Sciences, ³Department of Pathology, J. J. M. Medical College, Davangere, Karnataka, India

ABSTRACT

Background: The integrated approach towards the oral care of individuals with special needs requires proper motivation and prophylactic guidance by primary health care professionals, including musculoskeletal support to psychological therapy. In developing countries like India, oral care is not of primary importance as oral hygiene practices are less performed by compromised individuals suffering from hemophilia. Here, primary health care professionals play a significant role. The present study was commenced to evaluate oral health and treatment necessities in hemophilic individuals of Davangere population, Karnataka. **Objective:** The present study was conducted to assess and compare the oral hygiene, dentition status, and treatment needs of individuals with hemophilia. **Methods:** Simplified Oral Hygiene Index (OHI-S), decayed, missed, filled tooth (DMFT) indices and treatment needs in 50 hemophiliac patients registered at Karnataka hemophilia society were evaluated along with an Oral health-related quality of life (OHR-QoL) questionnaire. They were matched with healthy controls of the same age and gender. The data was analyzed using t test and Chi square test. **Results:** The oral hygiene was fair in both hemophilic and healthy individuals with a mean value of 1.82 ± 0.79 and 1.83 ± 0.73 , respectively. All the parameters such as OHIS, DMFT indices, and treatment needs were not statistically significant. The spontaneous oral bleeding was the only significant factor in OHR-QoL questionnaire. **Conclusion:** The present study concluded that oral hygiene, dental caries prevalence, and treatment needs were similar in both hemophiliac and control groups. With proper guidance, motivation, and preventive care by primary health care professionals, it was relatively easy for individuals with congenital blood disorder (CBD) to maintain oral health-related quality of life in Davangere population, Karnataka.

Keywords: Hemophilia, OHR-QoL, oral hygiene, primary care, treatment needs

Introduction

Hemophilia care involves an integrated comprehensive approach towards multidisciplinary prevention and management of individuals with special needs. The management of

medically compromised individuals, as in hemophilia requires amalgamation between primary health care professionals ranging from being a physician dealing with musculoskeletal issues to providing them psychological support.^[1-4] The prevention and management of oral and maxillofacial issues such as pain, oral bleeding, clinical manifestations, disease severity, etc., by primary health care professionals, play an important role in improving the health-related quality of life. Therefore, collaborative beneficial health care approach should be the foremost purpose of the primary health care professional. With proper care

Address for correspondence: Dr. Varsha Kanjani,
Department of Oral Medicine and Radiology,
Vyas Dental College and Hospital, Jodhpur, Rajasthan - 342 001,
India.

E-mail: varshakanjani0@gmail.com

Received: 18-03-2020

Revised: 25-04-2020

Accepted: 13-06-2020

Published: 30-09-2020

Access this article online

Quick Response Code:



Website:
www.jfmpc.com

DOI:
10.4103/jfmpc.jfmpc_413_20

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Kanjani V, Annigeri RG, Hanagavadi S, Manjunath MR. Comparative analysis of oral health and treatment necessities in hemophilia individuals of Davangere population — A case control study. J Family Med Prim Care 2020;9:4774-7.

and precautions, treatment for these individuals can be made possible.^[5-8] Therefore, the present study was commenced to assess oral health and treatment necessities in hemophilic individuals of the Davangere population, Karnataka, India.

Materials and Methods

The present case-control study was commenced on the individuals who had registered in Karnataka hemophilia society. The hemophilic group included 50 individuals with the mean age of 17.66 ± 10.52 years, ranging from 7 to 47 years while the healthy individuals were taken as the control group who came to Department of Oral Medicine and Radiology, College of Dental sciences, Davangere, Karnataka, India. They were matched with hemophilic individuals in terms of age and gender. The consent was obtained from all individuals before clinical assessment. Ethical clearance was obtained from the institution. The approval was taken from the ethical committee, College of Dental Sciences, Davangere Date - 20 Jan 2018.

The evaluation of oral hygiene was done using the Simplified Oral Hygiene Index (OHI-S) as reported by Grene and Vermillion while decayed, missed, filled tooth (DMFT) index was used to assess the teeth restored or extracted as a result of dental caries.^[9] As an adjunct measure, OHR-QoL (Oral health-related quality of life) questionnaire was filled by all the individuals. The oral bleeding, dietary habits, educational qualifications, socioeconomic status, oral hygiene habits along with the frequency of tooth brushing were included in questionnaire.^[10]

Statistical analysis

The data was compiled and analyzed using Statistical Package of Social Science (SPSS) 21.0 software Chicago, IL, USA. The results were presented in mean \pm standard deviation and percentages. The t test and Chi square tests were used in the present study and *P* value less than 0.05 was considered as significant.

Results

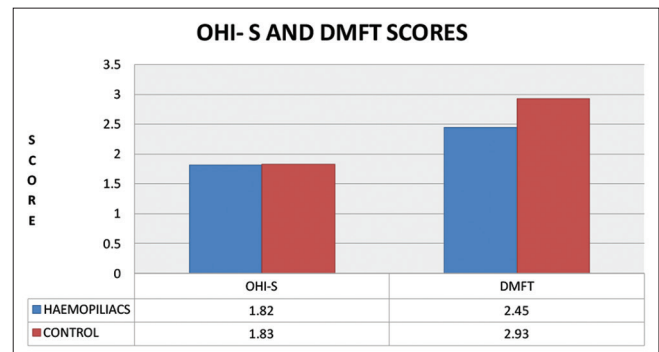
A total of 50 hemophilic individuals were examined, all were males. The maximum number of individuals belonging to 10–20 years age group with a mean age of 17.66 ± 10.52 years. 72% (36 out of 50) of total participants were suffering from hemophilia A and 28% from hemophilia B.

When oral hygiene status was compared, a fair oral hygiene status was found in both hemophilic and healthy individuals with mean value of 1.82 ± 0.79 and 1.83 ± 0.73 , respectively with a *P* value of 0.94 [Table 1, Graph 1]. Although, no significant distinction was seen between the groups when DMFT were considered with a mean of 2.45 ± 2.93 and 2.93 ± 1.86 in hemophilia and healthy individuals, respectively [Table 1]. Thus, it showed that the overall caries experience was equal in both groups. Further, it was observed that a total of 76% of individuals required dental intervention. Out of which 58% require oral prophylaxis

Table 1: Comparison of indices between hemophiliacs and healthy individuals*

| | Hemophilia Group | Control Group | <i>t</i> | <i>P</i> |
|----------------------|-------------------------|-------------------------|----------|----------|
| Age | 17.66 \pm 10.52 years | 17.66 \pm 10.52 years | | |
| DI - S ^a | 0.85 \pm 0.49 | 0.90 \pm 0.44 | 0.581 | 0.298 |
| CI - S ^b | 0.96 \pm 0.55 | 0.91 \pm 0.41 | 0.423 | 0.067 |
| OHI - S ^c | 1.82 \pm 0.79 | 1.83 \pm 0.73 | 0.072 | 0.342 |
| DMFT ^d | 2.45 \pm 2.93 | 2.93 \pm 1.86 | 0.956 | 0.100 |

**P* value < 0.05 was considered significant. ^aDebris Index - Simplified. ^bCalculus Index - Simplified. ^cOral Hygiene Index - Simplified. ^dDecayed, Missing, and Filled Teeth



Graph 1: Comparison of indices (OHI-S and DMFT) between hemophiliacs and healthy individuals

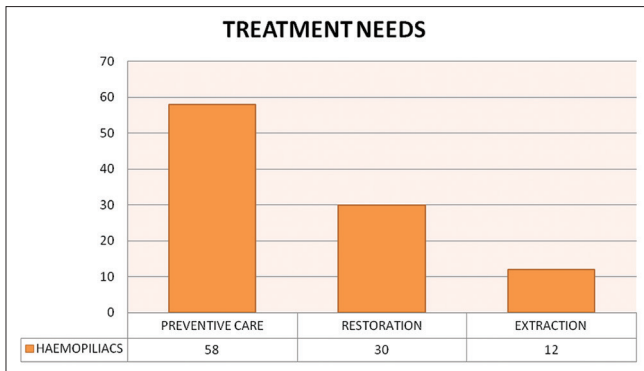
and preventive care, 30% require restoration, and 12% need extraction [Graph 2].

About 72% (36/50) patients brushed once a day while 18% (9/50) brushed twice a day. Five patients (10%) stated that they skip brushing because of fear of soft tissue bleeding. The oral bleeding was seen in 33 (66%) out of 50 individuals due to preshedding deciduous tooth mobility or permanent dentition eruption [Graph 3].

Discussion

Oral health is majorly affected by systemic health problems. Due to lack of awareness and guidance, oral care is subordinated, especially in developing countries like India and, therefore, oral hygiene practices are less performed in compromised individuals suffering from hemophilia. Hemophiliacs along with the proper guidance and motivation including preventive and restorative measures, provided by primary health care professionals can maintain good oral and dental hygiene, similar to healthy individuals.^[1,2,11]

The present study has been targeted for caries experience and treatment-need assessment in hemophilic individuals. The difference between overall oral hygiene and dentition status in hemophilic and healthy individuals was not statistically significant concluding that the hemophilic individuals have better oral hygiene and dentition as compared to the healthy individuals. This can be due to the constant guidance, motivation, and promotion of oral health care programs including the regular dental check-ups, dietary management, preventive, and restorative measures by



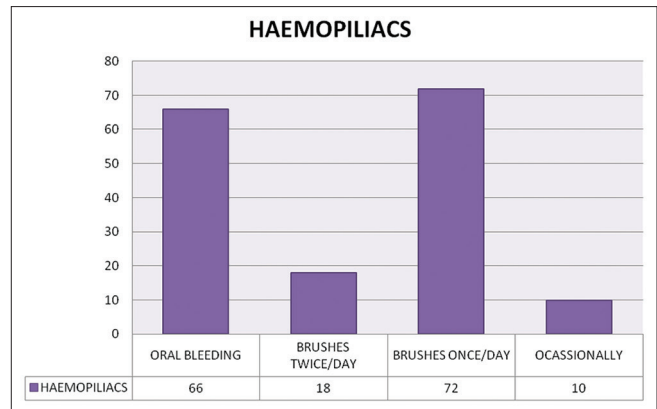
Graph 2: Treatment needs among hemophilic individuals

the primary health care professionals. Thereby, promoting oral hygiene practices and further avoiding the treatment modalities.

A study published by Othman *et al.* in 2015 on the hemophilic individuals of Kuala Lumpur stated that early and regular dental interventions lead to good oral hygiene status and lower caries experience. The difference in oral hygiene practices was not statistically significant between cases and controls.^[12] In a published study by Kabil N *et al.* on Egyptian hemophilic children, stated that in the control group, DMFT were significantly higher than those of hemophiliac children while the difference between case and control OHI-S indices values were not significant. The authors concluded that proper guidance, education, and motivation along with professional plaque control measures are the main cause behind improved oral health in hemophiliacs.^[11]

A study published by Sonbol H *et al.* on severe hemophilic individuals, stated that hemophiliacs were caries-free as compared to controls and even DMFT score was even less as compared to the present study. They concluded that even in children with severe hemophilia, dental caries prevalence was less as compared with matched healthy individuals.^[8] Another study published by Ziebolz D *et al.*, concluded that oral and periodontal health in hemophiliacs is similar to healthy controls. They further concluded that oral hygiene and dentition status was better in individuals with congenital bleeding disorders (CBD). This can be attributed to the comprehensive supportive oral care received at an early age along with proper awareness, guidance, and motivation provided by the primary health care professionals.^[13]

Another study conducted on Polish hemophilic children concluded that there is no statistically significant difference in caries prevalence among cases, mainly Hemophilan A, B, and controls. The authors concluded that even the oral hygienes status was similar to controls, but in case of severe hemophilia dental status was comparatively compromised.^[14] Boyd and Kinirons conducted a study in Northern Ireland stated caries prevalence was low in hemophilic children as compared to matched healthy controls, which is in favor of the present study. The oral hygiene practices became an essential part of their medical care and all patients were managed and taken care in the regional treatment center.^[15]



Graph 3: Oral bleeding and hygiene practices in hemophiliac individuals

In contrary to the present study, Reddy KS in 2019 stated that oral hygiene was comparatively poor in hemophilic individuals with higher treatment requirements. They further concluded that dental caries experience was higher in cases with poor oral hygiene practices in Hyderabad, India.^[16] The single-center case control study published by Kumar M stated that hemophilic cases have more debris and calculus score with no significant difference in DMFT scores among study groups, indicative of poor orodental status in cases. The requirement for the interdisciplinary approach towards individuals with special care is suggested by authors.^[17] Another study by Azhar S *et al.* was conducted on oral health description and its management. The authors further aimed to increase awareness among evidence-based dental practices through gingival and periodontal examinations to improve their quality of life. The oral health in the hemophiliac population is compromised when compared with healthy individuals while dental treatment needs were greater in cases when compared with controls. In maintaining oral hygiene, especially while performing self-administered measures such as toothbrushing, spontaneous oral bleeding can be one of the major demoralizing factors.^[5]

The soft tissue bleeding was the sole note-worthy parameter in OHR-QoL questionnaire. The management of bleeding in oral soft tissues is the most challenging task for the primary health care professional. Routine oral hygiene and basic dental procedures can even contribute to one of the leading causes. In Iran, spontaneous bleeding was noted during teeth eruption and shedding and tongue lacerations in CBD patients.^[10] Authors concluded that individuals with CBD have no pessimistic effect on OHR-QoL other than soft tissue bleeding as proven in an Iranian study, which is in accordance with the present study as 66% of individuals complain of oral soft tissue bleeding.

Clinical examination and data obtained from the questionnaire stated the necessity to maintain oral hygiene along with proper education and guidance to maintain oral health status. A proper comprehensive oral care along with a regular follow-up, guidance, and motivation provided by primary health care professionals are the key factors in the present study leading to the low prevalence of dental caries, good DMFT score, and fewer

incidences of oral soft tissue bleeding, i.e., an overall equal oral hygiene and dentition status compared to normal matched healthy individuals. In collaboration with Karnataka Hemophilia society, our institution has conducted various dental awareness and preventive programs, which have added to relatively good oral hygiene and dentition status of hemophilic individuals. As most of the oral diseases are preventable, by reinforcing and motivating, we can improve the oral health conditions of the hemophiliac individuals.

Limitations of this study includes a smaller sample size and the use of imprecise health questionnaires for the hemophiliac individuals. As per our knowledge, a specific validated questionnaire to determine OHR-QoL in individuals suffering from CBDs is not available. However, in future longitudinal studies with larger sample size and validated CBD-specific questionnaires is recommended.

Conclusion

The present study concluded that oral hygiene, dental caries prevalence, and treatment needs were similar in both hemophiliac and control groups. Hemophilia has no negative impact on health-related quality of life except for spontaneous bleeding. With proper guidance, motivation, and preventive care by primary health care professionals along with regular dental follow-ups, supervision, and recall programs, it will be relatively easy for individuals with CBD to maintain oral health-related quality of life. The comprehensive interdisciplinary strategies and health promotion programs are recommended in such groups of society with special care.

Acknowledgement

We would like to thank the Karnataka Haemophilia society, Davangere, Karnataka, India for giving us permission to conduct the study.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patients have given their consent for their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Nossair F, Thornburg CD. The role of patient and healthcare professionals in the era of new hemophilia treatments in developed and developing countries. *Ther Adv Hematol* 2018;9:239-49.
2. Yeung CH, Santesso N, Pai M, Kessler C, Key NS, Makris M, *et al.* Care models in the management of haemophilia: A systematic review. *Haemophilia* 2016;22:31-40.
3. Rodriguez-Merchan EC. Complications of muscle hematomas in hemophilia. *Cardiovasc Hematol Disord Drug Targets* 2020;15. doi: 10.2174/1871529X20666200415121409.
4. Palareti L, Melotti G, Cassis F, Nevitt SJ, Iorio A. Psychological interventions for people with hemophilia. *Cochrane Database Syst Rev* 2020;18 CD010215. doi: 10.1002/14651858.CD010215.pub2.
5. Azhar S, Yazdanie N, Muhammad N. Periodontal status and IOTN interventions among young hemophiliacs. *Haemophilia* 2006;12:401-4.
6. Shastry SP, Kaul R, Baroudi K, Umar D. Hemophilia A: Dental considerations and management. *J Int Soc Prev Community Dent* 2014;4:147-52.
7. Sonis AL, Musselman RJ. Oral bleeding in classic hemophilia. *Oral Surg Oral Med Oral Pathol* 1982;53:363-6.
8. Sonbol H, Pelargidou M, Lucas VS, Gelbier MJ, Mason C, Roberts GJ. Dental health indices and caries-related microflora in children with severe haemophilia. *Haemophilia* 2001;7:468-74.
9. Oral Health Surveys. Basic Methods. Geneva. World Health Organization; 1987.
10. Salem K, Eshghi P. Dental health and oral health-related quality of life in children with congenital bleeding disorders. *Haemophilia* 2013;19:65-70.
11. Kabil N, ElAlfy MS, Metwalli N. Evaluation of the oral health situation of a group of Egyptian haemophilic children and their re-evaluation following an oral hygiene and diet education programme. *Haemophilia* 2007;13:287-92.
12. Othman NA, Sockalingam SN, Mahyuddin A. Oral health status in children and adolescents with haemophilia. *Haemophilia* 2015;21:605-11.
13. Ziebolz D, Stühmer C, Hornecker E, Zapf A, Mausberg RF, Chenot JF. Oral health in adult patients with congenital coagulation disorders--a case control study. *Haemophilia* 2011;17:527-31.
14. Mielnik-Błaszczak M. Evaluation of dentition status and oral hygiene in Polish children and adolescents with congenital haemorrhagic diatheses. *Int J Paediatr Dent* 1999;9:99-103.
15. Boyd D, Kinirons M. Dental caries experience of children with haemophilia in Northern Ireland. *Int J Paediatr Dent* 1997;7:149-53.
16. Reddy KS, Reddy NV, Niharika P, Reddy MA, Danaeswari V, Noorjahan MD. Oral health status and treatment needs among hemophilic children in Hyderabad, Telangana, India. *Int J Clin Pediatr Dent* 2019;12:30-2.
17. Kumar M, Pai KM, Kurien A, Vineetha R. Oral hygiene and dentition status in children and adults with hemophilia: A case-control study. *Spec Care Dentist* 2018;38:391-4.