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Research Article

Awareness, Knowledge and Attitude Towards Thalassemia Patients Amongst Dentists of Bhuj City. A Questionnaire-Based Survey

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Abstract

Introduction: Thalassemia being one of the most common as well as confusing hemoglobinopathies, has its effect on overall health including oral cavity. There are only a handful of articles on knowledge and awareness about thalassemia in dentistry. As with recent advances in treatment modality the life expectancy of thalassemia patients has increased and so is the need for dental treatment. Aim and objective of this study was to evaluate the level of awareness, knowledge and attitude of Dentists of Bhuj City towards thalassemia.

Materials and Method: In this survey as per convenience sampling, 55 Dentists from Bhuj city were included. A self-explanatory 15 close-ended questionnaire was prepared based on awareness, knowledge and attitude among dentists to assess the perception regarding Thalassemia as a disease and its oral manifestations. The questionnaire takes approximately 12-15 minutes for completion. Collected data was entered at the end of the study in the master chart prepared in Microsoft Excel 2016 on the computer. Statistical analysis was conducted.

Results: Out of the total dentists included in the study, overall response about the awareness, knowledge and attitude towards thalassemia patient was satisfactory. Around 75% of dentists were well aware about dental problems in thalassemia patients.

Conclusion: Majority of the Dentist had good knowledge and positive attitude towards treating thalassemia. Still large-scale studies need to be conducted comprising of different study populations. As the longevity of thalassemia patients is on rise, protocols for dental treatments needs of thalassemia patients should be taken into consideration. Pan-India seminars and educational programs need to be conducted to form dental treatment guidelines in thalassemia patients.

Keywords: Awareness, Knowledge, Attitude, Dentists, Thalassemia.

Introduction

The phrase 'Prevention is better than cure' holds true for most of the diseases, but it is the only option for most of the genetic diseases including hemoglobinopathies. Hemoglobinopathies being a hefty cause of morbidity and mortality, impose a great burden on healthcare infrastructure. Thalassemia being one of the most common as well as confusing hemoglobinopathies, has its effect on overall health [1].

Thalassemia syndromes are genetically transmitted autosomal recessive hemoglobinopathy characterized by reduced rate of synthesis of one or more of the globin polypeptide chains of hemoglobin. The human hemoglobin is encoded in two gene clusters: α-like globin genes present on chromosome 11 and β-like globin genes on chromosome 16. Normally an individual inherits two β-globin genes and 2-α globin genes from each parent i.e., normal adult hemoglobin is α2 β2. Depending upon whether the genetic defect or deletion lies in transmission of α globin or β globin chain gene, thalassemias are classified into α and β-thalassemias [2].

It has been reported in the literature that the major facial change in thalassaemic patients is the prominent cheekbones, enlargement of the maxilla with depression of the bridge of the nose. These result in the characteristic facial appearance called as "Chipmunk faces or Rodent faces." Dental and facial abnormalities include spacing of teeth, protrusion of maxillary incisors, anterior open bite, protrusion of maxilla, occlusal abnormalities, and saddle nose. Also, the pneumatization of the maxillary sinus is delayed in some individuals [3].

As it is said, the oral cavity is the mirror of the rest of the body. We as oral physicians should have our keen intention to detect any abnormality in the oral cavity and correlate it with any pathology occurring in the entire body. Dentists should be aware of the oral changes occurring in thalassaemic patients. With modern advances in medical field, there has been improvement in life-expectancy of thalassemia patients. As the longevity of thalassemia patients is on the rise, protocols for dental treatments needs of thalassemia patients should be our prime concern. Thorough knowledge in diagnosing and formulating a sound treatment plan is an essential skill that every clinician should master. Well-timed specialist intervention may preserve a patient's oral health, and overall quality of life, while a delay could jeopardize a salvageable situation into a hopeless one.

The prevalence of thalassemia is higher in Sindhi, Lohana, Punjabi, Bhanushali community residing in Kutch and Sindh region of western India [4]. There have been studies in literature on level of awareness about thalassemia among medical students with variable results, but none in dentists as of our knowledge [5-7]. There is a need to evaluate the knowledge and awareness of the general dental practitioners toward thalassemia and its oral manifestation. Hence, this study aims to identify the various aspects of thalassemia and its related oral changes along with dentist's knowledge and treatment planning towards it.

Materials and Method

The study was carried out in the form of an online survey among 55 general dental practitioners having their dental clinics in the Bhuj city as per convenience sampling. A self-administered, close-ended questionnaire comprising 15 questions was given to the dentist. The questions were divided into three sections as: 1) Questions based on awareness of dentist towards thalassemia. 2) Questions based on knowledge towards oral manifestations of thalassemia and 3) Questions based on attitude of dentist in treating thalassaemic patients. A Time frame of 15 minutes was given to each participant. The study protocol was approved by the Institutional Ethical Committee, AMC Dental College, Khokhara, Ahmedabad. The study was conducted between November 2020 to March 2021.

Inclusion criteria

- Dental practitioners with a dental clinic in Bhuj with minimum qualification of BDS.
- The dentists who are willing to participate voluntarily by giving their consent in the Informed consent form.

Exclusion criteria

- The dentists who are not willing to participate voluntarily by giving their consent in the Informed consent form.

Statistical analysis

For each question, the independent percentage was calculated to determine the frequency of the responses and results were calculated.

Results

A total of 55 dentists participated in this online questionnaire survey. All the dentists practiced in Bhuj city. The average age of participants was 31 years, with the maximum number of participants falling in the age group of 30-40 years. Demographic data showed that the majority of respondents were females (56.4%) when compared to males (43.6%). Greater number of respondents were BDS as compared to MDS (Table 1).

Demographic Data	Variable	Value	Percentage
Age	20-30 years	18	32.7%
	31-40 years	27	49.0%
	41-50 years	07	12.7%
	51-60 years	03	05.4%
Gender	Male	24	43.6%
	Female	31	56.4%
Qualification	BDS	44	80%
	MDS	11	20%

Table 1: Demographic data of the study.

Out of 55 participants, more than 90% of participants were aware that thalassemia is a genetically transmitted disease. (Chart 1) Out of all, around 40 dentists knew that β-thalassemia major is the most severe form of thalassemia. (Chart 2) Less number of participants were aware of the side effects of treatment for thalassemia (Chart 3). According to this survey, dentists were aware that there is a change in the color of gingiva due to thalassemia and high iron load as well. (Chart 4) Around 44 participants were having knowledge about the changes in gingiva and its color due to thalassemia. Thalassemia has effects on the entire oral cavity, but the evident changes are seen in gingiva due to iron overload. As found in our survey, the majority of dentists were having knowledge about the most common malocclusion present in thalassemia patients. Class 2 malocclusion is the most commonly found. (Chart 5) In our study, it was found that dentists were having less knowledge about the optimum hemoglobin level needed to be maintained after blood transfusion. Only half of the responses were found to be correct. (Chart 6) According to our study, it was found that dentists were having mixed attitudes towards the kind of treatment thalassemia patients can afford clinically. Around 40% of participants were of opinion that noninvasive treatment protocol should be followed in thalassemia patients, while the remaining were of opinion that both i.e. invasive and noninvasive procedures can be done. (Chart 7) We can conclude from our study that most dentists were confident about the choice of pain killer to be used in thalassemia patients, i.e. Paracetamol. About blood transfusion, participants were of attitude that it should be checked for both the reasons, iron load and hemoglobin in blood. (Chart 8) In case of antibiotics coverage, participants had mixed answers with around 41% of dentists having a positive response towards it. Dentist's attitude towards the ideal time to carry out surgery after blood transfusion was mixed and is depicted (Chart 9)

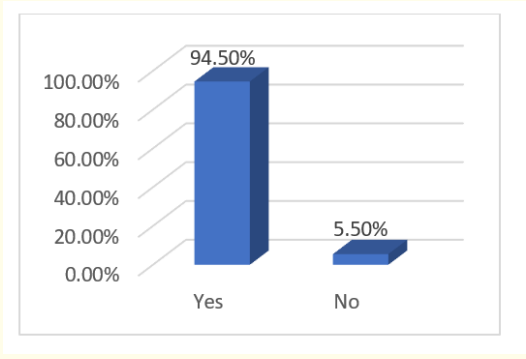

Chart 1: Thalassemia is a genetically transmitted disease?

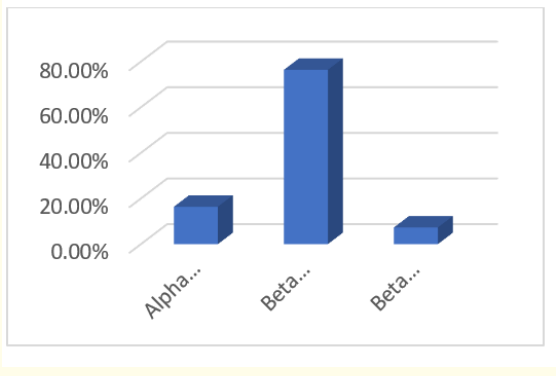

Chart 2: The most Severe form of Thalassemia is?

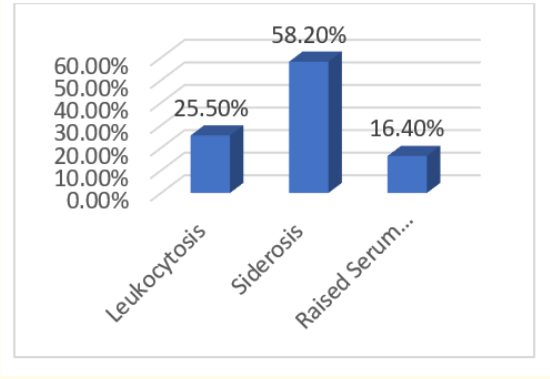

Chart 3: Most Common adverse reaction to the thalassemia treatment is?

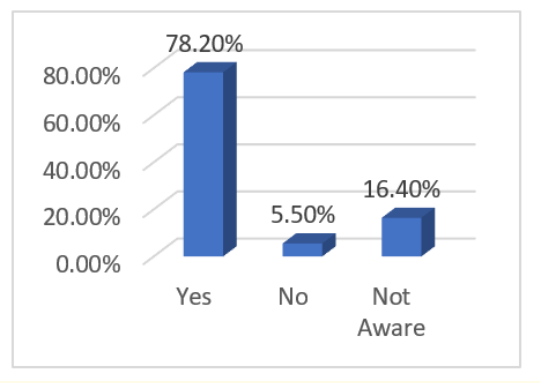

Chart 4: The color of gingiva changes in thalassemia patients?

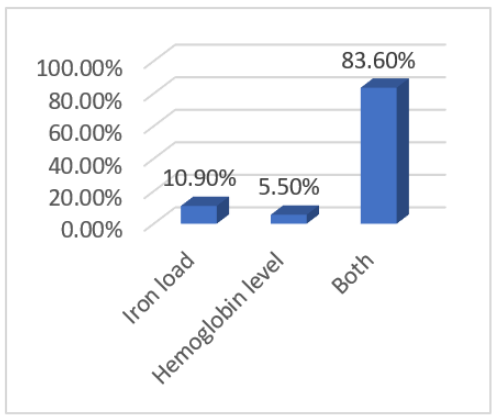

Chart 7: What kind of dental treatment can we carry in thalassemia?

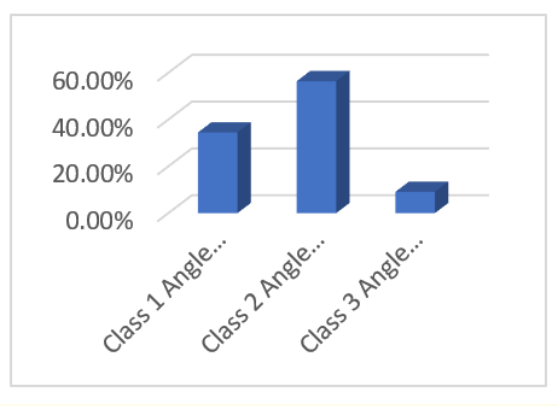

Chart 5: Which type of malocclusion is commonly seen in thalassemia patients?

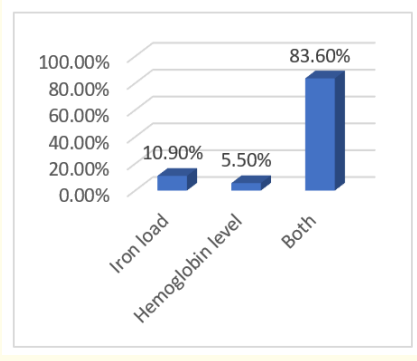

Chart 8: Why we require to check for Blood transfusion history before treatment?

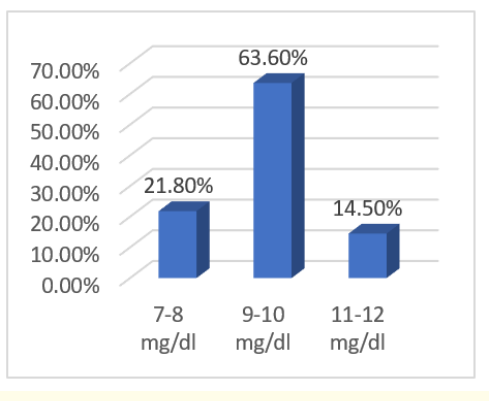

Chart 6: What is the minimum Hb level to be maintained in patients after blood transfusion?

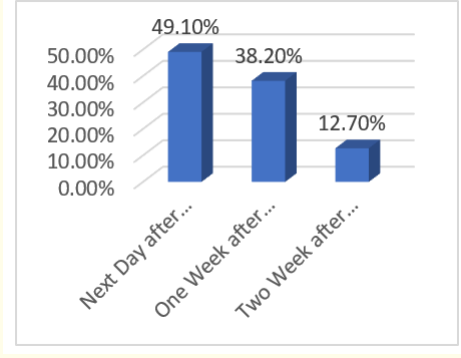

Chart 9: What is the ideal time to carry out invasive dental treatment after blood transfusion?

Discussion

Thalassemias and structural hemoglobin variants are the commonest *hemoglobinopathies* globally. India has a huge burden with an estimated 100,000 patients with β thalassemia syndrome but few among them are optimally managed, and allogeneic stem cell transplant is unaffordable for the majority of families in India. A feasible option for control and prevention is to promote education and awareness programs, amplify screening in all the states with micro-mapping to assess the true burden, and develop optimum infrastructure for genetic counseling and prenatal diagnosis in public sector Institutions [8].

According to National Health Mission Guidelines on Hemoglobinopathies data in 2016, India has the largest number of children with Thalassemia major in the world – about 1 to 1.5 lakhs and almost 42 million carriers of ß (beta) thalassemia trait. About 10,000 -15,000 babies with thalassemia major are born every year [9].

The incidence of oral and dental issues in Thalassemia is higher than that in many other disorders. Studies around the world have shown an incidence rate of 45–50% for such manifestations. The main cause for dental manifestations in thalassemic patients is due to extreme compensatory hyperplasia of the bone marrow, which in turn leads to expansion of the marrow cavity. The most commonly seen oral manifestation of thalassemia is Class II Dental Malocclusion. Other noticeable changes in oral cavity include severe gingival and periodontal infections, especially if splenectomy is done. The color of gingiva becomes dark due to high ferritin levels and siderosis [10].

As an oral physician it is a moral duty of ours to correlate oral problems with overall health and treat our patients as a whole. Dentists require awareness regarding the basic pathophysiology of thalassemia and its oral manifestations. This knowledge should be applied to cater total well - being of the patient.

As seen in our study, dentists practicing in Bhuj City are well versed with the basic pathophysiology of thalassemia as a disease. Dentists of Bhuj city are aware about the genetic transmission, types of thalassemia and tests to detect hemoglobinopathies. Still, there should be efforts to educate the dentists regarding the overall awareness of thalassemia as disease, its types and recent advances in its detection methods.

The dentist should be well versed with the most common oral problems seen in thalassemic patients. We as oral guardians need to have an eye for the slightest changes in physiologic conditions to detect oral diseases. As seen in our study, dentists were thorough in their knowledge regarding the oral and clinical problems faced by the patients. Dentists were well aware of the class II malocclusion and the gingival color change in thalassemic patients according to our study. Hemoglobinopathies form a huge burden of disease and as a part of the medical fraternity we need to be contemporary with clinical advances and its treatment planning. As per our study, there is still horizon for us to look at and understand the oral manifestations of thalassemia and apply it for patient's benefits. We need to have thorough knowledge about the hemoglobin levels, ferritin levels and side effects of blood transfusion as oral physicians.

In our questionnaire survey, we also assessed the attitude of dentists towards treating thalassemia patients. It was well evident from our study that dentists have comprehensive knowledge in implementing treatment plans for thalassemia patients. Thalassemic patients require routine blood transfusions. Patients can be taken for invasive and non-invasive treatment after blood transfusion on the next day. The hemoglobin levels should be maintained in the optimum range. Dentists should have knowledge of routine blood reports and its overall correlation. Patients who have undergone splenectomy, require prophylactic and post-operative antibiotic coverage. These patients are at increased risk for infections.

Thalassemia needs a good understanding about its occurrence, its oral manifestation and treatment planning. There have been no sure shot guidelines as for treating a thalassemia patient with oral problems. We as dentists need to arrange for joint sessions and develop comprehensive guidelines for treating the patients without affecting their systemic health.

Conclusion

This study provides us with perception of thalassemia and its oral manifestations among general dental practitioners. This study also draws our attention towards the treatment provided by dentists in their general practice to thalassemic patients.

Scope for dentist

The general dentist should be convinced about the important role he/she plays in maintaining the overall health of the patient. Dentists should emphasize on building professional partnerships with general physicians or specialists to harness their knowledge and competence for treatment of thalassemia patients. Dentists or even national health policy makers should make a roadmap for proper treatment planning of thalassemic patients. We should arrange seminars and CDE programs to make general practitioners aware about thalassemia and its oral manifestations.

Scope for patient

Patients should be made aware of hemoglobinopathies and its effects on oral health. They need to be educated about the dental treatment options available to them. Government as well as medical fraternity can arrange mass lectures for students and general population to educate them about the oral problems in patients with thalassemia. Patients should be made aware of the optimum hemoglobin levels, blood transfusion cycles as well as maintaining proper oral hygiene.

With increasing longevity of such patients, it becomes imperative to study the prevalence of dentofacial characteristics and the periodontal changes in Thalassemia patients to provide elective treatment to the patients who seek dental care. Dentists throughout need to form proper guidelines for examining and treating Thalassemia patients for the well-being of patients and society.

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