



PERIODONTAL STATUS; PERIODONTAL STATUS OF β THALASSEMIC PATIENTS IN POPULATION OF KARACHI PAKISTAN.

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ABSTRACT: Thalassemia is a worldwide disease. 5-8% of Pakistani population (approx. 8–10 millions) are carrying thalassemia genes. It causes various abnormalities in different organs of patients. In Pakistan (to the best of our knowledge) no research work on oral and maxillofacial manifestation has been carried out, therefore present study was under taken. **Setting:** Abbasi Shaheed Hospital Karachi with collaboration of Husaini Institute of Blood Diseases Karachi, Fatimid Foundation and National institute of Oral Diseases Karachi Pakistan. **Period:** 2 years June 2013 to June 2015. **Objectives:** To assess the prevalence of periodontal disease and compare with age in thalassemia patient. **Study Design:** The sample consisted of 200 patients with Thalassemia Major, 120 males and 80 females aged 5 to 35years, with the mean age 18.1. The sample was divided into three subgroups according to age. Clinical examination were carried out to assess the prevalence of change statistical differences in frequencies of percentage between the three groups. **Aims of study:** The aim of this study was to evaluate the frequency of periodontal status of Thalassemic patients and correlate with age from population of Karachi. **Methods and Materials:** 200 diagnosed β – thalassemia major patients, were randomly selected from the Patients who were registered for their treatment. Their clinical examination and percentage of recorded feature were calculated and cross tabulated with age and (Ramfjords PDI Index) were used for evaluation of periodontitis and result were deduced. **Results:** The most prominent features recorded were periodontitis in 82.5 normal patients were 17.5, Mild periodontitis 45.5% %; Moderate periodontitis 30 %; Severe periodontitis 7%. **Conclusion:** The increase in severity of Periodontitis increases with age and duration, necessitate regular surveillance and counselling in order to reassure the patient, reduce Periodontitis in thalassemia patients and improve the overall condition and life style of Patients.

Key words: Thalassemia, Periodontal health, Karachi, Pakistan.

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INTRODUCTION

Thalassemia is an inherited single gene (β -thalassemia) or multiple genes (α -thalassemia) recessive, autosomal blood disease, where haemoglobin is totally absent or partially produced.^{1,2,3}

It is very common in Mediterranean region.⁴ Haemoglobin is composed of four protein chains, two α -globin chains and two β -globin chains arranged in a hetro-tetramer.⁵ Patient suffering from thalassemia defects occur in either α or β -globin chain which produced abnormal red blood cell.² In β -thalassemia mutations occur in the HB β -gene at chromosome No11, and severity of the disease depends on the nature of

the mutation. According to severity it is classified in three sub classes. I) Thalassemia major; II) Thalassemia intermediate; III) Thalassemia minor (Severity of disease depends upon the amount of α -globin. However in each sub class tetramer do not form and they bind to the red blood cell membranes, causing damage to membrane. Furthermore at high concentrations they form toxic compounds.)^{6,7,8,9,10,11}

In α -thalassemia two genes HB α_1 and HB α_2 at chromosome No16 are involved and inherited, resulting excess of β -globin chains in adults and excess γ -globin chains in new born babies. The excess β -chains form unstable tetramers, which are characterized by abnormal oxygen

dissociation curves.^{2,12,13} generally haemoglobin, is composed of α and β -chains, however approximately 3% of adult Haemoglobin is made of α and Δ chains. Mutations also effect the production of Δ - chains.¹³

The general manifestations in thalassemic patients are due to lack of total or partial production of α or β globin chain, causes serious effects on their bodies, details of effects has been fully discussed by many worker.^{2,3,7,8,14,15} β -thalassemia is also responsible of causing various manifestations and complications of various degrees on different organs of patients.^{1,16,17,18,19,20,21,22,23,24,25} In β – thalassemia, the oral and maxillofacial manifestation has been reported in several reports.^{14,16,17,18,22,24,26}

MATERIALS AND METHODS

Setting

Present study is carried out in the Husaini blood bank and Institute of Hematological diseases Karachi, Fatimid blood bank and thalassemia Centre Karachi, National institute of oral diseases Karachi and Department of oral and maxillofacial Surgery Abbasi Shaheed Hospital, Karachi.

Sample Size

The study based on 200 proved β - thalassemia patients coming for regular blood transfusion from Husaini and Fatimid blood bank and thalassemia centre Karachi.

Methods for Collecting Data

Patients enrolled for study also fulfilled the inclusion and exclusion criteria, and statically analysis of data in IBM SPSS version 23.

Inclusion Criteria

Thalassemic patient with / without any systemic or dental disease.

Exclusion Criteria

Patients suffering from other diseases like diabetes mellitus or Down's syndrome known to influence dental caries or other oral manifestations have not been included in the present study.

Material

Following apparatus were used to carry out the research

Clinical Studies

1) Physiologic dental chair with provision for artificial illumination, water jet and compressed air pressure facility; 2) Mouth mask; 3) Hand gloves; 4) Mouth mirror; 5) Straight probe; 6) Tweesor; 7) Kidney tray; 8) Cotton; 9) 0.2% Chlorohezidine mouth wash; 10) Water; 11) Autoclave; 12) Digital camera

Study Type

Cross Sectional, Observational, Non Therapeutic

Duration

2 years June 2013 to June 2015

Study Group

5 Years to 35 Years
3 Groups

Approval

This study is approved by Board of Advanced Studies and Research University of Karachi (2012 - 2016), ethical and Research Committee Karachi Medical and Dental College Karachi. This study is the part of M.S. Oral surgery thesis From University of Karachi Pakistan.

Periodontal disease index (PDI, Ramfjord (1967)

(PDI) Periodontal disease index of Ramfjord has, like the GI, a gingival and periodontal component. Six selected teeth, namely numbers 36, 41, 16, 21, 24 and 44. For the gingival status of health or disease, the assigned value represents essentially a combination of the P-M-A (without the part of the attached gingiva) and the PI index. Again the tooth represents the unit evaluated.

(Ramfjords PDI)

Grade- 0. Absence of inflammation.
Grade- 1. Mild to moderate gingivitis, Mild inflammatory changes not extending around the tooth.
Grade- 2. Mild to moderately to severe gingivitis around the tooth.

Grade- 3. Severe Gingivitis characterized by swelling, tendency to bleed and ulceration

RESULTS

Out of 200 patients, 35 patients (17.5 %) are normal or without Periodontitis, 91 patients (45.5] have mild Periodontitis, 60 (30%) patients have moderate Periodontitis, and 14 patients (7%) have severe Periodontitis. Over all (82.5%) patient have Periodontitis.

Age Group Versus Periodontitis Crosses Tabulation

Periodontal study was carried out on 200 β-thalassemic major patients.35 patients have normal, 91 have mild periodontitis, 60 patients have moderate periodontitis and 14 patients have severe periodontitis.

Age Group 5-15 Years

No. of patients belong to 5-15 age group were 72. 16 (22.2%) patients are normal, 37(51.4%) patients have mild periodontitis, 17(23.6%) patients have moderate periodontitis and 2 (2.8%)

patients have severe periodontitis.

Age 16-25 Years

No. of patients belong to 16-25 years age group are 101.15(14.9%) patients are normal, 42(41.6%) patients have mild periodontitis, 33(32.7%) patients are of moderate periodontitis and 11(10.9) patients have severe periodontitis.

Age Groups 26-35 Years

No of patients belong to 26-35 years age group are 27. 3 (11.1%) patients are normal that is without periodontitis.5 (18.5%) patients have mild periodontitis and 13(48.2%) patients have moderate periodontitis and severe 6(22.2%) patients have periodontitis patient is recorded.

Data of periodontitis shows as the age increases normal number of patients decreases. Most of the patients have mild periodontitis and this is also seen in16-25 age group, in 26-35 age group most of the patients have a moderate periodontitis. In general severity of periodontitis increases with increase in age.

Periodontitis	No of Patients	Percent	Valid Percent	Cumulative Percent
Normal	35	17.5	17.5	17.5
Mild	91	45.5	45.5	63.0
Moderate	60	30.0	30.0	93.0
Severe	14	7.0	7.0	100.0
Total	200	100.0	100.0	

Table-I. Periodontitis

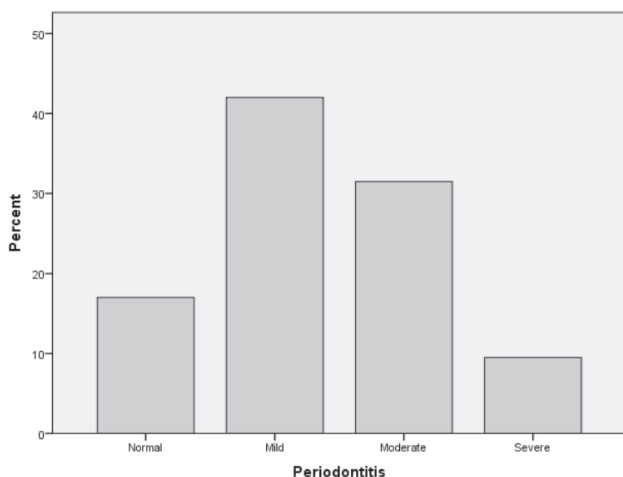


Figure-1. Periodontitis

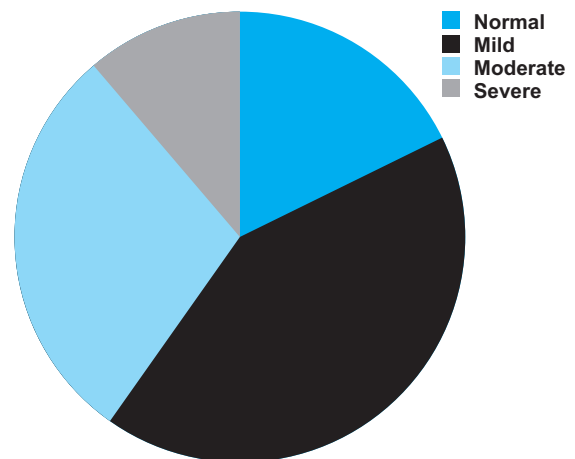


Figure-2. Periodontitis

Periodontitis		Normal	Mild	Moderate	Severe	Total	
Age	5-15	Count	16	37	17	2	72
	% within Age		22.2%	51.4%	23.6%	2.8%	100.0%
	16-25	Count	15	42	33	11	101
	% within Age		14.9%	41.6%	32.7%	10.9%	100.0%
	26-35	Count	3	5	13	6	27
	% within Age		11.1%	18.5%	48.2%	22.2%	100.0%
Total		Count	34	84	63	19	200
	% within Age		17.0%	42.0%	31.5%	9.5%	100.0%

Table-II. Age group versus periodontitis crosses tabulation

DISCUSSION

Periodontitis and its correlation with age group were also under taken in present study. Periodontitis was clinically observed in 200 patients and out of them 35 (17.5 %) patients are normal (without Periodontitis), 91 (45.5%) patients have mild periodontitis, 60(30.0%) patients have moderate periodontitis, and 14 patients (7.0%) 80 have severe periodontitis. Over all 82.5% thalassaemic patients have periodontitis and 17.5 %, patients without Periodontitis, age groups were also correlated with periodontitis.

In age group 5-15, 16-25 and 26-35years, normal patients are 22.2%, 14.9 % and 11.1% respectively indicate that increases in age, number of normal patients decreases and periodontitis increases.

In age groups 5-15,16-25 and 26-35years, mild periodontitis are 51.4%, 41.6% and 18.5% respectively shows that increase in age, mild periodontitis become decrease, probably increase in age shift mild periodontitis to moderate periodontitis. Similarly in age group 5-15, 16-25 and 26-35 years severe periodontitis was present in 2.8%, 10.9% and 22, 2% respectively. These clearly show that increasing age periodontitis increases.

Increase in age ^α increase in % of patients having periodontitis

CONCLUSION

From the present study followings results have been concluded.

Present study helped to familiarize with the Periodontal changes manifested in patients suffering from thalassemia and an attempt to

understand the possible complications and predict prognosis and helpful in the diagnosis of thalassemia patients.

The increase in severity of periodontitis increases with age and duration, necessitate regular surveillance and counselling in order to reassure the patient, reduce periodontitis and improve the overall condition and life style of the patient.

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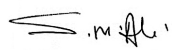
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AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Syed Muhammad Ali	Main reasearcher, Writing, Proof reading, Data collection.	
2	Syed Mahmood Haider	Main idea did review guidance, support final approval of manuscript and supervisor of project.	