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Oral and Dental problems among thalassaemic patients at Diyala governorate

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مشاكل الفم و الاسنان عند مرضى الثلاسيميا في محافظة ديالى

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الخلاصة : الثلاسيميا مرض من امراض الدم الوراثية يتسبب بفقر الدم ، ويحدث هذا المرض بشكل اساسي بين اطفال منطقة البحر المتوسط . اجريت هذه الدراسة للتعرف على مشاكل الفم والاسنان عند مرضى الثلاسيميا الذين يراجعون مركز الثلاسيميا في مستشفى البتول في بعقوبة .

Abstract

Background

Thalassaemia is agenetic disorder leading to anemia , the disease is originally wide spreaded in the Mediterranean Basin. This study was carried out to identify some sociodemographic factors, oral and dental problems among thalassemic patients

Aims of the study :

1) To study some personal and sociodemographic factors for thalassemic patients at Diyala governorate .

2) To identify some dental and oral problems among those thalassemic patients .

Material and Methods :

The study sample included 110 patients 65 of them males and 45 females , from the thalassemic clinic in AL –Battool hospital at Baquba city 68 patients from the original sample, aged 6-20 years were examined for oral and dental problems for the period from 1st Sep to 15th Dec –.2oo7

Results:

Revealed that 11.8% of the males , 16.2% of the females had malocclusion . 17.6% of the males , 11.7% females had gingivitis and 39.7% , 27.9% of the male and female respectively had bad oral hygiene.

Conclusions and recommendations:

We conclude that thalassemic patients had oral and dental problems ,and recommend promotion of oral and dental cares services in this clinic.

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Introduction

Thalassemia is a disease which was originally widly spreaded in the Mediterranean Basin , South-East Asia &various countries in the equatorial Africa. However ,following its persistent migration over plane it is today verifiable in almost all region of the globe.

The term Thalassemia implies a genetic disorder of an extremelly heterogenous group which is characterized by a reduced or erroneous production of haemoglobin, the respiratory pigment contained in the red cells .The probability of a child being born affected by Thalassemia Major the most serious form of this genetic disorder also known as beta – thalassemia or cooleys disease - is a 25% chance if the parents are carriers, that is to say if both possess one of the two genes for erroneously coded hemoglobin in their chromosomic make-up . it is estimated that in Italy only , the number of affected by Thalassemia Major fluctuates between 5,000 and 8,000 individuals.

The genetic defect which characterizes thalassemia major is intrinsic to the hemopoietics cells which are present in bone marrow .If up until now correct transfusion therapy the only available treatment, it is today possible to cure the disease by performing Bone Marrow transplant using a compatible donor by replacing diseased cells with healthy one[1].

These patients are well at birth but developed anemia which must be corrected by blood transfusion which result in iron overload .Unless the iron is removed with chelation therapy these patients die of hemosiderosis[2].

Age of onset ; 1st year of life (thalassemia major)
2-4 years (thalassemia intermedia)

Types of beta thalassemia are ;

Hetrozygous states Thallassemia Minima –silent beta –chain defect
Thalassemia Minor one normal beta –globin chain gene and one beta-thalassemia gene .

Homozygous states Thalassemia Intermedia -2beta-thalassemia genes(later onset) Thalassemia Major -2beta-thalass.genes(early onset)

Complications of thalassemia :

1. Craniofacial features ;represents medullary hemopoiesis ,mandibular prominences, maxillary overbite eminences ,depressed nasal bridge&frontal bossing.
2. Extramedullary Hematopoiesis ; hepatomegaly &splenomegaly
3. Iron overload (Hemosiderosis) ; hepatic fibrosis , sideroblastic cardiomyopathy & endocrinopathies (D.M.&hypothyrodism)
4. Others ;recurrent infections ,septicemia , failure to thrive [4]

It is our hope to raise awareness, encourage people to test for trait, &spread knowledge about treatment to the global community[5].

Materials and Methods

Across sectional study was conducted during the period from the first of Sep/2007 to the15th of Dec/2oo7 in ALBattool Hospital at Baquba city.

Materials;

The materials of this study consisted of 110 patients with thalassemia major (B-thalassemia) who were attending the thalassemic clinic in ALBattool Hospital at Baquba city. 68 of the study sample were examined for dental and oral problems age ranging from 6-20years,mid range (13 years)

Inclusion Criteria ;

All thalassemic patient with B-thalassemia major who had regular visits to this clinic ,68 patients of them for dental and oral problems.

Exclusion Criteria ;

Thalassemic patients with irregular visits to this clinic
Patients with blood diseases other than thalassemia B –major
Thalassemic patients from other governorate.

Methods

1) Special data sheet was designed for collection of information for each patient enrolled in this study , these information including personal and sociodemographic variables about the patients and his family .The data sheet filled by interviews with the patient and his family during his visit to the thalassemic clinic.

2) Oral examination was performed by the first author under daylight. The instruments used for the examination were standard plane mouth mirrors and sickle shaped clinical explorer. Recording of dental caries was carried out according to the criteria suggested by the WHO in its publicate Oral health surveys . Basics methods .Cods. given for individual tooth status are ; O sound 1 decayed 1 filled 1 missing The caries status was based on the examination of the teeth which may be decayed(D) missing (M) and filled (F) .[7]

Results:

Table (1) present the description of thalassaemic paitents according to sex in relation to individual factors depending in our study The table reveals that (59%) of thalassaemic paitents were male and 41.0% were famale .the highest percentage for age group (5-9) 27.7% for male ,14.5 for age group (<1-4) for female. statistical association was found between the age and sex ($p<0.05$).

The same table revealed that 24.5% of the male had splenectomy while 14.5% of the female had splenectomy, statistical association was found between thalassaemia and splenectomy (p0.005). this table also reveals the distribution of thalassaemic patients according to blood groups, the

table reveals that 83.5% of the males were of blood group O+ve while 31.1%of the female were
of group A+ve, no association was found between thalassaemia and blood group ($p>0.05$) . the same table shows the birth order of thalassemic
patients, the highest percentage 21.8% for the males of 1st birth order ,while 9% for the female of 2nd birth order ($p<0.05$).
Table(2) presents some sociodemographic factors of thassaemic patients under study . the table shows the distribution of the sample according to sector (area) location, parent relation and No. of affected sibling.
Table (3) shows the frequency of malocclusion among thalassaemic patients at Diyala governorate the data shows that 11.8%, 16.2 of the males and females respectively had class II malocclusion and 1.5%,2.9 of them had class III malocclusion
Table(4) reveals distribution of oral hygiene among the study sample the data reveals that 39.7%, 27.9of the males respectively had bad oral hygiene.
Table (5) shows of the frequency of gingivitis among the study samples that reveals that17.6,11.7% of the males and females respectively had gingivitis.
Lastly table(6) shows the distribution of decayed missing filled teeth according to the type of teeth.
The data reveals that the highest prevalence of decayed among thalassemic patient was 64.7for first molar,22.0%for first premolar,17.6%for second molar
and 4.4% for second premolar.

Table(1):Distribution of thalassaemic patients according to sex in relation to
Individual factors at Diyala Governorate

Individual characteristics age in year	Sex						p.value
	Male		Female		Total		
	No	%	No	%			
<1-4	16	14.5	16	14.5	32	29.0	P<0.05
5-9	25	22.7	15	13.6	40	36.6	
10-14	9	8.1	9	8.1	18	16.3	
15-19	6	5.4	4	3.6	10	9.0	
20+>	9	95.0	1	0.9	10	9.0	
Total	65		45	41.0	110	100	
splenectomy							
Yes	27	24.5	16	14.5	43	39.1	P<0.05
No	38	34.5	29	26.3	67	60.9	
Total	65	59.0	45	41.0	110	100%	
Blood group of the study sample							
A+ve	20	30.8	14	31.11	34	30.9	p>0.05
A-ve	4	6.2	2	4.4	6	5.4	
B+ve	15	23.1	12	26.7	27	42.5	
B-ve	-	-	2	4.4	2	1.8	
AB+ve	1	1.5	2	4.4	3	2.7	
AB-ve	-	-	-	-	-	-	
O+ve	25	38.5	13	28.9	38	34.5	
O-ve	-	-	-	-	-	-	
Total	65	59.0	45	41.0	110	100	
Birth order 1st	24	21.8	8	7.8	32	29-1	P<0.05
2nd	18	16.4	10	9.0	28	25.4	
3rd	6	5.4	6	5.4	12	10.9	
4th	6	5.4	8	7.3	14	12.7	
>:5th	11	10.0	13	11.8	24	21.8	
Total	65	59.0	45	41.0	110	100	

Table(2):distribution of thalassaemic patients according to sociodemographic factors at Diyala Governorate

characteristics	No	%
Sector Sector I (Baquba)	53	48.7
sectorII(AL-Khalis)	13	11.8
SectorIII(AL-Muqdadia)	22	20
SectorIV(Baladroz)	14	12.7
Sector V(Khanaqin)	8	7.2
Location Rural Urban	 72 38	 65.5 34.5
Parent relation 1st degree mother relation 1st degree father relation 2nd degree father relation No relation	 32 38 12 28	 29.1 34.5 10.9 28.5
No of affected sibling 1sibling 2sibling 3sibling 4sibling	 56 38 8 2	 53.6 34.5 7.2 1.8

Table(3):frequency distribution of malocclusion among thalassaemic patient according to sex

Malocclusion	Male		Female		Total	
	No	%	No	%	No	%
Class I	26	38.2	20	29.4	46	76.7
Class II	8	11.8	11	16.2	19	27.9
ClassIII	1	1.5	2	2.9	3	4.4
Total	35	51.5	33	48.5	68	100

Tanle(4);distribution of oral hygiene according to sex among thalassemic patient

Oral hyigien	Male		Female		Total	
	No	%	No	%	No	%
Good	6	10.3	15	22.0	22	32.4
Bad	27	39.7	19	27.9	46	67.6
Total	35	51.5	33	48.5	68	100

Table(5):frequency distribution of gingivitis among thalassemic patient according to sex at Baquba city 2001

gingivitis	Male		Female		Total	
	No	%	No	%	No	%
Yes	12	17.6	8	11.7	20	29.5
No	23	33.8	25	36.7	48	70.5
Total	35	51.5	33	48.5	68	100

Table(6):distribution of decayed missing, filled teeth according to type of teeth

Dental finding	1st molar		2nd molar		1st premolar		2nd premolar	
	No	%	No	%	No	%	No	%
Decayed	44	64.7	12	15	22.0	22.0	3	4.4
Missing	4	5.8	-	-	0.0	0.0	-	0.0
Filled	-	0.0	-	-	0.0	0.0	-	0.0

Discussion:

Failure to synthesize beta chains (B- thalassemia) is the commonest type &is seen in highest frequency in the Mediterranean area .

Hetrozygotes thalassemia minor usually mild anemia & little or no disability.

Homozygotes thalassemia major are unable to synthesis hemoglobin A And after the neonatal period have profound hypochromic anemia associated with much evidence of red cell dysplasia and increased red cell destruction [8]

In the present study the highest percentage of thalassemia 22.7 %were of age group 5-9 among males and equal percentage 14.5%. for males and females for age group (< 1-4) years.

An increased blood requirement due to hypersplenism accelerates iron loading , increases the risk of transfusion –mediated infection and imposes an additional psychosocial burden on the patient and family .

The majority of patients with homozygous thalassemia require splenectomy at some stage , but high transfusion retards or presents hypersplenism and splenectomy is now less frequent and is performed later than in the past .[2]

It is an interesting point that all the study sample were sample were of Rh +ve expecet 6.2 , 4.4% of the males and females were of blood group A -ve Regarding sociodemographic variable the highest percentage were of Baquba district 48.7% followed by AL-Moqdadia , Beldroze , AL Khalis and Kanakin , we noticed that 65.5% of thalassaemic patient were of rural area this can explained on the basis that the parents were relatives.

As the same table shows that 34.5 % and 29.1% had first degree relation between the father and the mother .

The parents need carly genetic counseling , but at presentation they are usually too shocked to take information not immediately relevant to their thalassaemic child . [9]

Basic information the inheritance pattern and the availability of prenatal diagnosis performed at this stage. [8]

In our study we found the presence of one thalassaemic child in the family 53.6% , with 2 children in one family in 7.2% while 1.8% for family with 4 affected children.

The parents should be informed that their other children , and their siblings have a 50 % risk of also being a carrier , screening should be offered for the relatives of both parents , and the carriers identified should be provided with genetic counseling. A family tree should be kept in the patients notes. [9]

Some of the problems which face thalassaemic patients are dental and oral complications . These problems result from the changes and the sequel of thalassaaemia B-major, massive expansion of bone marrow of the skull produce characteristic faces, sever maxillary hyperplasia and malocclusion may occur and hyperplasia of the gum also may be present [3,8] Table (3).

Oral hygiene was bad in 39.7% of the males and 27.9% of the females table (4) .

On the other hand 7.6% , 11.7% of the males and females respectively had gingivitis table (5) These finding reflect an unawarness of the importance of the teeth or a negative attitude of the parents towards dental treatments in addition to psychological upset of the family about their child 's disease .adding to that poor health education about dental care and follow up .most of the families were from rural area (table 2) and there is difficulties to reach health services in general .decayed teeth present in 64.7% in first molar missing teeth in 5.8%as (table) shows and there is no filled teeth among the study sample this indicate poor dental care.

However in the past many thalassaemic children had malformations of the facial bones and server a dental carries. Since the malformations are due to marrow expansion, they are seen much less than they used to be[9]

thalassaemia is multi-system , lifelong disease to treat so there is alot to know about it. We have been working hard for these years to bring comprehensive information to remote patient, providers ,students and the general public that is simple to them to know . [6]

Conclusion and recommendation

This study is in consistency and agreement with basic information of the inheritance pattern and the availability of prenatal diagnosis should be offered and DNA studies performed at this stage .

This study had clearly shown that thalassemic patient should be given priority in programs aiming at prevention and treatment and dental appointment should be kept as short as possible to avoid more complain of the patient.

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