Prevalence of thalassemia among patients attending to Ibn-Al-Baldi hospital in Baghdad city

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Abstarct

"Thalassemias": are forms of inherited recessive blood disorder that originated in the Mediterranean region. In" thalassemia", the disease is caused by the excessive destruction or degradation of red blood cells due to formation of abnormal hemoglobin molecules, because of a defect through a genetic mutation or deletion. The aim of this study to assess distribution of “thalassemia’s" patients according to age**,** sex**,** area and types of disease in Baghdad city**.** This study concluded that higher percentage of Intermediate (32.6%) among age groups (<1-4.9). Age groups and type of "Thalassemia" showed highly significantly different. The highest percentage of male cases had Intermediate (32.6%), While the highest percentage of male cases had Major (20.4%). No significant difference between sex and type of “Thalassemia". Finally the study recommended earlier examination before marriage and examination for pregnant women, and health program of community about "Thalassemia".

Introduction:

" Thalassemia’s":(are forms of inherited recessive blood disorder that originated in the Mediterranean region. This disease was caused by the excessive destruction or degradation of red blood cells due to formation of abnormal hemoglobin molecules, because of a defect through a genetic mutation or deletion [1]. From the Greek *thalassa* ("sea") and *-emia* ("blood"). The etymology indicates the epidemiology of the disorder in that it commonly occurs in patients of Mediterranean descent. The term was first used in 1932 [2]. The etymology indicates the epidemiology of the disorder in that it commonly occurs in patients such as India and Pakistan are seeing a large increase " thalassemia" patients due to lack of genetic counseling and screening. There is growing concern that "thalassemia" may become a very serious problem in the next 50 years, one that will burden the world's blood bank supplies and the health system in general. There are an estimated 1,000 people living with" thalassemia" major in the United States and an unknown number of carriers [3] [4]. In Europe, the highest concentrations of the disease are

found in Greece, coastal regions in Turkey (particularly the Aegean Region such as Izmir, Balikesir, Aydin, Mugla, and Mediterranean Region such as Antalya, Adana, Mersin), in parts of Italy, particularly Southern Italy and the lower Po valley [5].

The major Mediterranean islands (except the Balearics) such as Sicily, Sardinia, Malta, Corsica, Cyprus, and Crete are heavily affected in particular. Other Mediterranean people, as well as those in the vicinity of the Mediterranean, also have high rates of "thalassemia" including people from West Asia and North Africa. Far from the Mediterranean, South Asians are also affected, with the world's highest concentration of carriers (16% of the population) being in the Maldives [6].

The classifications of "Thalassemia's" are according to which chain of the hemoglobin molecule is affected. In" α thalassemia's", production of the α globin chain is affected, while in" β thalassemia" production of the β globin chain is affected[7].

"Thalassemia" has an autosomal recessive pattern of inheritance both "α and β thalassemia's" are often inherited in an autosomal recessive fashion, although this is not always the case. Cases of dominantly inherited "α and β thalassemia's" have been reported, the first of which was in an Irish family with two deletions of 4 and 11 bp in exon 3 interrupted by an insertion of 5 bp in the β-globin gene. For the autosomal recessive forms of the disease, both parents must be carriers in order for a child to be affected [3].

"Mild thalassemia ": patients with "thalassemia" traits do not require medical or follow-up care after the initial diagnosis is made [8]. Patients with "β-thalassemia trait" should be warned that their condition can be misdiagnosed for the common Iron deficiency anemia. They should eschew empirical use of Iron therapy; yet iron deficiency can develop during pregnancy or from chronic bleeding [9]. Counseling is indicated in all persons with genetic disorders, especially when the family is at risk of a severe form of disease that may be prevented [10].

" Severe thalassemia" : Patients with "severe thalassemia" require medical treatment and a blood transfusion regimen was the first measure effective in prolonging life [8].

A screening policy exists in Cyprus to reduce the incidence of" thalassemia", which since the program's implementation in the 1970s (which also includes pre-natal screening and abortion) has reduced the number of children born with the hereditary blood disease from 1 out of every 158 births to almost zero [11].

It was invented in 2002 by Dr. PietroSodani. The results are: "thalassemia "free survival rate 70%, rejection 23% and mortality 7%. The best results are with very young patients[12].

The aim of study: was identify the prevalence of " thalassemia's" patients according to age **,**sex**,** area and types of disease in Baghdad city**.**

Materials of methods: A descriptive Cross- sectional study is carried to identify the prevalence of" thalassemia's". Data taken from the medical records of "thalassemia's" cases whom attending to" Ibn- al-Baldi " hospital in Baghdad city. Purposive (non- probability) of 500 cases of" thalassemia" were included in present study .

Statistical analysis: For presentation data and analysis using SPSS Vr.18.Using chi-square and Mont Carlo tests (MCP)at 5% &1% level of significant.

Results

In table(1) cases showed higher percentage of Intermediate (32.6%) among age groups
(<1-4.9)year , compared to Major higher percentage was(17.0%) among age groups (5-9.9)year,
the association ,between age groups(year)and type of "Thalassemia" showed highly significantly different .

Table (1): Distribution of Cases by age group(year) and type of "Thalassemia"

Age group(year)		Type of "Thalassemia"		Total
		Major	Intermediate	
(<1-4.9)	No.	31	163	194
	%	6.2%	32.6%	38.8%
(5-9.9)	No.	85	114	199
	%	17.0%	22.8%	39.8%
(10-14.9)	No.	28	24	52
	%	5.6%	4.8%	10.4%
(15-24.9)	No.	15	5	20
	%	3.0%	1.0%	4.0%
(25-34.9)	No.	14	7	21
	%	2.8%	1.4%	4.2%

(35-45)	No.	12	2	14
	%	2.4%	0.4%	2.8%
Total	No.	185	315	500
	%	37.0%	63.0%	100.0%

MCP< 0.01 (HS)

Table(2): represents the distribution of "Thalassemia" cases by types and sex. The highest percentage of male cases had Intermediate (32.6%), While the highest percentage of male cases had Major (20.4%). No significant difference between sex and type of "Thalassemia'.

Table(2):Distribution of Cases by sex and type of "Thalassemia"

Sex	Type of "Thalassemia"				Total	
	Major		Intermediate			
	No.	%	No.	%		
Male	102	20.4%	163	32.6%	265	53.0%
Female	83	16.6%	152	30.4%	235	47.0%
Total	185	37.0%	315	63.0%	500	100.0%

X^2=0.537 P>0.05 (NS)

Table(3):represents the distribution of "Thalassemia" cases by types and address. The highest percentage of cases had Intermediate (60.6%) from Baghdad and the lowest percentage had Major (1.8%)from Others governorates. No significant difference between address and type of "Thalassemia".

Table(3):Distribution of Cases by address and type of "Thalassemia"

Address	Type of "Thalassemia"				Total	
	Major		Intermediate			
	No.	%	No.	%		
Baghdad	176	35.2%	303	60.6 %	479	95.8%
Others governorates	9	1.8%	12	2.4%	21	4.2%
Total	185	37.0 %	315	63.0 %	500	100.0%

X^2=0.323 P>0.05 (NS)

Table(4):represents the distribution of "Thalassemia" cases by types and Year of infections. The highest percentage of cases had Intermediate (12.4%) at year2010 and the lowest percentage (0.6%)at year 2006 .On another hand the highest percentage of cases had Major (8.8%) at 2010 and the lowest percentage (0.2%) at2001. Highly significant difference between the type of "Thalassemia" and year of infections.

Table(4):Distribution of Cases by year of infections and type of "Thalassemia"

Year of infections	Type of "Thalassemia"				Total	
	Major		Intermediate			
	No.	%	No.	%	No.	%
(2001 – 2004)	13	2.6%	31	6.2%	44	8.8%
(2005 – 2008)	56	11.2%	104	20.8%	160	32.0%
(2009 – 2012)	116	23.2 %	180	36.0%	296	59.2%
Total	185	37.0 %	315	63.0%	500	100.0%

MCP< 0.01 (HS)

Table(5):represents the distribution of "Thalassemia" cases by types and Duration of disease. The highest percentage of cases was intermediate (17.0%) had (<1-1.9)year duration of disease and also the highest percentage of cases was Major

(10.6%)had (<1-1.9)year duration of disease. No significant difference between the type of "Thalassemia" and duration of disease .

Table(5):Distribution of Cases by duration of disease and type of "Thalassemia"

Duration of disease(Years)	Type of "Thalassemia"				Total	
	Major		Intermediate			
	No.	%	No.	%	No.	%
(<1-1.9)	53	10.6%	85	17.0%	138	27.6%
(2-2.9)	42	8.4%	58	11.6%	100	20.0%
(3-3.9)	23	4.6%	43	8.6%	66	13.2%
(4-4.9)	27	5.4%	51	10.2%	78	15.6%
(5-5.9)	19	3.8%	29	5.8%	48	9.6%
(6-8+)	21	4.2%	49	9.8%	70	14.0%
Total	185	37.0%	315	63.0%	500	100.0%

X^2=4.456 P>0.05 (NS)

In table(6) cases showed higher percentage of Intermediate (47.0%) had no family history, so cases of Major showed a higher percentage (28.0%)had no family history, the association between family history and type of "Thalassemia" was non significantly different .

Table(6):Distribution of Cases by family history and type of "Thalassemia"

Family History	Type of "Thalassemia"				Total	
	Major		Intermediate			
	No.	%	No.	%	No.	%
NO	140	28.0%	235	47.0%	375	75.0%
Yes	45	9.0%	80	16.0%	125	25.0%
Total	185	37.0%	315	63.0%	500	100%

X^2=0.072 P>0.05 (NS)

DISCUSSION

Generally, "thalassemia's" are prevalent in populations that evolved in humid climates where malaria was endemic. It affects all races, as "thalassemia's" protected these people from malaria due to the blood cells' easy degradation[13].

The researchers agreed that "Thalassemia". The results of this study indicated that; demographic data (gender, age, and address) .
The present study showed the age groups and type of "Thalassemia" was associated by highly statistically significant this agreed with the study carried out in Malaysia[14].

The present study showed the highest percentage of" Thalassemia" was among male cases this disagreement with study done in Indian which found female cases higher male cases[15].

In present study it was "Mild thalassemia ": patients with "thalassemia" traits do not require medical or follow-up care after the initial diagnosis is made[8]. Patients with" β-thalassemia" trait should be warned that their condition can be misdiagnosed for the "common Iron "deficiency anemia. They should eschew empirical use of Iron therapy; yet iron deficiency can develop during pregnancy or from chronic bleeding [9]. Counseling is indicated in all persons with genetic disorders, especially when the family is at risk of a severe form of disease that may be prevented [10]. Severe "thalassemia": Patients with severe "thalassemia "require medical treatment and a blood transfusion regimen was the first measure effective in prolonging life [8].

found the highest percentage of cases from Baghdad(urban), this agreement with the study from Malays, Chinese and Indians cases of "Thalassemia" [16].

Non-significant difference between the type of "Thalassemia" and duration of disease this disagreement with the study carry out in Malaysia [17].

The cases showed higher percentage of Intermediate (47.0%) had not family history. The association between family history and type of "Thalassemia" was non significantly difference , in study done by Vanichsetakul in2010 about Genetic counseling found "Thalassemia's" and abnormal hemoglobin genes can be inherited from symptom-free parents, if both of parents are correspond-gene carriers [18].

In Iran as a premarital screening, the man's red cell indices are checked first, if he has microcytosis (mean cell hemoglobin< 27 pg or mean red cell volume< 80 fl), the woman is tested. When both are microcytic their hemoglobin A2 concentrations are measured. If both have a concentration above 3.5% (diagnostic of" thalassemia trait") they are referred to the local designated health post for genetic counseling [19]

The major Mediterranean islands (except the Balearics) such as Sicily, Sardinia, Malta, Corsica, Cyprus, and Crete are heavily affected in particular. Other Mediterranean people, as well as those in the vicinity of the Mediterranean, also have

high rates of" thalassemia", including people from West Asia and North Africa. Far from the Mediterranean, South Asians are also affected, with the world's highest concentration of carriers (16% of the population) being in the Maldives [6].

Conclusions

- The cases showed higher percentage of Intermediate (32.6%) among age groups (<1-4.9). Age groups and type of "Thalassemia" showed highly significantly difference.
-The highest percentage of male cases had Intermediate (32.6%), while the highest percentage of male cases had Major (20.4%). No significant difference between sex and type of "Thalassemia".

- The highest percentage of cases had Intermediate (60.6%) from Baghdad. No significant difference between address and type of "Thalassemia".

-The highest percentage of cases had Intermediate (12.4%) at year2010 and the lowest percentage (0.6%)at year 2006 . Highly significant difference between the type of "Thalassemia" and year of infections.

-The highest percentage of cases was intermediate (17.0%) had (<1-1.9) year duration of disease. No significant difference between the type of "Thalassemia" and duration of disease.

-The cases showed higher percentage of Intermediate (47.0%) had not family history. The association between family history and type of "Thalassemia" was non significantly difference .

Recommendations

1- Earlier examination before the marriage and examination for pregnant women.

2-Health program of community about "Thalassemia".

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انتشار مرض الثلاسيميا بين المرضى الذين يرتادون مستشفى ابن البلدي في مدينة بغداد

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المعهد الطبي/ بغداد

الخلاصة

"الثلاسيميا": هي أشكال من اضطرابات الدم المتنحية الموروثة التي نشأت في منطقة البحر الأبيض المتوسط. في "الثلاسيميا"، يحدث المرض بسبب التدمير المفرط أو تدهور خلايا الدم الحمراء بسبب تكوين جزيئات الهيموغلوبين غير طبيعية، بسبب خلل من خلال طفرة جينية أو الحذف. هدفت هذه الدراسة إلى تقييم توزع مرضى الثلاسيميا حسب العمر والجنس والمنطقة وأنواع المرض في مدينة بغداد، وقد خلصت الدراسة إلى أن نسبة الوسيطة المتوسطة (٣٢.٦٪) بين الفئات العمرية (<١–٤.٩). أظهرت الدراسة أن الفئات العمرية ونوع "الثلاسيميا" أظهرت اختلافا معنويا، وكانت أعلى نسبة من حالات الذكور متوسطة (٣٢.٦٪)، في حين أن أعلى نسبة من حالات الذكور كانت كبيرة (٢٠.٤٪)، ولا يوجد فرق كبير بين الجنس ونوع "الثلاسيميا". وأخيرا أوصت الدراسة بفحص مبكر قبل الزواج والفحص للنساء الحوامل، وبرنامج الصحة للمجتمع حول "التلاسيميا ".

الكلمات المفتاحية : التلاسيميا ,انواع التلاسيميا , مدة المرض.