# Epidemiology of Thalassemia in Human of Babylon Iraq

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**Abstract:**
Thalassemia was studied over one year from first of January 2016 till 31 of December 2016. Thalassemia patients were 120 cases recorded in unit of thalassemia / maternity and children hospital in Babylon province / Iraq ( 72 males 60% and 48 females 40% ).
Patients with group (O) of blood were highest percent (46.3%) in comparison with other groups , while the lowest group was AB (2.2%).
Beta Major thalassemia was the highest type ( 44% ) and RBCs have inclusion bodies and hypochromic . Beta intermedia 22% and RBCs mostly microcytic . Beta minor was 31% while the alpha type was the lowest 3% and the RBCs were anisocytosis .
Age variations were studied in thalassemia patients , So the ages between 1-5 years old were the highest percent ( 34%) while the ages in between 16- 20 years old were the lowest percent (5.5%).
***Key words:*** Beta thalassemia, Babylon Province,

## Introduction:

Haung , S. Z. et al (1992) modified new technique to diagnosis the alpha and beta thalassemia by using the polymerase chain reaction to amplify DNA copies of circulating erythroid cells.

Sadiq , M . F. Huisman, and T. H. ( 1994) . worked on Molecular characterizations of beta thalassemia in people of north Jordan, while Al-Hazmy, M.A., et al ( 1995 ) Proved Molecular defects in beta thalassemia in the population of Saudi Arabian .

Zohreh Rahimi (2013) studied genetic hemoglobin sanddin fars south western Iran and karman-shah western western Iran

De Sanctis v. Et al ( 1998 ) researched on the relation of function of endocrine glands with thalassemia intermedia , While Wu KH et al (2003) identified the deficiency of growth hormone in patients with beta thalassemia major and the efficacy of recombinant growth hormone treatment .Leug T.N. et al ( 2005 ) screened thalassemia in pregnancy for treatment embryo before birth .

Some researchers worked on transplantation of blood or bone marrow as treatment for thalassemia patients ,Rebulla , P. and Modell, B. ( 1991) treated thalassemia major by blood transfusion, Orofino , MG .et al (2003) transplanted haemopoietic stem cell in patients with beta thalassemia . Gaziev, J. and Lucarelli, G. (2011) treated thalassemia by stem cell transplantation Bradai M . et al (2003) used Hydroxycarbamide with blood transfusion as treatment of children suffered with sever beta thalassemia Tsironi M. et al (2005) published a case report about the reversal of heart failure in thalassemia major by combined chelating therapy, while Gaudio A. et al (2008) used Bisphosphonates in the treatment of thalassemia associated osteoporosis , as well as BorgnaPignatti C. (2007) treated thalassemia intermedia with modern treatment.

There are many complications occur due to thalassemia , Renzo G. and RaffaellaOriga ( 2010 ) reviewed , growth retardation , anemia jaundice , poor musculature , failure of sexual maturation and diabetes mellitus , these pathologic changes due to thalassemia major . Borgna- Pignatti, C.et al (2003) Published Gallstones occur due to thalassemia minor, while Cholelithiasis with thalassemia major .Aessopos, A. et al (2005) compare thalassemia major with thalassemia intermedia in case of heart diseases .

Christina V. et al (2003 ) described light cycler system can rapidly and with low cost per assay for diagnosis prenatal thalassemia syndromes while Najmbadi H. et al (2006) Iranian scientists have worked 14 years to develop a program about beta thalassemia major.

Haleh Akharan Niaki et al (2012). Worked on hematologic features of alpha thalassem crrieras comparison study for patie , with rarious types globins mutation .

Thalassemia is special type of anemia due to genetic disorder , that cause the production of abnormal hemoglobin (F) and too little hemoglobin (A) (Kumar et al 2003).

Nguyen , C. K. et al (1990) worked on Beta thalassemia and Hemoglobin E disease in Vietnam , While Angastiniotis , M . (1990) write on program of thalassemia in Cyprus .

Al-Hassa area in Saudi Arabia is one the regions in Saudi , The prevalence of B - thalassemia with hemoglobin A2 and microcytic hypochromic anemia was 3.4% ( Al-Suliman , A. With 2006).

Nasir , A. S. et al ( 2006 ) worked on Molecular characters of B- thalassemia in patients suffering from thalassemia major and intermedia in the Dohuk region of Iraq .

In our present work thalassemia was studied in Babylon province , patients attended to thalassemia unit , classified depend on clinical signs and blood diagnosis.

**Materials and Methods:**

Patients of thalassemia were followed in unite of thalassemia , weekly visiting over one year from the beginning of January till the end of December 2016 .

**Clinical signs for all types of thalassemia were recorded .**

Venous blood was taken into heparinized tubes, complete blood cell count was done by coulter automated count , Blood smears were done and stained by Giemsa stain .

Electrophoresis were done on cellulose acetate .

**Results:**

Total number of patients was 120 cases recorded in unit of thalassemia in maternity and children hospital / Babylon Province , 72 males ( 60%) and 48 females ( 40% ).

Distribution of thalassemia patients on years of age, the highest percent 31 % for 1-5 years old , while the lowest percent 5.5% for ages between 16-20 years. Fig (1).

There is a variation in the results of blood types with thalassemia , so the highest percent of thalassemia was in type O ( 46.3 %), Type A was (26.3%) type B was (25.2%), the lowest was type AB, (2.2%). (Fig. 2).

**Beta thalassemia major:**

Clinical sings of Beta thalassemia major characterized by paleness , diarrhea , irritability, recurrent fever, enlargement of abdomen due to enlargement of liver and spleen , jaundice , retardation of growth, poor musculature , skeletal changed and deformity in long bones due to expansion in bone marrow .

The highest percent of patients was in thalassemia major 45% .Fig.(3).

Inclusions bodies were noticed in cytoplasm of erythrocytes of beta thalassemia major , the beta globin chain cannot be synthesized so the HbA does not replace HbF while red cells of beta thalassemia intermedia were hypochromic and microcytic , Hemoglobin electrophoresis showed

Hbf only without HbA, Red blood cells of beta thalassemia minor showed moderate anisocytosis and microcytosis.

**Beta thalassemia Intermedia :**

Clinical signs of beta thalassemia intermedia have mild chronic anemia , growth and development are retarded , hyperplasia of Percent of beta thalassemia intermedia 23% . Fig. (3).

**Beta thalassemia minor:**

Clinically beta thalassemia asymptomatic , sometimes mild anemia. Percent of thalassemia minor 31%. Alpha thalassemia was the lowest percent 3% (Fig. 1).

Distribution of thalassemia patients on years of age , the highest percent 31% for 1-5 years old, while the lowest percent 5.5% for ages between 16-20.

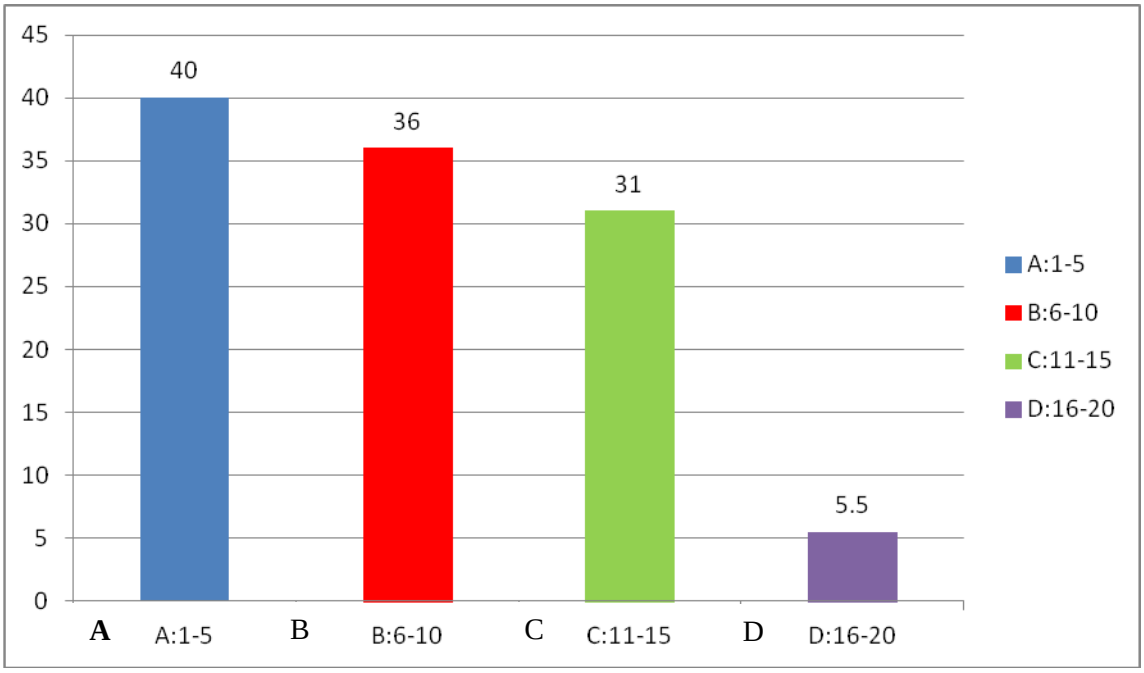


**Fig : (1) variations of percent of Thalassemia patients depend on age**

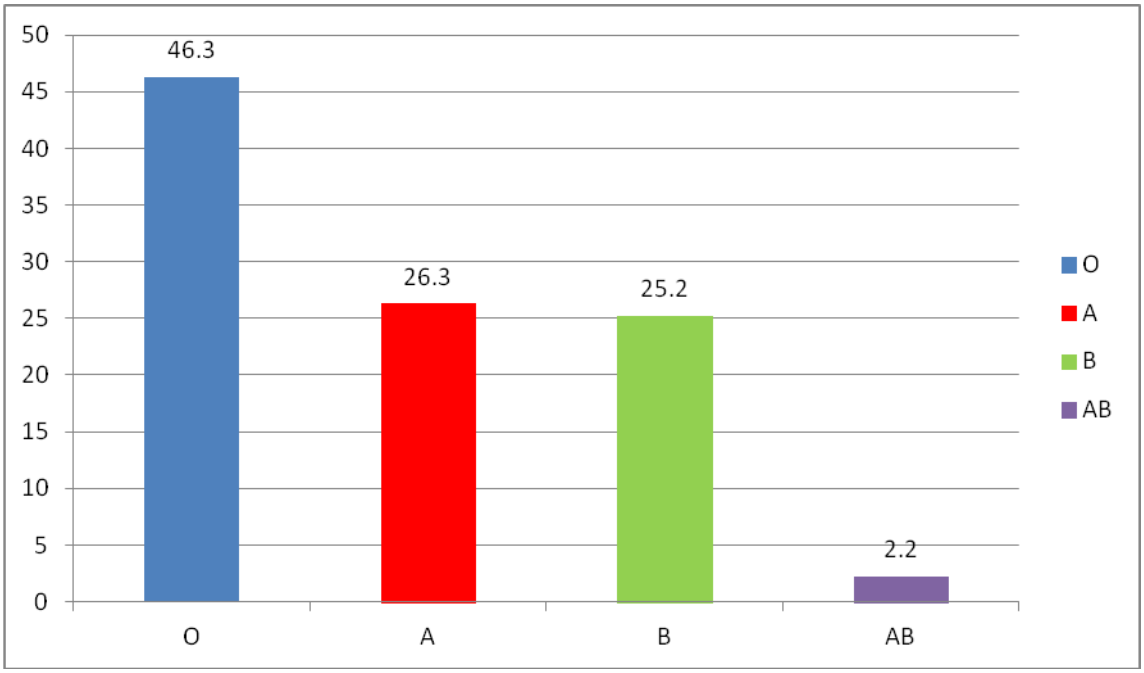

**Fig: (2) Distribution of Thalassemia patients on blood groups**

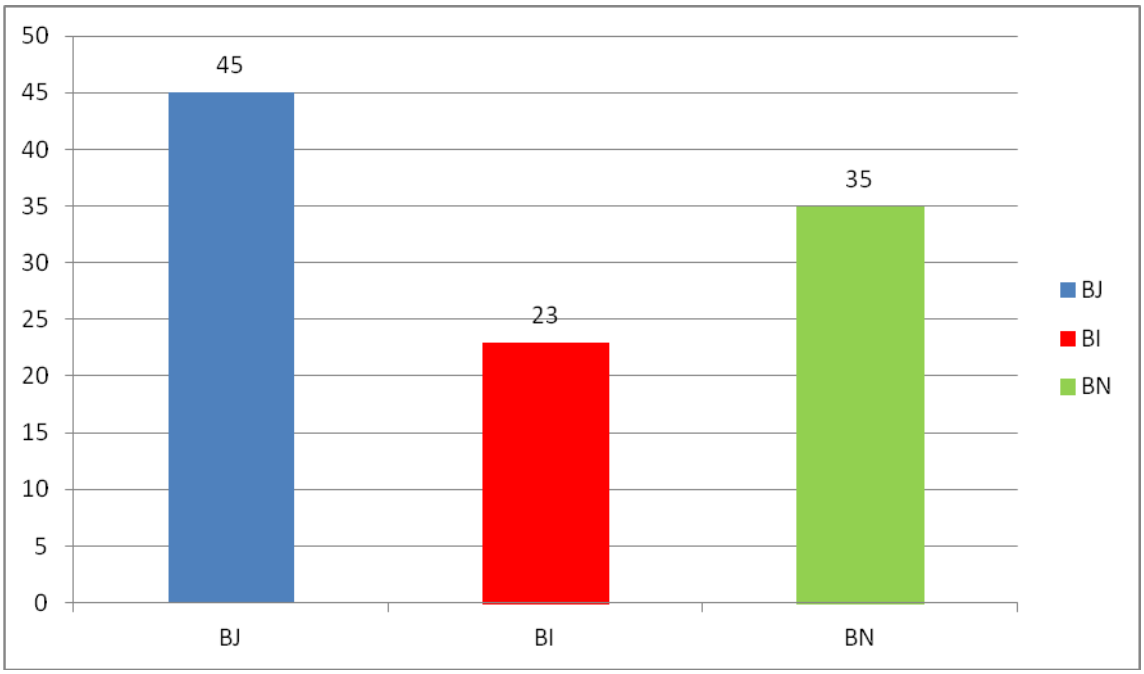


**Fig : (3) Distribution of patients on types of Thalassemia.**

## Discussion

Many researchers worked on thalassemia and studied it from different aspects.

McDonald , G. and Dodds , T. ( 1978 ) mentioned thalassemia in their atlas and published several pictures for abnormal red blood cells , siderocytes as well as anisocytosis, hypochromic , but not classified to major , intermedia , and minor therefore in this research changes of morphology of red blood cells distributed on the types of thalassemia While Angastiniotis, M. ( 1990 ) worked on program for thalassemia in Cyprus and classified it to three main types Beta thalassemia , Major, Intermedia and Minor, these results nearly similar to present results.

Rebulla , P. and Modell, B. ( 1991 ) Treated the patients of thalassemia major with blood transfusion, Kenneth et al (1996) put a guide to the diagnosis of thalassemia by detection of clinical signs, neonatal screening about presence of thalassemia and family planning .

Laila Zahed ( 2001 ) Published A spectrum of B - Thalassemia mutations in the Arab populations , 20% in Saudi Arabia Jordan 20% , Kuwait 29% , Tunisia and Algeria 27% , but high percent recorded in Asian Indian origin in UAE 55% and Oman 62% while the lowest percent was in Israeli Arab 7% , in fact these percent high or not clear for example population of Saudi Arabia 30 million, so 20% , it means 6 million suffered from thalassemia !!.

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