

:Dedication

To my wife Um Ala' , for her great
 , encouragement and patience

To my sons: Ala', Baha', Bara', Asma',
 , and Doa' with great love

To my brothers and sisters with great
 .respect

: Acknowledgment

I would like to express my special thanks to my supervisor Dr. Mohammed Siddiq Mohammed Ali for his assistance and .help

I also thank my co-supervisor Dr. Malik .Hassan Ibrahim Mustafa

I would like to express my gratitude to Razi Hospital and it's administration and the head master Mr. Fawwaz Hammad .for his encouragement and help

I would like to thank my colleagues in .Razi hospital

I would also like to express my appreciation to all those who helped me . to complete this study

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List of abbreviations

α	Alpha
β	Beta
γ	Gamma
δ	Delta
AIDS	Acquired Immune Deficiency Syndrome
Hb	Haemoglobin
Hb-A	Adult Haemoglobin
mRNA	Messenger Ribo Nucleic Acid
Hb-F	Fetal Haemoglobin
HS	Hereditary Spherocytosis
G6PD	Glucose 6 Phosphate Dehydrogenase
ATP	Adenosine Tri Phosphates
NADPH	Phosphorylated Nicotinamide Adenine Dinucleotide
GSH	Reduced Glutathione
HPFH	Hereditary Persistence of Fetal Haemoglobin
Hb-S	Sickle Haemoglobin
Hb-E	Haemoglobin E
Hb-C	Haemoglobin C
Hb-D	Haemoglobin D
PO ₂	Oxygen tension
HbSC	Haemoglobin SC
DNA	Deoxy Ribo Nucleic Acid
Hb-H	Haemoglobin H
MCV	Mean Corpuscular Haemoglobin
MCH	Mean Corpuscular Haemoglobin
RBCs	Red Blood Corpuscles
KSA	Kingdome of Saudi Arabia
SCD	Sickle Cell disease
USA	United States of America
PCR	Polymerase Chain Reaction
HPLC	High Performance Liquid Chromatography

HbA1c	Glycosylated Haemoglobin A1c
BC	Before Christmas
Km	Kilo meter
EDTA	Ethylene Diamine Tetra Acetic Acid
ml	Millie liter
mg	Millie gram
CBC	Complete blood Count
PCV	Packed Cell Volume
WBCs	White Blood Cells
MCHC	Mean Corpuscular Haemoglobin Concentration
RDW	Red Cell Distribution Width
NaCl	Sodium Chloride
mA	Millie Ampere
nm	Nano meter
rpm	Round per minute

Abstract

Thalassaemias are group of genetic disorders of haemoglobin synthesis, resulting from reduced rate of production of one or more of globin chains. It is prevalent in many countries and about 3% of the world population carries the gene. The study was conducted on 263 individuals belong to 10 different families in Jenin area in Palestine in the period Jan.2007 to Dec.2008.

A descriptive cross-sectional study was conducted to find out the distribution of beta Thalassaemia and other Hb variants in that families. Blood samples were subjected for Complete Blood Count (CBC), gel electrophoresis and ion exchange chromatography. The results were filed and subjected to SPSS for analysis.

The study showed that beta Thalassaemia present in high percentages (elevated Hb-A₂ and Hb-F) in Torokman (25%) and Aboalrob (23%) with overall percent of (15%). The study detects sickle cell Hb (HbS) in Qalalweh(41%), Noairat(27%) and Aboalrob(14%) and does not present in Ziud, Daraghmeh, Jaradat and Torokman.

The Hb concentration and other blood indices vary significantly among families. Also shows no correlation between color of eye, color of hair, type of hair and length of individuals and the concentration of Hb variants. The study also correlate between electrophoresis and chromatography with respect to Hb-A₂ measurement.

The study recommended that individuals belong to Torokman, Aboalrob, Qalalweh and Noairat should be subjected to haematological screen and advice to avoid carrier partners. Those individuals with reduced Hb, PCV, MCV and MCHC should be subjected to electrophoresis. The study

also recommended giving the persons in the community information's about Thalassaemia and sickle cell anaemia.

Further studies are recommended in other families in the area and Palestine.

تعتبر أنيميا البحر المتوسط مجموعة من الاعتلالات الوراثية للهيموجلوبين، تنشأ عن انخفاض مستوى إنتاج أحد أنواع سلاسل البروتين (غلوبين). تنتشر في العديد من الدول بنسبة عالمية تقدر بحوالي 3%. أجريت هذه الدراسة على 263 شخصا ينتمون إلى 10 عائلات مختلفة في محافظة جنين في فلسطين في الفترة ما بين كانون الثاني (يناير) 2007 وحتى كانون أول (ديسمبر) 2008. دراسة وصفية تم إجراؤها للتحري عن مدى انتشار أنيميا البحر المتوسط وأنواع أخرى من اعتلالات الهيموجلوبين الوراثية الموجودة في المنطقة. حيث تم جمع العينات من الأشخاص وتم عمل الفحوصات التالية لكل عينة:

❖ فحص دم أولي (CBC).

❖ Hb electrophoresis (فصل الأنواع بواسطة التيار الكهربائي)

❖ Hb-A₂ quantitation بواسطة Ion-exchange chromatography

تم جمع النتائج وعرضها على برنامج التحليل الإحصائي SPSS (Statistical Package for Social Science)

أظهرت الدراسة بان أنيميا البحر المتوسط موجودة بنسب عالية في كل من عائلات تركمان، أبو الرب، تليها العائلات الأخرى بنسب اقل. تبين من خلال الدراسة أن ألجين المسئول عن الأنيميا المنجلية موجود بنسبة عالية في كل من عائلات قلالوة، نعيرات، أبو الرب، وموجود بنسب قليلة في عائلات أخرى، ولا يوجد في كل من عائلات زيود، درا غمة، جرادات وعائلة تركمان.

كذلك أظهرت الدراسة تباينا في قيم الهيموجلوبين وبعض معايير الدم الأخرى بين العائلات، ولم تظهر الدراسة أية علاقة ما بين كل من أنواع الهيموجلوبين وكل من لون العيون، لون الشعر، نوع الشعر وطول القامة.

كذلك تم المقارنة بين نتائج Hb-A₂ في كل من Ion و Electrophoresis exchange chromatography.

وخرجت الدراسة بتوصيات إلى كل الأشخاص من عائلات تركمان, أبو الرب, نغيرات, قلالوة بعمل فحوصات ما قبل الزواج بشكل كامل, كذلك كل شخص تكون عنده قيم فحوصات الدم الأولية من Hb, PCV, MCV قليلة, عليه عمل Electrophoresis مباشرة. كذلك أوصت الدراسة بعمل نشرات تثقيفية عن أنيميا البحر المتوسط والأنيميا المنجلية لأبناء المجتمع الفلسطيني وان يصار إلى عمل دراسات أخرى على عائلات أخرى في المنطقة وفي سائر أنحاء فلسطين.