

## DEDICATION

To the heart of my life my mother and Soul of my father. To my brothers and sister, to my teachers and colleagues. I dedicate this work.

## ACKNOWLEDGEMENT

First of all thank to my **GOD** for being whom am I , and help me to participate in M.Sc program.

I would like to express my sincere thanks and gratitude to my learned supervisor Dr. Malik Hassan Ibrahim Alfadni , Head department of Hematology , SUST, college of medical laboratory , for his close supervision , encouragement, support, advise and helpful.

I am also emphasize my hearty thanks to my brother & colleague Nazar Abdelhafiz Osman for his helpful in samples collection , and my dear brother Salah Ahmed Mustafa for the typing& organization of the thesis.

I am also extend my thanks to all people in hejlij areas for their helpful in sampling collection. And to any one assisted me in whatever needed.

## الخلاصة

هذه دراسة وصفية تحليلية مقطعية هدفت لمعرفة أنتشار نقص الدم المنجلي فى قبيلة المسيرية . وتم تجميع العينات من مائة شخص من المسيرية (بطن أولاد عمران) واجريت الدراسة فى منطقة الهجليج جنوب كردفان فى الفترة من اكتوبر 2008 وحتى فبراير 2009 وقد هدفت الى معرفة وجود مرض نقص الدم المنجلي وحامله الاصحاء وعددهم فى قبيلة المسيرية وفحصت لجميع العينات صورة الدم الكاملة والفحص المنجلي والرحلان الكهربائى.

نتائج الفحوصات أظهرت أن تردد مرض نقص الدم المنجلي هو 12% وحاملى المرض 35% والاصحاء 53%. وقد خلصت هذه الدراسة الى أن : المصابين بالمرض مستوى الهيموغلوبين لديهم أقل من 12 جرام فى ديسيلتر وأغلبهم فى سن أصغر من 30 سنة . وأن حاملى المرض من أولاد العمومة و الدم الواحد مرتفع جدا تصل 77% نتيجة التزاوج بينهم ونقص المعرفة عن هذا المرض وطريقة أنتقاله.

وان متوسط خضاب الدم فى كرية الدم الواحدة فى المرضى 25.39 وحاملى المرض 24.62 متقارب وكذلك متوسط حجم الخلية فى المرضى 87.1 وحاملى المرض 77.03 ومتوسط تركيز خضاب الدم فى الخلية الواحدة عند المرضى 31.97 وحاملى المرض 31.89 وعدد الصفائح الدموية فى المرضى 394000 وحاملى المرض 238000 وهى نسب متقاربة . ولكن يكمن الاختلاف بين المرضى وحاملى المرض فى عدد كريات الدم البيضاء الذى يكون مرتفع عند المرضى وطبيعى عند حاملى المرض . وكذلك الاختلاف يكمن فى حجم الكريات الحمراء المضغوطة وعدد الكريات الحمراء اللذان متوسطهما منخفض عند المرضى وطبيعى عند حاملى المرض.

وعند اجراء الفحص المنجلي لحاملى المرض كانت نسبة النتيجة السلبية 36.4% ونسبة النتيجة الايجابية 63.6% مما يعنى ان الفحص المنجلي ليس دقيق وانما هو فحص مبدئى فقط.

## ABSTRACT

This was cross-sectional, analytical and prospective study conducted in El hejlj area during period of October 2008 to February 2009 .The study was aimed to determine the occurrence of Sickle cell disease and Sickle cell traits among Messira tribe.

The study was carried out in 100 predetermined random samples: from Messira tribe (Old Omran). All Samples were tested for the hemoglobin S using Complete blood count(CBC), Sickling test and Hb-electrophoresis.

Results were showed that the frequency of Hb SS was 12%, Hb AS was 35% and Hb AA was 53%.

The conclusion of the study was that Hemoglobin levels in sickler patients (Hb SS) always under 12g/dl , and these patients were under 30 years of age .The frequency of Hb AS among consamuinity cousins was very high due to marriage between them and absent of education about sickle cell disease.

The means of MCH in Sickle cell disease(SCD) was25.39pg, MCV was 87.15fl, MCHC was 31.97g/dl, PLT was  $394 \times 10^3$ . parameters were so close to the Sickle cell trait(SCT) which was MCV 77.03fl, MCH 24.62pg, MCHC 31.89g/dl,  $PLT 238 \times 10^3$  .The difference was in WBC which was high in SCD, but normal in SCT. RBC and PCV were very low in SCD, normal in SCT.

In Sickle cell trait patients Sickling test showed 36.4% negative results, and 63.6% positive results, which meant that Sickling test insignificant for detection of Sickle cell disease, but only Screening test.

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## List of abbreviations

Abbreviations	Meaning
Hb	Hemoglobin
SCD	Sickle cell disease
O <sub>2</sub>	Oxygen molecule
Hb S	Hemoglobin of sickle cell
Hb A	Hemoglobin of normal person
Hb AS	Hemoglobin of sickle cell Trait
Hb C& Hb D &Hb E	Hemoglobinopathy
CBC	Complete Blood Count
NaCl	Sodium Chloride
TWBC	Total of white blood cell count
RBC	Red blood cell count
PCV	Packed cell volume
MCH	Mean cell Hemoglobin
MCV	Mean cell volume
MCHC	Mean cell Hemoglobin Concentration
PLT	Plate let count

L%	Percentage of lymphocytes in 100 WBC
N%	Percentage of Neutrophil in 100 WBC
M%	Percentage of Monocytes& Esinophil &Basophil in 100 WBC
SD	Standard Division