

Dedication

To my family

Teachers

Colleagues

S

Acknowledgement

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Abbreviations

CBC	: Complete blood count
C/l	: Cell per liter
EDTA	: Ethylene diamine tetraacetic acid
FL	: Fimto-liter
g/ dl	: Gram per deciliter
g/ l	: Gram per liter
Hb	: Hemoglobin
Hb-AS	: Heterozygous Sickle cell trait
Hct	: Hematocrit
Hb-F	: Fetal hemoglobin
Hb-S	: Sickle hemoglobin
Hb-SS	: Homozygous sickle cell disease
LYM	: Lymphocyte
MCH	: Mean cell hemoglobin
MCHC	: Mean cell hemoglobin concentration
MCV	: Mean cell volume
OPSI	: Overwhelming post- (auto) splenectomy
NEUT	: Neutrophil

PCA : [patient-controlled analgesia](#)

PCR : Polymerase chain reaction

PCV : Packed cell volume

Pg : Pico-gram

PLT : Platelets

RBCs : Red blood cells

SNP : Single nucleotide polymorphism

SPSS : Statistical Package for Social Sciences

TWBCs : Total white blood cells count

W-LCR : WBC-large cell ratio

W-MCR : WBC-middle cell ratio

W-SCR : WBC- small cell ratio

النتائج

هذه دراسة وصفية، مقطعية و تحليلية هدفت للمقارنة بين الطريقتين التقليدية و الحديثة لتشخيص مرض الأنيميا المنجلية لتحديد وجود ونسب فاقية الدم المنجلية بمستشفى البلك . اجريت هذه الدراسة فى الفترة من شهر سبتمبر-٢٠٠٨ الى شهريناير -٢٠٠٩ بولاية الخرطوم. اخذت الموافقة من المرضى و قد تمت احاطتهم باهداف البحث. تم أخذ ١٠٠ عينة بسحب ٢ مل من الدم الوريدي ووضعها فى وعاء يحتوى على مادة مانعة للتجلط. تم اختبار جميع العينات لتعداد الدم الكامل

● فحص التمنجل والرحلان الكهربائى للخصاب و

تم تحليل البيانات بالحاسوب باستخدام برنامج الاحصاء للتحليل الاجتماعى . اوضحت النتائج ان عدد ٧ جرام / ١٠٠ ربع وسبعون مريض هم من حاملى فاقية الدم المنجلية بنسبة ٨٢٪. ان تركيز خضاب الدم يتراوح بين ٤ ١٠ جرام /ديسيلتر والعدد المتبقى فى المعدل الطبيعى. عدد كريات الدم البيضاء بنسبة ٨٢,٤ ٪ من ٨٠٠ لـ ١١٠٠٠ خلية /لتر و ٧,٨ ٪ من المرضى اكثر من الحد الاعلى للمعدل الطبيعى للكريات البيضاء ٤ ١٠٠٠ ١٠٠٠ الطبيعى ١٠٠٠ ١٠٠٠ خلية /لتر. عدد الصفائح الدموية بنسبة ٩٦٪ من المرضى فى المعدل الطبيعى ٥٠ خلية /لتر و ٤,١ ٪ اعلى بزيادة طفيفة من المعدل الطبيعى. ان عدد ستة عشر مريض هم مصابين بفاقية الدم المنجلية ٧ جرام /ديسيلتر، ٩ جرام /ديسيلتر. عدد كريات الدم البيضاء بنسبة ٧,٨ ٪. ان تركيز خضاب الدم يتراوح بين ٤ والصفائح الدموية بنسبة ٥٠٪ من المرضى فى المعدل الطبيعى بينما ٥٠٪ من المرضى اعلى من المعدل الطبيعى. كل النتائج تمت مقارنتها بنتائج عشرة افراد اصحاء. اوضحت النتائج ان نسبة فاقية الدم المنجلية الاعلى بين

القبائل كانت ل قبائل المسيرية و الهوسا ١٨.٦٪ و النسبة الادنى ل قبائل الهواوير ،بنى هلبة والجموعية بنسبة

● ١٧٪

وتمت الم مقارنة بين الطرق التقليدية والطرق الحديثة في التشخيص ووجد أن الطرق الحديثة

● تؤكد التشخيص الزبي تم بواسطة الطرق التقليدية

Abstract

This was prospective, cross-sectional and analytical study that aim to determine the incidence Sickle Cell Anemia in patients referred to Al-block hospital, and to compare the results which obtained by conventional techniques with that obtained by modern methods. This study was conducted during Four months from September-2008 to January-2009 in Khartoum state – Sudan. Following informed consents a total of hundred individuals were bled. Two mls of venous blood was collected randomly from hundred individual into EDTA containers. All samples were tested for Complete blood count, Sickling test and Hemoglobin Electrophoresis. The results were analyzed using SPSS program. The results that obtained by conventional techniques were compared with that obtained by modern methods which showed similarity between the two results. Incidence of sickle cell anemia types in our group regarding to our results showed that there were seventy four patients with the frequency of (82.2%) sickle cell trait (Hb-AS). Their hemoglobin concentration ranged between 4-7g/dl, 8-10 g/dl and other with normal concentration. The total white blood cell count 82.4% of them was found within the normal range ($4-11 \times 10^9$ cell/liter) and 17.9% was with increased above the upper limit of normal range (>11000 cell/liter). About the platelets count 96% of patients were revealed within normal range of platelets count ($150-400 \times 10^9$ cell/liter) and 4.1% were found slightly increased above the

normal range. The others were sixteen patients were occurred with the incidence of sickle cell disease (Hb-SS) (constitute 17.8% of study group). Their hemoglobin concentration was ranged between 4-7g/dl (93.8%), 9g/dl (6.3%). The total white blood cells and platelet counts 50% of patients were found within normal range of both the total white blood cell and the platelet and 50% were increased above the normal range of both. All results were compared with ten normal individual as control group.

The greatest percentage of sickle cell anemia was found in Almisseria tribe and Alhowsa tribe with the frequency of (15.6%) and the lower percentage was found in Alhawaweer, Banyhalba and Algamoia tribes with the percentage of 1.1%.

The results that obtained by the conventional methods were confirmed by modern methods that used in diagnosis of Sickle Cell Anemia.

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