بسم الله الرحمن الرحيم

قال الله تعالي:

سورة القيامة

صدق الله العظيم

Dedication

To my lovely parents

To my lovely wife and children

Who have always been the candles of my life

And the wind beneath my wings until I complete this work

Acknowledgment

Primary my prays and thanks should be to Allah, the almighty most gracious and most merciful, who grated me the serenity, means of strength and patience to accomplish this work.

I deeply indebted to my supervisor **Dr. Malik Hassan Ibrahim Elfadni** for his valuable help and guidance during this study, I'm also grateful to his keen interest, patience assistance and invaluable advice.

My appreciation is extended to all the medical staff in Heglig hospital and staff of National Health Laboratory department of haematology.

My special thanks are expressed to my colleagues Nazar Abd Elhafeez Osman, Mohammed A. A. Allah, Alla Eldeen and Razan M. A. Elmotalab and to all my friends who have been very supportive throughout this work.

Abstract

This was analytical, descriptive and cross-sectional study conducted to determine the frequency of the sickle cell disease and sickle cell trait in Sudanese patients referred to Heglig hospital in West region of Southern Kordofan state in the period between November 2008 to February 2009.

One hundred (100) patients were informed about the study and informed consent for participation was obtained. A venous blood of 2.5 ml was collected in ethylene-diamine-tetra-acetic acid (EDTA) containers and investigated for sickle cell disease and sickle cell trait, a complete blood count (CBC)[semi automated hematological analyzer (Sysmex Kx 21N) was used], sickling test and hemoglobin electrophoresis (Electrophoresis tank and power pack was used)were carried out .And statistical package for social sciences (SPSS) computer program version 13 was used for data processing.

The mean age of the sickle cell disease patients was (10.32/year). The results showed that percentage of sickle cell trait and sickle cell disease were (45%) and (18%) respectively.

Hemoglobin level, total erythrocyte and packed cell volume of the sickle cell disease patients were (7.03g/dl), (2.68×10^6/ µl) and (22.52%), respectively.

There were no significant differences in sickle cell disease and normal individuals in mean cell hemoglobin concentration (31.2%), mean cell volume (86.85fl) and mean cell hemoglobin (27.16p.g) ($p < 0.248$, $p < 0.399$ and $p < 0.769$ respectively,

The total leukocytes (15.53×10^3/ µl) $p < 0.000$) and platelets count (393.05×10^3/ µl) $p < 0.003$) were significantly elevated in sickle cell disease when compared with normal individuals.

In conclusion, sickle cell anemia is highly frequent in the studied area, which is most likely due to the consanguineous marriages.

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هذه دراسة م قطعية, وصفية وتحليلية. تم إجراؤها لتحديد تردد مرض ف قر الدم المنجلي وحاملي جين مرض ف قر الدم المنجلي في المرضي السودانيين المترددين علي مستشفي هجليج في غرب ولاية جنوب كردفان في الفترة ما بين نوفمبر 2008 إلي مارس 2009.

تم تنوير مائة (100) مريض بأهداف البحث وأُخذت موافقتهم, ثم أُخذت مائة عينة دم 2.5 مل من كل مريض في حاويات تحتوي علي مانع التجلط (ethylene-diamine-tetra-acetic acid (EDTA))) . تم إجراء االختبارات تعداد الدم الكامل, اختبار التمنجل و الرحلان الكهربائي لخضاب الدم.

تم استخدام جهاز (Sysmex) ر قم (Kx 21N) يعمل أوتوماتيكيا, جهاز الرحلان الكهربائي لخضاب الدم للتحليل المعملي و برنامج الحزم الإحصائية للعلوم الاجتماعية نسخة ر قم 13 للتحليل الإحصائي.

و قد أظهرت النتائج الإحصائية أن متوسط أعمار مرضي ف قر الدم المنجلي (year/10.32). ونسب تردد مرضي ف قر الدم المنجلي وحاملي المرض 18% , 45% علي التوالي.

وُجد أن مستوي خضاب الدم, مجموع تعداد خلايا الدم الحمراء وحجم الخلية المحشوة لمرضي ف قر الدم المنجلي (2.68×10^6/ µl), (7.03 (gm/dl) و) % 22.52) علي التوالي.

كما لم تُوجد فروق ذات دلالة إحصائية في متوسط تركيز خضاب الدم للخلية(31.2%) ($p < 0.248$), متوسط حجم الخلية 86.85fl) ($p < 0.399$)) ومتوسط خضاب الدم للخلية ($p < 0.769$ 27.16p.g)).

وُجدت زيادة ذات دلالة إحصائية في مجموع تعداد خلايا الدم البيضاء $p < 0.000$ (15.53×10^3/ µl)) وتعداد الصفائح الدمية (393.05×10^3 $p < 0.003$ /µl) م قارنةً بأفراد أصحاء.

وُجد أن تردد ف قر الدم المنجلي وحاملي مرض ف قر الدم المنجلي عالي في المنط قة التي تمت دراستها, وهذه الخلاصة مردها لزواج الأ قارب المنتشر في تلك المنط قة.

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CBC	Complete blood count
G-6-PD	Gglucose-6-phosphate dehydrogenase
EDTA	ethylene-diamine-tetra-acetic acid
HCT	Hematocrit
Hb	Hemoglobin
Hb S	Hemoglobin S
Hb A	Hemoglobin A
Hb E	Hemoglobin E
Hb F	Hemoglobin F
HPFH	Hereditary persistence of fetal hemoglobin
HPLC	high performance liquid chromatography
MCV	Mean cell volume
MCH	Mean cell hemoglobin
MCHC	Mean cell hemoglobin concentration
PCV	Packed cell volume
PLT	Platelet
RBC	Red blood cell.
RPI	Reticulocyte production index
SCD	Sickle cell disease
SPSS	Statistical package for social sciences
TWBCsC	Total white blood cells count.
TRBCsC	Total red blood cells count.
WBC	White blood cell.

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