

بسم الله الرحمن الرحيم



Sudan University of Science and Technology
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**Measurement of Complete Blood Count among Normal
Children Under Five Years old In Khartoum State from
March- June 2014**

تعداد الدم الشامل في الأطفال الأصحاء دون سن الخامسة في ولاية الخرطوم

**A thesis submitted for partial Fulfillment of requirement of M.S.c Degree in Hematology
and Immunohematology**

By

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2014

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قال تعالى:

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا ۖ إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ

صدق الله العظيم

سورة البقرة الآية 32

Dedication

To my parents,,,,

My husband ,,,My sister Hind,,,,

My cutie children,,Monia, Mohamed

I dedicate this work.

Acknowledgements

Thanks to God first for giving me strength patience to achieve this study..

I would like to express my thanks and appreciation to my supervisor **Dr. TagwaYousifAlsayed** for guidance and support during conduction of study and continuous encouragement to make this research achievable, my thanks also to my Teachers of Hematology Department, My Best regard and thanks to my colleagues and friends and to all those who helped me to perform this research.

Abstract

A cross sectional study was conducted in the city of Khartoum (Haj Yousif - Omdurman) in the period from March to June 2014 to measure total blood count among normal children under the age of five years old.

Two hundred child of both gender from different regions of Sudan and the different economic levels were counted and were informed about study expected out come and agreement of their participate in the study .Structure questionnaire was used collect information that include (age, gender, type of breastfeeding food contet, educational level of the mother and taking iron supplements).

. blood count sample were collected for use in laboratory investigation . Using statistical analysis (SPSS)for data analysis. The results showed significant decrease in the following parameters Hb.PCV. MCV. and McH with P-value < 0.05. and showed that the percentage of anemia in apparently healthy children drew 50.5% and 21.5% of the kids have normocytic normochromic anemia and 77.5% have a picture of microcytic hypochromic anemia and only 1% have a picture of macrocytic normochromic anemia.

It also showed that there is significant effect of balance of food duration of breastfeeding, taking iron supplements and the level of education of mothers on average hemoglobin and hematocrit. with p value (0.00) . The main conclusion from the study there is significant effect in hemoglobin , hematocrit , mean cell volume and mean cell heamoglobin breast feeding iron supplement food content and level of mother education.

ملخص البحث:-

هذه الدراسة المقطعية اجريت في ولايه الخرطوم في الفترة من مارس الي يونيو 2014 لقياس تعداد الدم الشامل وسط الاطفال الاصحاء دون سن خمس سنوات.

مائتي طفل من كل الجنسين ومن مختلف أقاليم السودان وتم اخطارهم بالنتائج المنوقعة وتم الحصول على موافقتهم للمشاركة في الدراسة تم استخدام إستبيان مصمم لجمع البيانات ويشمل (العمر -النوع- نوع الرضاعة -نوع الغذاء -مستوى الأم التعليمي وتناول مكملات الحديد) تم اخذ العينات الدم من المشاركون مع ضوابط استخدامها للفحص المعملّي وتم استخدام برنامج التحليل ال'حصائي (SPSS) لتحليل البيانات.

اظهرت النتائج إنخفاض واضح في مستويات الهيموغلوبين والهيماتوكريت ومتوسط حجم الخلية (مستوى معنويه اقل من (0.05) كما أوضحت الدراسة ان صورة الدم الطرفي لمجموعه الدراشه كانت 77.5% كانوا ذوي خلايا صغيره منخفضه الصباغ و21.5% كانوا ذوي خلايا طبيعيه سويه الصباغ و1% فقط كانوا ذوي خلايا كبيرة سويه الصباغ

الخاتمه المستنتجه من الأطروحه أنه يوجد تاثير على نسب الدم العام من الرضاعة الطبيعيه ونوع الغذاء ومستوى الأم التعليمي وتناول مكملات الحديد بانخفاض قيم الهيموغلوبين والهيماتوكريت ومتوسط حجم الكريه ومتوسط هيموغلوبين الكريه بينما لا تتاثر قيم الخلايا البيضاء والصفائح الدمويه .

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List of Abbreviations

BFU-E: Burst Forming Unit Erythrocyte

CBC: Complete Blood Count

CFU-E: Colony Forming Unit Erythroid

GEMM : Granulocyte Erythroid Macrophage Megakaryocyte

MCSF : Macrophage Colonys Stimulating Factor

PLts: Platelets

RBC : Red Blood Cell

RNA: Ribo Nucleic Acid

RPI : Reticulocyte Production Index

SD : Standard Deviation

TNF : Tumor Necrosis Factor

TPo: Thrombopoietin

WBCS : White Blood Cell Counts