

# Dedication

This research is **dedicated to**  
**My mother**

For leading her children into intellectual pursuits.  
**My father**

For the uncompromising principles guide his life.  
My lovely son Abrahoma.

And finally dedicate this research to all who are aiming to  
construct a healthy community.

# Acknowledgements

Praise is to God first for enabling me to achieve this research. I'm

very grateful to my supervisor Dr. Malik Hassan Ibrahim Alfadni , for being very keen to Make us highly oriented in the field of hematology.

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Help me a lot and paved the way for me to progress.

Thanks and gratefulness be to my husband for contributing a lot in this work.

## **Abstract**

This was descriptive hospital based study, conducted in Albolok teaching hospital, during the period from September 2008 to March 2009. The aim of this study was to determine the frequency of iron deficiency anemia among the microcytic hypochromic anemia, in children under the age of 10 years who referring to Albolok hospital.

100 patients (55% males and 45% females) were informed about the study and agreement for participation was obtained. The study population was divided to four groups, less than one year, (1-4), (4-8) and (8-10) years. Venous bloods of 5ml were bled (2.5ml in EDTA containers and 2.5ml in plain containers) and investigated for iron deficiency anemia. Complete blood counts (CBC), serum iron and serum ferritin concentrations were carried out.

Fully automated hematological analyzer (Mythic18) was used for the CBC analysis, and fully automated Biosystem A25 was used for the serum iron profile analysis. The results found that the frequency of iron deficiency anemia was 14%. The age group from 1-4 years represents the highest percentage (57%). The means of Hb concentration, PCV, MCV, MCH, serum iron and serum ferritin concentrations, when compared with standard reference values, there were significant differences (P value <0.05) in all age groups.

In conclusion iron deficiency anemia did not highly frequent among the study population.

## مستخلص البحث

هذه دراسة وصفية تحليلية تم إجراؤها لتحديد نسبة مرض فقر الدم الناتج عن نقص الحديد وسط microcytic hypochromic anemia ، فى الأطفال المرضى دون سن العاشرة الذين يتربدون لمستشفى البلك التعليمى للأطفال فى الفترة من سبتمبر 2008 إلى مارس 2009 .

تم إعلام مائة مريض بأهداف البحث وأخذت موافقتهم ، ثم اخذت مائة عينة دم خمسة ملی من كل مريض (2.5 ملی فى حاويات تحتوى على مانع تجلط (EDTA) و 2.5 ملی فى حاويات خالية من مانع التجلط ) . تم إختبارات إعداد الدم الكامل ، وإختبار نسبة كل من الحديد و ال (ferritin) في الدم .

تم إستخدام جهاز (A25) و (Mythic18) اللذان يعملان اوتوماتيكيا للتحليل الكامل للدم وتحديد نسبة الحديد وال (Ferritin) على التوالي .

وقد اظهرت النتائج الاحصائية ان نسبة تردد فقر الدم الناتج عن نقص الحديد هو 14% مجموعه الأعمار من سنة الى اربعة سنوات تمثل اعلى النسب (57%). متوسطات كل من نسبة خضاب الدم ، MCV ، PCV ، MCH ، ونسبة كل من الحديد وال (Ferritin) عندما قورنت بقيم المعايير القياسية وجد ان هنالك فروقات ذات دالة احصائية ( P VALUE < 0.05 ) في كل الفئات العمرية .

ختاما فقر الدم الناتج عن نقص الحديد ليس كثير التردد فى وسط مرضى الدراسة .

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### **List of abbreviations**

HB	Hemoglobin
PCV	Packed cell volume
MCV	Mean cell volume
MCH	Mean cell hemoglobin
MCHC	Mean cell hemoglobin concentration
TWBCs	Total white blood cell counts
RBCs	Red blood cells
G-6-PD	Glucose6 phosphate deficiency
Hcl	Hydrochloric acid
TIBC	Total iron binding capacity
sTfR	Serum transferring receptor

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