

**Sudan University of Science and Technology
College of Graduate Studies**

**Determination of Hematological Parameters
among Homeless Children Exposed to Chemical
Intoxication in Khartoum State**

**تحديد المقاييس الدموية في
الأطفال المشردين المعرضين
للتسمم الكيميائي في ولاية
الخرطوم**

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Dedication

To the soul of my father

To my mother

***To my lovely wife and my little kids Ali
& Ahmed***

To all who supported this work

Acknowledgments

First of all my thanks and praise due to ALLAH for giving me health and strength to accomplish this study.

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Abstract

This was a cross-sectional descriptive and analytical study conducted to determine the hematological parameters among homeless children in Khartoum state during the period from August 2008 to March 2010. Two hundred (200) samples were obtained from Tayba, Soba and Althawra Rehabilitation Centers. Concerning the consent form a written agreement from the social welfare constitution was afforded, because most of participants were less than 18 years old and had no guardians so legally the caring entity should burden their consent signing. Participation was obtained. 5 ml of venous blood were collected, 2.5 ml into K^+ EDTA containers for hematological parameters and 2.5 ml into plain containers for iron profile study from all participants. Fully-automated hematological analyzer (Sysmex Kx 21N) was used for determination of the hematological parameters and spectrophotometry was used to determine iron profile. The collected data was analyzed using statistical package for social sciences (SPSS) computer program.

The most prominent type of anaemia was normocytic normochromic anaemia followed by microcytic hypochromic anaemia. Many abnormalities of blood cell morphology were seen in peripheral blood films of study group. The iron profile of the study group showed that many of them had an abnormal iron profile. Regarding the white blood cells despite normal count there was marked lymphocytosis, eosinophilia & monocytosis with few atypical lymphocytes and hypersegmentation of neutrophils.

Most of the study participants showed abnormal hematological parameters mostly due to environmental, nutritional and medical status.

مستخلص البحث

هذه دراسة مقطعية ، وصفية وتحليلية أجريت لقياس معدلات الدم ، وانتشار فقر الدم ، ونسبة الحديد وسط الأطفال المشردين في ولاية الخرطوم .
أجريت الدراسة في الفترة من سبتمبر 2008 حتى مارس 2010 م ؛ حيث أخذت مائتي عينة من مراكز : طيبة ، وسوبا ، والثورة لتأهيل الأطفال المشردين .
لقد تم أخذ موافقة المسؤولين بمؤسسة الرعاية الاجتماعية التي بها الأطفال المشاركين في البحث بأهدافه والمخاطر التي من الممكن أن تنجم من عملية أخذ العينة ، وأخذت موافقتهم لاشراك الاطفال في البحث لانهم دون السن القانونية لاتخاذ القرار .

تم أخذ 5 مل دم من كل طفل ووضع 2.5 مل في وعاء يحتوى على مادة مانعة لتجلط الدم لمعرفة نسبة معدلات الدم لديهم ، و 2.5 مل في وعاء آخر لا يحتوى على مادة مانعة لتجلط الدم وذلك لتحديد مستوى الحديد لديهم .

تم إجراء الاختبارات لتحديد معدلات الدم بواسطة جهاز يعمل بطريقة ذاتية بالكامل يسمى جهاز سيسمكس ماركة (KX21N)، وجهاز قياس الطيف الضوئي لتحديد مستوى الحديد لديهم ، ثم تم تحليل كل المعلومات التي تم تجميعها بواسطة برنامج الحزم الإحصائية للعلوم الاجتماعية.

أظهرت النتائج أن بعض الأطفال المشردين لديهم قيم طبيعية ، بينما وجد أن بعضاً منهم لديه نقص في بعض هذه القيم حيث ظهر لدى بعضهم فقر دم سوى الكريات سوى الصباغ ، ويليه فقر دم صغير الكريات قليل الصباغ ، بالرغم من أن أعداد كريات الدم البيضاء الكلية كانت ضمن المعدلات الطبيعية غالباً ؛ إلا أن هناك زيادة واضحة في أعداد الحمضيات ، والليمفاويات ، والأحاديات ، كما أن هناك ليمفاويات غريبة الشكل ، وعدلات عديدة الفصوص .

**ويرجع ظهور القيم غير الطبيعية في قياسات الدم
المختلفة لدى الأطفال المشمولين بالدراسة في
الغالب إلى : حالاتهم الغذائية ، والبيئية ، والطبية .**

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