

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قال الله تعالى

وَلَقَدْ خَلَقْنَا الْإِنْسَانَ مِنْ سُلَالَةٍ مِنْ طِينٍ (12) ثُمَّ جَعَلْنَاهُ نُطْقَةً فِي قَرَارٍ مَكِينٍ (13) ثُمَّ خَلَقْنَا النَّطْقَةَ عَلَقَةً فَخَلَقْنَا الْعَلَقَةَ مُضْغَةً فَخَلَقْنَا الْمُضْغَةَ عِظَامًا فَكَسَّوْنَا الْعِظَامَ لَحْمًا ثُمَّ أَنْشَأْنَاهُ خَلْقًا آخَرَ فَتَبَارَكَ اللَّهُ أَحْسَنُ الْخَالِقِينَ (14)

صدق الله العظيم

سورة المؤمنون الآيات 12-14

Dedication

To my **parents**

To my **husband** and **kids**

To my **brothers** and **sisters**

To my **friends** and **Colleagues**

Acknowledgement

First of all, thanks to Allah almighty.

I am greatly indebted to my supervisor Dr. Mahmud Mohamed Elgari Assistant Professor of Hematology in college of Medical Laboratory Science for his invaluable support and advices.

Thanks are extended to my all teachers.

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Abstract

This is across sectional, descriptive and analytical study aimed to determine hematological parameters of new born cord blood in Khartoum Teaching Hospital in Khartoum state during the period between May to June 2012. Seventy cord blood samples were collected in EDTA containers and analyzed for different hematological parameters using hematologic analyzer Sysmex KX2IN. The data analysis was done using statistical package for social science (SPSS) version 11.5. The results revealed that hemoglobin mean value was (13.9 ± 1.6) gm/dl, hematocrit was (42 ± 2.8) %, red blood cell indices: MCV, MCH, MCHC, were (102 ± 6.4) fl, (33.2 ± 2.5) pg, (32.1 ± 1.3) % respectively. Whereas the total WBCs , platelet , RBCs and reticulocyte count were $(12 \pm 5.4) \times 10^3/\mu\text{l}$, $(216 \pm 86.1) \times 10^3/\mu\text{l}$, $(4.1 \pm 0.56) \times 10^6/\mu\text{l}$, (4.7 ± 1.4) % respectively. The mean value of neutrophils was (47 ± 12.4) %, lymphocytes was (42 ± 12.4) %. All hematological parameters values of Sudanese neonates were within international reference values.

The study revealed that gender, mother status, and weight of the newborn have not cause significant differences on cord blood hematological parameters, except RBCs and platelet means values those were $(3.9 \pm 0.53) \times 10^6/\mu\text{l}$, $(192 \pm 72.8) \times 10^3/\mu\text{l}$ in caesarian section which were significantly decrease than in normal vaginal delivery, also the MCV mean value was (96 ± 8.3) fl in newborn of anemic mother was significantly decreased than in those of non anemic mother.

هدفت هذه الدراسة المستعرضة، الوصفية والتحليلية لقياس معدلات مكونات دم الحبل السرى للمواليد حديثى الولادة فى مستشفى الخرطوم التعليمي فى ولاية الخرطوم فى الفترة من مايو الى يونيو 2012 .

تم جمع 70 عينة من دم الحبل السرى فى حاويات تحتوى على مانع تجلط EDTA تم تحليل هذه العينات باستخدام جهاز يعرف SysmexKX21N . البيانات التى جمعت تم تحليلها بواسطة برنامج الحزم الاحصائية للعلوم الاجتماعية نسخة 11.5. اظهرت النتائج ان متوسط خضاب الدم هو (1.6 ± 13.9) جرام لكل ديسيلتر بينما متوسط حجم الخلية المحشوة هو $(2.8 \pm 42)\%$ ومتوسط حجم الخلية ومتوسط خضاب الدم ومتوسط تركيز خضاب الدم للخلايا كان (6.4 ± 102) فيمتولتر ، (2.5 ± 33.2) بيكوجرام ، (1.3 ± 32.1) % على التوالى . بينما كانت متوسطات كل من كريات الدم البيضاء ، الصفائح الدموية ، الخلايا الحمراء والخلايا الشبكية $(5.4 \pm 12) \times 10^3$ مايكروليتر ، $(86.1 \pm 216) \times 10^3$ مايكروليتر ، $(0.56 \pm 4.1) \times 10^6$ مايكروليتر ، $(1.4 \pm 4.7)\%$ على التوالى ، متوسط الخلايا المتعادلة هو $(12.4 \pm 47)\%$ ، الليمفاوية هو $(12.4 \pm 42)\%$. كل معدلات مكونات دم الحبل السرى لحديثى الولادة فى السودان فى المدى المرجعى العالمى .

خلصت الدراسة الى انه لا توجد لجنس ووزن المولود وحالة الام الصحية فروقات ذات دلالة معنوية في معدلات مكونات دم الحبل السرى ما عدا متوسط الخلايا الحمراء والصفائح الدموية الذى يذ قص فى الولادة الطبيعية $(0.53 \pm 3.9) \times 10^6$ لكل مايكروليتر (± 192) $(72.8 \pm 192) \times 10^3$ لكل مايكروليتر على التوالى ، مقارنة بالولادة القيصرية $(0.54 \pm 4.2) \times 10^6$ لكل مايكروليتر ، $(92.1 \pm 236.5) \times 10^6$ لكل مايكروليتر . وكذلك متوسط حجم الخلية الحمراء الذى يذ قص فى الام المصابة بالانيميا (8.3 ± 96.7) فيمتولتر مقارنة بالام غير مصابة بالانيميا (6.1 ± 103) فيمتولتر .

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List of Abbreviation

Abbreviation	Full Text
ARC	Absoulte reticulocyte count
CBC	Complete blood cell count
CCT	Controlled cord traction
CO2	Carbon dioxide
CRC	Corrected reticulocyte count
DNA	Deoxiriboneoclic acid
DPG	Diphpsphoglycerate
EDTA	Ethylene diamine tetra acetic acid
EMT	Emergency medical technician
Hb	Hemoglobin
HCT	Hematocrit
HDN	Hemolytic disease of new born
HiCN	Cyanomethemoglobin
IgE	Immunoglobulin E
MCH	Mean cell hemoglobin
MCHC	Mean cell hemoglobin concentration
MCV	Mean cell volume
NRBC	Neuclated red blood cell
PCV	Packed cell volume
RBCs	Red blood cells
RNA	Ribonuclic Acid
RPI	Ritculocyte production index
SPSS	Statistical package of social science
SRM	Spontaneous rupture of the membrane
TPO	Thrombopoietin

VKDB	Vitamin K deficiency bleeding
WBC	White blood cell