DEDICATION

To all Sudanese children with great love.

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Contents

DEDICATION	I
ACKNOWLEDGEMENTS	II
List of Figures	VI
List of Tables	VII
DECLARATION	VIII
Abstract	IX
الخلاصة	X
Chapter One	
Introduction	1
Chapter Two	
Literature Review	
2.1 Protein Energy Malnutrition	4
2.1.1 Definitions	4
2.1.2 Causes	5
2.1.3 Diagnosis	5
2.1.4 Nomenclature of PEM	6
2.1.4.1 Marasmus	6
2.1.4.2 Kwashiorkor	7
2.1.4.3 Marasmic-kwashiorkor	8
2.1.5 Classification of PEM	10
2.2 Nutritional Needs	13
2.2.1 Nutritional Needs of the mother	13
2.2.1.1 Needs Prior to Conception	13
2.2.1.2 Needs During Pregnancy	13
2.2.1.3 Needs During lactation	14
2.2.2 Nutrition Needs of The Infant	14
2.2.2.1 Breast "Lactation period"	14
2.2.2.2 Formula Feeding	16
2.2.2.3 Wearing Period	17
2.2.3 Normal Nutritional Requirements of Proteins And Energy	18
2.2.3.1 Nutritional Requirement of Proteins	18
2.2.3.2 Nutritional Requirements of Energy	21
2.2.3.3 Protein And Its Effection on the Body	22
2.3 Anaemias	22
2.3.1 Definition of Anaemia	22
2.3.2 Diagnosis of Anaemia	22
2.3.3 Nutritional Anaemia	24
2.3.3.1 Classification of Nutritional Anaemias	24
2.3.3.2 Iron Deficiency Anaemia (ID)	25
2.3.3.3 Folate And Vitamin B_{12} Deficiency	26

2.3.4 Other Nutritional Anaemias 28
2.3.4.1 Protein Deficiency 28
2.3.4.2 Vitamin A Deficiency 28
2.3.4.3 Vitamin C Deficiency 30
2.3.4.4 Vitamin D Deficiency 31
2.3.4.5 Objectives of The Study 31
Chapter Three
Materials And Methods
3.1 Materials 32
3.1.1 Patients 32
3.1.2 Control Subjects 32
3.1.3 Marasmic Subjects 32
3.1.4 Kwashiorkor Subjects 32
3.1.5 Marasmic-Kwashiorkor Subjects 33
3.1.6 Samples And Sampling Procedures 33
3.2 Methods 33
3.2.1 Questionnaire 33
3.2.2 Antropometric Methods 33
3.2.3 Method of Haemoglobin Determination 33
3.2.4 Method of White Blood Cells Count by Haemogtometry 35
3.2.5 Erythrocyte Sedimentation Rate ESR 36
3.2.6 Red Blood Cells Count 37
3.2.7.1 Estimation of Total Protein 38
3.2.7.2 Estimation of Albumin 39
3.2.7.3 Manual Method for Total Protein And Albumin 39
3.2.8 Electrophortic Separation of Serum Protein Using Celluse Acetate Strip 40
3.2.9 Analysis of Serum Iron 42
3.2.10 Estimation of Packed Cell Volume Haematocrit PCV 43
3.2.11 Making A thin Blood Film 43
Statistical analysis 44
Chapter Four
Results
4.1The Study Group 45
4.2 Socio-economic Status 45
4.2.1 Place Of Resident 45
4.2.2Father’s Icome 45
4.2.3 Mother’s Education 45
4.3 Age and Sex 47
4.3.1 Age 47
4.3.2 Sex 48
4.4 Biochemical investigation 50
4.4.1 Mean total protein,albumin and total serum iron 50

4.4.2 Protein Electrophoresis 53
4.4.3 Percentage of Marasmus,Kwashiorkor and Marasmic Kwashiorkor 54
4.4.4 Comprison of some biochemical,haematological parameters,body weight and age in malnourished children's 54
4.4.5 Correlation coefficiens of certain parameters of the diseased group 55
4.4.6 Correlation coefficiens of certain parameters of the control group 57
4.5 Haematological investigation 59
4.5.1 Haemoglobin concentration 59
4.5.2 Packed cell volume 60
4.5.3 Mean Red blood cells count 61
4.5.4 Total white blood cells count 62
4.5.5 Erythrocyte sedimentation rate 63
4.5.6 Comparison of some parameters 64
4.5.7 Comparison of WBCS, PCV, age and body weight 65
Chapter Five 66
Discussion
Chapter Six 70
Conclusion and Recommendations
Chapter Seven 71
References
Chapter Eight 75
Clincal Data

List of Figures

Topic	Page
Fig. (1) More than 8 million children die each year from just 5 causes	2
Fig. (2) Child suffering from nutritional marasums	6
Fig. (3) A severe case of kwashiorkor showing oedema and skin and hair changes	8
Fig. (4) Summary of mechanisms involved in the causation of kwashiorkor	9
Fig. (5) A simple guide to anaemia	23
Fig. (6) Mother's education	46
Fig. (7) Sex distribution in the malnourished and their control group	48
Fig. (8) Average of body weight level in malnourished children and control children	49
Fig. (9) Mean level of total protein in malnourished groups compared with their control groups	50
Fig. (10) Average of albumin level in malnourished groups and their control groups	51
Fig. (11) Total serum iron level in malnourished children compared with control children	51
Fig. (12) Serum protein for some malnourished and control children electrically analysed	53
Fig. (13) Mean haemoglobin in malnourished and control children	59
Fig. (14) Mean packed cell volume in malnourished and control children	60
Fig. (15) Average of total white blood cells counts	62
Fig. (16) Mean Erthrocyte Sedimentation Rate in mm/h in the malnourished groups and the control groups	63

List of Tables

Topic	Page
Table (1) Place of resident.	45
Table (2) Mother's education.	46
Table (3) Mean age and age range of malnourished group and their control group.	47
Table (4) Sex distribution in the malnourished and their control group.	48
Table (5) Average values of body weight level in malnourished children and control children.	49
Table (6) Mean total plasma protein, albumin and iron in the malnourished children and control children.	50
Table (7) Percentage of marasmus, kwashiorkor and marasmic kwashiorkor.	54
Table (8) Some haematological, biochemical parameters, body weight and age in malnourished children's.	54
Table (9) Some biochemical, haematological, parameters, body weight and age of control children.	54
Table (10) Correlation coefficients of different parameters of malnourished children (n.=40).	56
Table (11) Correlation coefficients of different parameters of control children (n.=20).	58
Table (12) Mean haemoglobin concentration in malnourished and control children.	59
Table (13) Mean packed cell volume in percent.	60
Table (14) Mean red blood cells counts in malnourished and control children.	61
Table (15) Mean white blood cells counts in malnourished and control children	62
Table (16) Mean erythrocyte sedimentation rate in the malnourished groups and control groups	63
Table (17) Analysis of variances (ANOVA) of the Red Blood Cells, Mean Cells Volume, Mean Cell Haemoglobin, Mean Cell Haemoglobin Concentration and Haemoglobin in Gram Percentage, in the study group of malnourished and control children assessed in Khartoum and Omdurman children's Emergency Hospitals in 2001.	64
Table (18) Analysis of variances (ANOVA) for the comparison of white blood cells, packed cell volume, age, and body weight levels in the malnourished children and their control, children assessed in Khartoum and Omdurman children's emergency Hospitals 2001	65

DECLARATION

The work prescribed in this thesis has been conducted by the undersigned in the department of biochemistry in the National Health Laboratory, and Laboratory C15 for children in Khartoum Children's Emergency Hospital.

Hereby I declare that:

- I did all blood collection and plasma separation.
- I performed all clinical investigations.

I also declared that this topic had not been submitted to any other University or research centre before for any other degree.

Signature (candidate)…

Signature (supervisor)……

Abstract

60 children were admitted to Khartoum and Omdurman Children's Emergency Hospitals. Measurement biochemical and haematological parameters were determined in (20) control, children suffering from diseases except protein energy malnutrition under five years during the period April-August 2001.

Measurements were determined in (23) with marasmus, (5) with Kwashiorkor, (12) with marasmic Kwashiorkor syndrome and 20 control.

On admission, Haemoglobin (Hb%), iron (Fe), total protein, albumin, body weight, protein elctorophoresis, Erythrocyte Sedimnentation Rate (ESR), mean cell haemoglobin (MCH), Mean Cell Haemoglobin Concentration (MCHC), Packed Cell Volume (PCV), Red Blood Cell Counts (RBCs), Total White Blood Cell Counts (TWBCs) and Mean Cell Volume (MCV) serum were measured also age, mother's education and father's income were known in controls and children suffering from Kwashiorkor, Marasmus and marasmic Kwashiorkor.

Measurements obtained in this study revealed that Hb%, Fe, Tp, Albumin, Hbg %, PCV, RBCs, MCHC, MCH and body weight were significantly lower than the levels of the control children in the three studied groups of protein energy malnutrition (PEM).

There is evidence that malnourished children are at greater risk for mal-nutritional and related health problems than the healthy children (control). All malnourished children were under weight compared with the well-nourished children.

Socially, it was found that poverty, illiteracy and unhygienic conditions contributed to the multi-factorial disease of malnutrition.

الخـــلاصـة

توجه البحث الى دراسة الجوانب الكيمياء حيوية ومكونات الدم فى مصل دم الأطفال الذين يعانون من سوء التغذية بأنواعه المختلفة (سفل، كواشيوكور، كواشيوركور، سفلي) اشتملت الدراسة علي (40) كان (23) منهم يعانون من سفل و (5) يعانون من كواشيوركـور و(12) يعانون من كواشيوركور – سفلي، أدخل الأطفال مستشفي حوادث الخرطوم للأطفال ومستشفي حوادث أمد رمان للأطفال، كل الأطفال الذين يعانون من سوء التغذية أعمارهم أقل من خمس سنوات. أيضا تمت دراسة (20) طفلاً طبيعيين من ناحية القياسات البشرية (Anthropometry) دون الخامسة من العمر، تمت الدراسة في الفترة ما بين أبريل 2001- أغسطس 2001.

توجه البحث لقياس تركيز الهيموقلوبين (Hb%)، حجم الخلايا المترسبة (PCV)، معدل ترسيب الخلايا الحمراء (ESR) ، حساب البروتين (TP)، الألبيومين (Albu.)، الحديد (Fe)، الوزن (Wt.)، متوسط حجم الخلايا (MCV) ، متوسط مستوي تركيز الهيموقلوبين فى الخلايا (MCHC)، وحساب كريات الدم الحمراء والبيضاء، تحليل البروتين كهربائياً (Protein Elecrophoresis) بالإضافة لمعرفة العمر ومستوي تعليم الأمهات ودخل الأب نسبة لأهميتها في التأثير علي تغذية الطفل ولقد تمت معرفة مستوي هذه المواد عند كل الأطفال وقد لوحظ أن النتائج التي تحصل عليهامن هذا البحث يظهر انخفاضاً في مستوى تركيز الهيموقلوبين، الحديد، الوزن، عدد كريات الدم الحمراء، البروتين، متوسط حجم الخلايا المترسبة، متوسط تركيز الهيموقلوبين في الخلايا، متوسط الهيموقلوبين في الخلايا والألبيومين فى الثلاث مجموعات المدروسة التي تعاني من نقص البروتين ومواد الطاقة عند هؤلاء الأطفال.

أكدت الدراسة أن الأطفال الذين يعانون من سوء التغذية هم أكثر عرضة من غيرهم من الأصحاء للإصابة بالأمراض ذات الصلة بسوء التغذية. وأن الأطفال الذين يعانون من سوء التغذية أوزانهم ناقصة بغيرهم من الأطفال الأصحاء.

أما بالنسبة للحالة الاجتماعية فقد أظهرت النتائج أن الفقر والجهل والبيئة غير الصحية التي يعيش فيها الأطفال تؤدى إلى الإصابة بسوء التغذية.