

# الآية

بسم الله الرحمن الرحيم

وَإِنْ يَسْأَلْكَ اللَّهُ بَضْرًا فَلَا كَاشِفَ لَهُ إِلَّا هُوَ وَإِنْ يُرِدْكَ بِخَيْرٍ فَلَا رَادَّ لِفَضْلِهِ يُصِيبُ بِهِ مَنْ يَشَاءُ مِنْ عِبَادِهِ وَهُوَ الْغَفُورُ الرَّحِيمُ

صدق الله العظيم

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## **Dedication**

To my teachers

Who gave me the gifts of sharing their minds and experiences, so as to be a  
creative one

To the soul of my father

Who gave me advices and support through the years till his departure. I am very  
grateful for everything you have done for me

To my mother

Who continually encourage me to success, made me a man and show the meaning  
of love

To my wife, beloved

For her patience, support, and efforts to make my life shiny, I truly appreciate this.

To my lovely children

Who make happiness and fun in my home and my whole life, may all of my  
dreams for you come true.

To my colleagues and dear friends

Who always being by my side through good times and bad

With my faithful love and best wishes

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## **Abstract**

This is a descriptive, cross-sectional and analytical study aimed at determining the changes induced by renal failure and hemodialysis in CBC, PT, APTT and Fbg level among 50 patients attending Dr. Selma center for kidney diseases in Khartoum State in June 2011. Male comprises 66 % of patients with age ranged from 16 to 77 years. A questionnaire was used to obtain patient's information as age, gender, duration of dialysis, treatment with Erythropoietin, Folic acid and Iron.

Five ml of venous blood was collected from patients (pre and post hemodialysis) and from 50 normal healthy persons as control, after their consent, dispensed into trisodium citrate and EDTA containers respectively. CBC and coagulation tests were performed using autoanalyzers.

Renal failure caused a statically significant decrease in RBC, Hb, PCV, MCHC, and lymphocyte (P. value 0.000 for all), a significant increase in MCV, RDW, eosinophil (P. value 0.000 for all) and neutrophils (P. value 0.006). Coagulation tests revealed significant reduction in PLT count and MPV (P. value 0.000 for all), a significant increase in PT and APTT (P. value 0.000 for all).

Hemodialysis caused a significant increase in RBC (P. value 0.001), Hb (P. value 0.001), PCV (P. value 0.007), and APTT (P. value 0.000).

## ملخص الأطروحة

هذه دراسة تحليلية وصفية لمقطع مستعرض. تهدف إلى قياس التغيرات التي أحدثتها الفشل الكلوى و الغسيل الدموى على التعداد الكامل الدم، زمن البروثرومبين، زمن الثرومبوبلاستين الجزئى المنشط، و مستوى الفبرينوجين عند ٥٠ مريضا يخضعون للعلاج بالغسيل الدموى بمركز د. سلمى لأمراض الكلى بولاية الخرطوم و ذلك فى يونيو ٢٠١١. شكل الذكور ٦٦ % من المرضى الذين تتراوح أعمارهم بين ١٦ و ٧٧ سنة .

تم جمع المعلومات عن المرضى بواسطة الاستبيان كالعمر، النوع، فترة الغسيل الدموى و الأدوية الداعمة المستعملة كالإرثروبويتين و حامض الفوليك و الحديد.

تم سحب ٥ مل من الدم الوريدى من كل مريض (قبل وبعد الغسيل الدموى) و من أشخاص طبيعيين صحيا بعد موافقتهم، وزعت على حاويتى سترات ثلاثية الصوديوم و EDTA بالتساوى و على الترتيب. تم أداء التعداد الكامل الدم و إختبارات التجلط بواسطة أجهزة تحليل أوتوماتيكية.

أحدث الفشل الكلوى إنخفاضا ذو دلالة إحصائية فى تعداد الخلايا الحمراء، تركيز خضاب الدم، حجم الخلايا المتراكمة، متوسط تركيز خضاب الدم فى الخلايا، و الخلايا اللمفاوية (P. value 0.000 لكل). كما أوضح إرتفاعا ذو دلالة إحصائية فى كل من متوسط حجم الخلية ، RDW، و الحمضات (P. value 0.000 لكل) و للعدلات (P. value 0.006).

أظهرت إختبارات التجلط إنخفاضا ذو دلالة إحصائية فى تعداد الصفائح الدموية و متوسط حجم الصفيحة الدموية ( P. value 0.000 لكل) كما أظهرت زيادة ذات دلالة إحصائية فى زمن البروثرومبين و زمن الثرومبوبلاستين الجزئى المنشط ( P. value 0.000 لكل).

أحدث الغسيل الدموى إرتفاعا ذو دلالة فى كل من تعداد الخلايا الحمراء (P. value 0.001)، تركيز خضاب الدم ( P. value 0.001)، حجم الخلايا المتراكمة (P. value 0.007) و زمن الثرومبوبلاستين الجزئى المنشط (P. value 0.000) .

## **Abbreviations**

ADP	Adenosine diphosphate
AKI	Acute kidney disease
AML	Acute myeloid leukaemia
APTT	Activated Partial Thromboplastin Time
βTG	B-thromboglobulin
ATP	Adenosine triphosphate
BFU-E	Burst-forming unit, erythroid
BUN	Blood urea nitrogen
CBC	Complete Blood Count
CD	Cluster of differentiation
CFU-E	Colony-forming unit, erythroid
CKD	Chronic kidney disease
CRF	Chronic renal failure
CV	Co-efficient of variation
DIC	disseminated intravascular coagulation
DNA	Deoxyribonucleic acid
EBV	Epstein-Barr virus
EDTA	Ethylene diamine tetra acetic acid
eGFR	Estimated Glomerular filtration rate
EPOR	Erythropoietin receptor
ESRD	End Stage Renal Disease
Fbg	Fibrinogen
FDPs	Fibrinogen degradation products
G-CS	granulocyte-colony-stimulating factor
GFR	Glomerular filtration rate
GM-CSF	Granulocyte-macrophage colony-stimulating factor
GP 1b	Glycoprotein 1b
Hb	Hemoglobin
HD	Hemodialysis
HIV	Human immunodeficiency virus
HMWK	High-molecular weight kininogen
HLA	Human leucocyte antigen
Ig E	Immunoglobulin E

IL-1	Interleukin-1
MCH	Mean Cell Hemoglobin
MCHC	Mean Cell Hemoglobin Concentration
M-CSF	Macrophage- colony-stimulating factor
MCV	Mean Cell Volume
MDRD	Modification of diet in renal disease
mRNA	Messenger ribonucleic acid
MPV	Mean platelet volume
NAP	Neutrophil alkaline phosphatase
NCKDS	National Center For renal Diseases and Surgery
NK	Natural killer cell
PAI-1	Plasminogen activator inhibitor-1
PCV	Packed Cell Volume PCV
PD	Peritoneal dialysis
PDGF	Platelet-derived growth factor
PF4	Platelet factor 4
PLT	Platelets count
pmp	per million population
PT	Prothrombin Time
RBC	Red blood cell count
RDW	Red cell distribution width
rh EPO	Recombinant erythropoietin
RNA	Ribonucleic acid
SLE	Systemic lupus erythematosus
SPSS	Statistical package for social sciences
TCR	T-cell receptor
TF	Tissue factor
TFPI	Tissue factor pathway inhibitor
TNF	Tumour necrosis factor
t-PA	Tissue plasminogen activator
TWBC	Total white blood cell count
TxA2	Thromboxane A2
URR	Urea reduction ratio
VWF	von Willebrand factor

# Contents

## Chapter One

<b>Introduction and literature review</b>		<b>Page</b>
<b>1.1</b>	<b>Introduction</b>	<b>1</b>
<b>1.2</b>	<b>Literature review</b>	<b>3</b>
1.2.1	The urinary system	3
1.2.1.1	The kidneys	3
1.2.1.2	Internal structure of the kidney	4
1.2.1.3	The nephron	5
1.2.1.3.1	Renal Corpuscle	5
1.2.1.3.2	Renal Tubule	5
1.2.1.4	Functions of the kidneys	6
1.2.1.5	Measurement of Kidney function	7
1.2.2	Renal failure	8
1.2.2.1	Causes of renal failure	8
1.2.2.2	Acute Kidney injury	9
1.2.2.3	Chronic kidney disease	9
1.2.2.4	Replacement therapy for kidney failure	9
1.2.2.4.1	Dialysis	9
1.2.2.4.2	Transplantation	12
1.2.3	Hemopoiesis	12
1.2.3.1	Erythropoiesis	13
1.2.3.1.1	Regulation of Erythropoiesis	14
1.2.3.2	Granulopoiesis	14
1.2.3.2.1	Control of granulopoiesis: myeloid growth factors	15
1.2.3.3	Platelet production (Thrombopoiesis)	15
1.2.4	The Red Blood Cell	15
1.2.5	Hemoglobin	16
1.2.5.1	Hemoglobin synthesis	17
1.2.5.2	Hemoglobin breakdown	17
1.2.6	Anemia of renal disease	18
1.2.7	The white blood cells	19
1.2.7.1	Neutrophil (polymorph)	19
1.2.7.1.1	Neutrophil precursors	19
1.2.7.1.2	Neutrophil leucocytosis	20
1.2.7.1.3	The leukaemoid reaction	21
1.2.7.1.4	Neutropenia	21
1.2.7.2	Monocytes	21
1.2.7.2.1	Monocytosis	22
1.2.7.3	Eosinophils	22
1.2.7.3.1	Eosinophilic leucocytosis (eosinophilia)	22



1.2.7.4	Basophils	23
1.2.7.4.1	Basophil leucocytosis (basophilia)	23
1.2.7.5	Lymphocytes	24
1.2.7.5.1	B and T lymphocytes	24
1.2.7.5.2	Natural killer cells	24
1.2.7.5.3	Lymphocytosis	25
1.2.7.5.4	Lymphopenia	25
1.2.8	Normal hemostatic mechanisms	26
1.2.8.1	Endothelium and the vascular system	26
1.2.8.2	The role of platelets	27
1.2.8.3	The role of blood coagulation	28
1.2.8.4	Formation of Fibrin	29
1.2.8.5	PT, PTT, and Fibrinogen Assays: Use and Interpretation	30
1.2.8.5.1	The PT Assay	31
1.2.8.5.2	The PTT Assay	31
1.2.8.5.3	Fibrinogen Assays	32
1.2.9	Hemostasis in renal disease	33
<b>Rationale</b>		34
<b>Objectives</b>		35

## Chapter Two

2	Materials and methods	36
2.1	Approach	36
2.2	Study type and design	36
2.3	Study area	36
2.4	Study population	36
2.5	Study variables	36
2.6	Sampling and sample size	36
2.7	Data collection methods and tools	36
2.7.1	Data collection	36
2.7.2	Specimen collection	37
2.8	Laboratory procedures	37
2.8.1	Complete Blood Count (CBC)	37
2.8.1.1	Principle	37
2.8.1.2	Sample material	38
2.8.1.3	Test procedure	38
2.8.2	PT, APTT and Fibrinogen	38
2.8.2.1	Detection principle for coagulation method	38
2.8.2.1.1	PT assay principle	38
2.8.2.1.2	APTT assay principle	39
2.8.2.1.3	Fibrinogen assay principle	39
2.8.2.2	Sample material	39
2.8.2.3	Reagents	39
2.8.2.4	Test procedures	39
2.8.2.3.1	PT procedure	39

2.8.2.3.2	APTT procedure	40
2.8.2.3.3	Fibrinogen assay procedure	40
2.9	Validity of reagents and instruments	40
2.10	Ethical consideration	40
2.11	Data processing and analysis	40

## **Chapter Three**

<b>Results</b>	41
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## **Chapter Four**

<b>Discussion</b>	48
<b>Conclusion</b>	50
<b>Recommendation</b>	51

<b>References</b>	52
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## **Appendices**

Appendix (1)	Questionnaire	54
Appendix(2)	Sysmex KX-21	55
Appendix(3)	Sysmex CA-50	56

# List of Figures

## Chapter One

Figure (1.1): The urinary system shown in anterior view	3
Figure (1.2): A coronal section through the kidney showing the cortex and medulla	4
Figure (1.3): The structure of the kidney showing the nephron and its vascular	6

## Chapter Three

Figure (3.1): Frequency of gender of study group	41
Figure (3.2): Frequency of age groups of patients and control group	42
Figure (3.3): Frequency of hemodialysis duration of patients	42
Figure (3.4): Comparison of study group pre hemodialysis (pre HD) and control group on RBC, Hb, PCV, MCHC, and RDW	45
Figure (3.5): Comparison of study group pre hemodialysis (pre HD) and control group on TWBC, neutrophils, lymphocytes, monocytes, and eosinophils	45
Figure (3.6): Comparison of study group pre hemodialysis (pre HD) and control group on PLT, MPV, PT, APTT and Fbg level	46
Figure (3.7): Comparison of study group pre (pre HD) and post hemodialysis (post HD) on RBC, Hb, PCV, and red cell indices	46

# List of Tables

## Chapter One

Table 1.1: White cells: normal blood counts	19
Table 1.2: Causes of neutrophil leucocytosis	20
Table 1.3: Causes of monocytosis	22
Table 1.4: Causes of eosinophilia	23
Table 1.5: Causes of lymphocytosis	25

## Chapter Three

Table 3.1: Comparison of Complete blood count and coagulation tests of study group according to gender	43
Table 3.2: Comparison of red cell indices, TWBC, and Eosinophil of study group according to the duration of hemodialysis	44
Table 3.3: Comparison of red cell indices, PTT, and Fbg of study group according to age	44
Table 3.4: Comparison of study group pre (pre HD) and post hemodialysis (post HD) on TWBC, PLT, PT, APTT, and Fbg level	47
Table 3.5: Comparison of effect of erythropoietin, iron, and folic acid intake on Hb concentration	47