

الآيه

بسم الله الرحمن الرحيم

قال تعالى :

{مَرَبَّ أَوْزَرَ عَنِّي أَنُ أَشْكُرَ نِعْمَتَكَ الَّتِي أَنْعَمْتَ عَلَيَّ وَعَلَى وَالِدَيَّ وَأَنُ أَعْمَلَ
صَالِحَاتٍ رَضَاهُ وَأَصْلَحَ لِي فِي دُمُرَيْتِي إِنِّي بُوَيْتُ إِلَيْكَ وَإِنِّي مِنَ الْمُسْلِمِينَ}

صدق الله العظيم

سورة الاحقاف

الآيه 15

Dedication

*To the candle which burns to light my
life*

My Mother

*To the one who live for making our
dreams become true*

My father

To those who have made it possible

My teachers

*To whom who encourage and always
around me*

My friends

Acknoledgment

First of all I thank Allah to help me in finishing this work as this way . much appreciation will be forwarded to Dr.khalda Mergani Hamza who gave me by this chance to work with her and supplied me by valuable facts and opinions .Special thanks to (Nihad bakry ,Shaza hassan ,Ahmed Elkhier and Islam Elkhier)

Finally deep thanks extended to all Hematology staff who they supported us till our goal obtained .

Abstract

This is an observational , analytical case control study aimed to determine distribution of ABO blood groups and Rhesus factor in Sudanese patients with chronic Renal failure under hemodialysis in Khartoum state . The study was conducted during period of March- May 2014. About 200 samples were collected (100 patients and 100 subjects used as control group). Two ml of venous blood was collected in EDTA , ABO grouping and Rh factor were performed by slide method with D^U technique for D-ve results . Collected data were analyzed by using SPSS and compared with control group .

Distribution of ABO blood groups was : 60% blood group O, 21% blood group A, 15 % blood group B and 4% blood group AB while in control group 56% blood group O , 27% blood group A ,12% blood group B , and 5% blood group AB .

Distribution of Rhesus factor was 86% and 14 % for Rh D+ve and RhD-ve respectively while in control group 94 % and 6% for Rh D+ve and RhD-ve respectively .

الخلاصة

هذه دراسته تحليليه وصفيه تهدف الي تحديد توزيع الزمر الوظيفيه للفصائل الدمويه و العامل الريصي لدى المرضى السودانين المصابين بالفشل الكلوي المزمن الخاضعين للغسيل الدموي في ولاية الخرطوم .الدراسه اجريت خلال الفتره من مارس الي مايو ٢٠١٤ تم جمع حوالي ٢٠٠ عينه (١٠٠ من مرضى الفشل الكلوي المزمن و ١٠٠ من اشخاص اصحاء كعينة ضبط) .تم اخذ ٢مل من الدم الوريدي في مانع التجلط الاديتا ثم اجري فحص الفصائل الدمويه و العامل الريصي عن طريق فحص الشرائح الزجاجيه مع عمل فحص (الدي يو) لنتائج العامل الريصي السالبه .جمعت و حللت البيانات بواسطه برنامج الحزم الاحصائيه للعلوم الاجتماعيه ثم تمت مقارنة النتائج بعينات الضبط .

كان توزيع فصائل الدم كالاتي : ٦٠% لفصيلة الدم O, ٢١% لفصيلة الدم A و ١٥% لفصيلة الدم B و ٤% لفصيلة الدم AB بينما عينات الضبط كانت ٤٧% لفصيلة الدم O, ٣٢% لفصيلة الدم A, ١٣% لفصيلة الدم B و ٨% لفصيلة الدم AB .

توزيع العامل الريصي كان ٨٦% و ١٤% لكل من العامل الريصي الموجب و السالب علي التوالي بينما عينات الضبط كانت ٩٤% و ٦% ايضا للعامل الاريصي الموجب و السالب علي التوالي .

Abbreviations

ATP:AdenosineTriphospate

ADH:Anti Diuretic Hormone

ANP:Atrial Natriuretic Peptide

CKD: Chronic Kidney Disease

EPO: Erythropoietin

GFR: Glomerular Filtration Rate

HTR: Hemolytic Transfusion Reaction

HDFN:Hemolytic Disease of the Fetus and Newborn

HD: Hemodialysis

HDF:Hemodifiltration

ISBT:International Society of Blood Transfusion

IAT: Indirect Antiglobulin Test

PD:Peritoneal Dialysis

RTA: Renal Tubular Acidosis

SLE: Systemic Lupus Erythmatosus

SPSS: Statistical package for social science.

WBCs :White Blood Cells

List of Tables

No	Title	Page
1.1	ABO antigens, antibodies, and genotypes	9
1.2	Etiology of Chronic Renal Failure	27
1.3	Stages of chronic renal failure	28
3.1	Distribution of study group according to gender	41
3.2	Distribution of study group according to age groups	41
3.3	Distribution of gender among age groups in study population .	42
3.4	Distribution of ABO Blood group among study group	42
3.5	Distribution of Rhesus factor among study group	43

List of Contents

Subject		Page
الآية		I
Dedication		II
Acknowledgment		III
Abstract(English)		IV
Abstract(Arabic)		V
Abbreviations		VI
List of Tables		VII
Chapter One Introduction and Literature Review		
No	Subject	Page
1.1	Introduction	1
1.2	Literature Review	2
1.2.1	Blood constituents	2
1.2.1.1	Blood Group System	2
1.2.2	ABO Blood Group System	2
1.2.2.1	Background	2
1.2.2.2	Biochemical nature of ABO antigens	3
1.2.2.3	Biosynthesis of ABO antigens and ABO molecular genetics	4
1.2.2.4	ABO Antigens	5
1.2.2.5	ABO Subgroups	5
1.2.2.6	ABO Antibodies	7
1.2.2.7	Clinical Significance of ABO Antibodies	8
1.2.3	Rh Blood Group System	10
1.2.3.1	Background	10
1.2.3.2	Biochemical Composition of Rh Antigens	11
1.2.3.3	Genetics of the Rh Blood Group System	12
1.2.3.4	D Antigen	12
1.2.3.5	Weakened Expression of D antigen	13
1.2.3.6	CcEe Antigens	14
1.2.3.7	Rh null	14
1.2.3.8	Rh Antibodies	14

1.2.3.9	Clinical significance of anti-D	15
1.2.4	The kidneys	17
1.2.4.1	Kidney Anatomy	17
1.2.4.2	Renal Function	18
1.2.4.3	Renal dysfunction	23
1.2.4.3.1	Glomerular Disease	23
1.2.4.3.2	Tubular diseases0	24
1.2.4.3.3	Urinary tract infection /Obstruction	24
1.2.4.3.4	Renal calculi	25
1.2.4.3.5	Renal Failure	25
1.2.4.3.5.1	Acute Renal Failure	25
1.2.4.3.5.2	Chronic Renal Failure	26
1.2.4.3.5.3	Dialysis	30
1.3	Previous study	32
1.4	Rationale	33
1.5	Objectives	34
Chapter Two Material and Methods		
2.1_2.9	Informations about study and Sampling	35
2.10	Laboratory Investigations Methods	36
2.10.1	Sample collection	36
2.10.2	ABO Blood Grouping by slide technique	36
2.10.3	Rhesus (D factor) grouping by slide technique	37
2.10.4	D ^u technique	37
2.11	Data Analysis	38
Chapter Three Results		
	Results	39
Chapter Four Discussion, Conclusion and Recommendations		
4.1	Discussion	44
4.2	Conclusion	46
4.3	Recommendations	47
References		48
Appendices		
	Appendix 1	50

	Appendix 2	51
	Appendix 3	52
	Appendix 4	53
	Appendix 5	54
	Appendix 6	55
	Appendix 7	56