

PHAGOCYTIC FUNCTION IN RENAL FAILURE BEFORE AND AFTER HEMODIALYSIS

A Thesis
Submitted for the partial fulfilment of the
Master Degree in Pediatrics

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1992



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

«وَقُلْ أَعْمَلُوا فَسَيَرَكُ اللَّهُ
عَمَلَكُمْ وَرَسُولَهُ وَالْمُؤْمِنُونَ»

صدق الله العظيم
(سورة التوبة
آية ١٠٥)



To My Family

ACKNOWLEDGMENT

First and foremost, I thank God, the Beneficent and the most Merciful.

*I owe my deepest and sincerest gratitude to **Dr. Galila Mokhtar**, assistant professor of Pediatrics, Ain Shams University, for giving me the privilege of working under her supervision, with her creative mind, eminent guidance, precious advice, valuable time without which this work would have never been completed.*

*My sincere thanks to professor **Dr. Raafat Hanna**, professor of Biochemistry National Research Center, for his great effort and Continuous support he gave me throughout the work.*

*I would like also to express my deep thanks and gratitude to **Dr. Hesham Awad**, lecturer of Pediatrics, Ain Shams University, for his kind advice, Generous help and for spending quite a precious time for the proper achievement of this work.*

*I am also greatly indebted to **Dr. Hanaa Amr**, assistant lecturer of clinical pathology, Ain Shams University, for all the help and friendship she offered me during the work.*

*My deep gratitude is awarded to the remarkable team of Pediatric hemodialysis unit, Ain Shams University headed by Professor **Dr. Farida Farid**, Professor of Pediatrics, Ain Shams University.*

Last but certainly not least, I am grateful to every one who participated in the evolution of this work.

LIST OF CONTENTS

	Page
• INTRODUCTION	1
• REVIEW OF LITERATURE	3
I Renal Failure	3
Acute renal failure	3
Chronic renal failure	8
Diagnosis of renal failure	14
Management of renal failure	24
II IMMUNOPATHOLOGY IN PATIENTS WITH RENAL FAILURE	47
III PHAGOCYTIC SYSTEM	55
IV PHAGOCYTIC FUNCTION AND HEMODIALYSIS ..	64
• SUBJECTS AND METHODS	71
• RESULTS	84
• DISCUSSION	110
• SUMMARY	123
• CONCLUSION	125
• RECOMMENDATIONS	126
• REFERENCES	Ref. 1
• ARABIC SUMMARY	

LIST OF ABBREVIATIONS

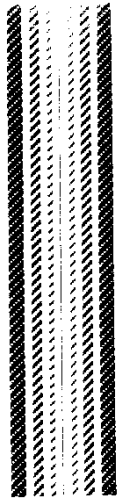
ARE	:	Acute renal failure
AV	:	Arteriovenous
BUN	:	Blood urea nitrogen
CAPD	:	Continuous ambulatory peritoneal dialysis
CRF	:	Chronic renal failure
GFR	:	Glomerular filtration rate
HBSS	:	Hank's balanced salt solution
HD	:	Hemodialysis
K ⁺	:	Potassium
LI	:	Lytic index
PD	:	Peritoneal dialysis
PF	:	Phagocytic function
PI	:	Phagocytic index
PMNLs	:	Polymorphonuclear leucocytes
PTH	:	Parathyroid hormone
RF	:	Renal failure

LIST OF TABLES

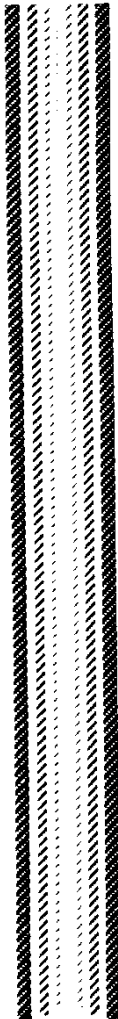
	Page
Review of literature	
Table I Causes of ARF	4
Table II Pathophysiology of CRF	12
Results	
Table I Comparison of the PF in the study group before HD versus the control group	85
Table II Comparison of the PF in the study group after HD versus the control group	87
Table III Comparison of the PF in the study group before HD versus after HD	89
Table IV Comparison of PF in the glomerular RF and nonglomerular RF before HD	91
Table V Comparison of PF in the glomerular RF and nonglomerular RF after HD	93
Table VI Comparison of PF of glomerular RF versus control group	94
Table VII Comparison of PF of nonglomerular lesion versus control group	96
Table VIII Correlation between serum creatinine and PF before and after HD	98
Table IX Correlation between blood urea and PF before and after HD	101
Table X Correlation between duration of HD and PF before and after HD	104
Table XI Correlation between duration of disease and PF before and after HD	107

LIST OF FIGURES

	Page
Fig I PF in the control group and the study group before HD	86
Fig II PF in the control group and the study group after HD	88
Fig III PF in the study group before and after HD	90
Fig IV PF in the glomerular and nonglomerular renal failure before and after HD	92
Fig V Comparison of PF in the control group and glomerular renal failure before and after HD	95
Fig VI Comparison of PF in the control group & nonglomerular renal failure before and after HD	97
Fig VII Correlation between creatinine and PF before HD	99
Fig VIII Correlation between creatinine and PF after HD	100
Fig IX Correlation between urea and PF before HD	102
Fig X Correlation between urea and PF after HD	103
Fig XI Correlation between duration of HD and PF before HD	105
Fig XII Correlation between duration of HD and PF after HD	106
Fig XIII Correlation between duration of disease and PF before HD	108
Fig XIV Correlation between duration of disease and PF after HD	109
 Color plate I Hemodialysis machine	 75
Color plate II Phagocytic PMN: control group	79
Color plate III Phagocytic PMN: study group before HD	80
Color plate IV Phagocytic PMN: study group after HD	81



Introduction and Aim of the Work



INTRODUCTION

The association between uremia and immunosuppression is firmly established in the minds of many clinicians.

Lawrence's essay in 1965 describes uremia as "Nature immunosuppressive device", this report coupled with the fact that infection is a frequent complication and cause of death in patients with renal failure, and have led to the belief that the uremic process itself impairs immunity and thus predisposes the host to infection.

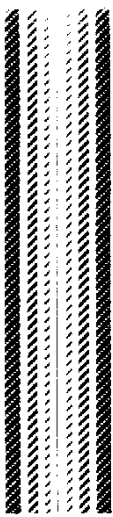
Montgomerie et al., study in 1968, showed that up to 60% of patients with chronic renal failure suffer from a serious infection, which, in 38% of cases contribute to death.

Phagocytosis is a major aspect of the immunological system in the host.


The exact role of phagocytosis in chronic renal failure is the subject of many controversy. Some authors reported a normal phagocytic function, while others reported a depressed phagocytosis. The effect of treatment including hemodialysis on the phagocytic function is conflicting.

AIM OF THE WORK

The aim of this work is to study the phagocytic function of the patients with chronic renal failure and to search for the effect of hemodialysis on its function.



Review of Literature



RENAL FAILURE

I ACUTE RENAL FAILURE

Definition:

Acute renal failure (ARF) is the rapid deterioration or cessation of renal function in patients with previously normal kidney (Hodson et al., 1978).

There is abrupt decline in the glomerular filtration rate (GFR) sufficient in magnitude to result in retention of nitrogenous wastes and disturbance of water and electrolyte balance (Ikuma et al., 1988).

Causes of acute renal failure:

The specific causes of ARF have been classified as Pre renal, renal and post-renal causes (BerGstein, 1992).

Causes of ARF (quoted from Bergstein (1992))

Pre-renal	Renal	Postrenal
Hypovolemia	Glomerulonephritis	Obstructive uropathy
Hemorrhage	Post streptococcal	Ureteropelvic junction
Gastrointestinal losses	Lupus erythematosus	Ureterocele
Hypoproteinemia	Membrane proliferative	Urethral valves
Burns	Idiopathic rapid progressive	Tumour
Renal or adrenal disease with salt wasting	Anaphylactoid purpura	Vesico ureteral reflux
Hypotension	Localised intravascular coagulopathy	Acquired
Septicemia	Renal vein thrombosis	Stones
Disseminated intra-vascular coagulopathy	Cortical necrosis	Blood clot
Hypothermia	Hemolytic-uremic syndrome	
Hemorrhage		
Heart failure	Acute tubular necrosis	
	Heavy metals	
	Chemicals	
Hypoxia	Drugs	
Pneumonia	Hemoglobin, Myoglobin	
Aortic clamping	Shock	
Respiratory distress syndrome	Ischemia	
	Acute interstitial nephritis	
	Infection	
	Drugs (nephrotoxicity)	
	Tumours	
	Renal parenchymal infiltration	
	Uric acid nephropathy	
	Developmental abnormalities	
	Cystic disease, Hypoplasia-dysplasia	
	Hereditary nephritis	