

**Prevalence of HCV Antibodies in
haemodialysis patients in
AL_Qalyubiya governerate (Sector A)**

Thesis

*Submitted for partial fulfillment of master degree in
internal medicine*

BY

Shimaa Ahmed Ali Elgazar
(M.B.B.CH)

Under supervision of

**PROF.DR. MOHAMED MAHMOUD ABD
ELGHANY**

*Prof. of internal medicine & nephrology
Ain shams university*

DR. WALID AHMED BICHARI

*Lecturer of internal medicine & nephrology
Ain shams university*

*Faculty of medicine
Ain shams university
Cairo 2012*



Acknowledgement

Acknowledgement

First of all thanks to **Allah** most beneficial and most merciful.

I would like to express my deepest gratitude to **professor Doctor: MOHAMED MAHMOUD ABD ELGHANY** Professor of Internal Medicine and Nephrology Ain Shams University, for his sincere help, guidance and faithful assistance. I learned a lot from his valuable remarks and scientific guidance.

It is a pleasure to express my deep gratitude to **Dr. Walid Ahmed Bichari** Lecturer of Internal Medicine & Nephrology; Ain Shams University for his fatherly guidance, kindness and continuous help to achieve this work.

Finally, I must thank my parents, my friends and my colleagues who supported me a lot and gave me encouragement and help through the whole work.

List of Contents

Contents	Page
ACKNOWLEDGMENT	
INTRODUCTION	1
AIM OF WORK	3
REVIEW OF LITTERATURE	5
Chapter 1: Hepatitis C Virus Overview	6
Chapter 2: Hepatitis C Virus and kidney diseases	32
Chapter 3:Infection control in hemodialysis units	51
PATIENTS AND METHODS	60
RESULTS	64
DISCUSSION	76
SUMMARY AND CONCLUSION	92
RECOMMENDATIONS.....	95
REFERENCES	97
ARABIC SUMMARY	110

List of Abbreviations

AASLD	: The American association for the study of liver disease
ALT	: alanine aminotransferase
AUC	: the area under the plasma concentration time curve
AVF	:Arteriovenous fistula
CBC	: complete blood count
CDC	: the Centers for Disease Control and Prevention
CKD	:chronic kidney disease
CRF	:chronic renal failure
DOPPS	: Dialysis Outcomes and Practice Pattern Study
eGFR	: estimated glomerular filtration rate
EIA	: Enzyme Immunoassay
ELF	:Enhanced Liver Fibrosis
ELISA	: Enzyme Linked Immunosorbant Assay.
ESRD	:End Stage Renal Disease
FDA	: The US Food and Drug Administration
FT	:FibroTest
GGT	:Gamma Glutamyl Transferase
GSF	: granulocyte-stimulating factor
HAV	:Hepatitis A virus
HBV	:Hepatitis B virus
HCC	: Hepatocellular carcinoma
HCP	: Healthcare personnel
HCV	: Hepatitis C virus.
HD	: Hemodialysis
HIV	: Human Immuno-Deficiency Virus.
HLA	: the human leukocyte antigen

IFN	: interferon
IVDA	: intravenous drug abuse
IU	: International units
KDOQI	: Kidney Disease Outcome Quality Initiative
LT	: liver transplantation
MC	: Mixed cryoglobulinemia
MPGN	: Membranoproliferative glomerulonephritis
PC	: Permenant catheter
PCR	: polymerase chain reaction
PD	: peritoneal dialysis
PEG-IFN	: pegylated-interferon
PTFE	: polytetrafluoroethylene
RF	:Rheumatoid Factor
RFLPs	: Restriction fragment length polymorphisms
RNA	: Ribo-Nucleic Acid.
RT-PCR	: Reverse transcriptase PCR
SVR	: Sustained Virological Response
TC	: Temporary catheter
TMA	: transcription-mediated amplification
US	:United state
UTR	: untranslated, highly conserved regions
WHO	: World Health Organization.

List of figures

Figure		Page
Figure (1)	Causes of chronic liver disease.	8
Figure (2)	Prevalence of HCV ,HBV and combined infection	67
Figure (3)	Causes of chronic kidney disease	69
Figure (4)	HCV seroconversion rate	70
Figure (5)	Univariate analysis of the risk factors of HCV seroconversion	74

List of tables

Table		Page
Table (1)	The CDC's current recommendations for the prevention of infections in hemodialysis	53
Table (2)	questionnaire form of the present study	63
Table (3)	Age , sex ,HBV,HCV status of the studied group	66
Table (4)	Causes of renal failure in the studied group	68
Table (5)	Seroconversion status of the studied group	70
Table (6)	Distribution of different risk factors in the studied group	71
Table (7)	comparison between HCV seroconversion and free cases regarding age and duration of dialysis	72
Table (8)	Categorical risk factors for seroconversion _ univariate analysis.	73
Table (9)	Risk factors for seroconversion _ Multivariable analysis using logistic regression	75

Introduction

Introduction

Chronic infection with hepatitis C virus (HCV) is an important global health problem. HCV infection is widespread and 3% of the world population is reported to be persistently infected. The prevalence of HCV infection in patients undergoing dialysis is greater than that in the general population, suggesting that patients on dialysis may be at higher risk of acquiring HCV infection. This is predominantly because these patients are more exposed to risk factors for acquisition of this infection (*Zamani et al., 2010*).

The prevalence of anti HCV seropositivity in patients undergoing regular dialysis in developed countries ranges between 7% and 40%. Its importance is also recognized as it is the most frequent cause for liver transplantation in the US and Europe (*Zamani et al., 2010*).

HCV infection has a detrimental effect on survival in dialysis patients with end-stage renal disease (ESRD). Studies have also shown a lower survival after kidney transplantation of HCV-infected patients than that of anti-HCV negative patients (*Rocha et al., 2007*).

HCV seroconversion had been noted in patients who were never transfused. Further, clinical experience in a dialysis unit, outbreaks of HCV infection in a unit and phylogenetic analysis of HCV isolates. All suggest that the nosocomial route of transmission plays the key role in HCV transmission (*Agarwal, 2011*).

In 2001, the **Centers for Disease Control and Prevention (CDC)** published guidelines to prevent the transmission of HCV and other infections among maintenance hemodialysis patients. The guidance includes recommended infection prevention measures, such as proper medication handling, environmental cleaning and disinfection, staff education, and routine screening of hemodialysis patients for HCV infection. Isolation of HCV-infected patients is not recommended (*Patel et al.,2010*).

AIM OF THE WORK

AIM OF THE WORK

This work aims to study the prevalence of HCV antibodies among haemodialysis patients in AL_Qalyubiya governerate (sector A).

Review of literature

Chapter 1

Hepatitis c virus

Overview