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Prevalence of HCV antibodies in hemodialysis patients in Beni Suef governorate

Thesis

Submitted for partial fulfillment for master degree in Nephrology

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مدى انتشار مضادات الالتهاب الكبدى الوبائى
الفيروسى سى بين مرضى الغسيل الكلوى فى
محافظة بنى سويف

رسالة
مقدمة للحصول على درجة الماجستير فى امراض الكلى
من

الطبيب/ طارق عاطف طه
بكالوريوس الطب و الجراحة

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Summary

HCV infection still remains a major health problem that can cause substantial liver related morbidity and mortality in patients with ESRD.

The global prevalence of hepatitis C virus (HCV) infection estimated to be around 1.6 - 3% worldwide, Egypt has the largest epidemic of hepatitis C virus (HCV) in the world with 10 - 13% of the population infected with HCV.

The prevalence of anti-HCV positivity among dialysis patients varies in different countries from (3%-75% worldwide), unfortunately Egypt also is considered one of the countries with the highest prevalence.

This work is a part of project aiming to survey about HCV among HD patients, assessing its prevalence, seroconversion and study risk factors associated with HCV seroconversion among hemodialysis patients in Egypt. This project is modulated by the nephrology department, Ain Shams University.

This study was conducted upon 937 ESRD patients on regular HD sessions attending 11 different HD units in Beni Suef governorate, districts included in this study were El-Fashn El-wasta, Beni suef, Ehnasia, Beba, Smosta and Naser.

All patients were evaluated using a questionnaire form for assessment of risk factors claimed to be responsible for HCV seroconversion among HD patients such as; age by years, gender, duration of hemodialysis, previous blood transfusion, previous surgery, isolation procedures in the centers, infection control measures, dialysis in

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بِسۡمِ ٱللَّهِ ٱلرَّحۡمَٰنِ ٱلرَّحِيمِ

وَمَن يَتَّقِ ٱللَّهَ يَجۡعَل لَّهُۥ مَخۡرَجٗا

(٢) وَيَرۡزُقۡهُ مِنۡ حَيۡثُ لَا يَحۡتَسِبُۚ

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*First thanks to **ALLAH** to whom I relate any success in achieving any work in my life.*

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Finally, I want to thank all my Staff, my family, my colleagues and my patients without their help this work could not have been completed.

Tarek Atef

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List of Abbreviations

ALT	*Alanine Aminotransferases*
AST	*Aspartate Aminotransferases*
C	*Complement*
CDC	*Center for Diseases Control and Prevention*
CKD	*Chronic kidney disease*
DM	*Diabetes mellitus*
DOPPS	*Dialysis outcomes and practice patterns study*
EHMs	*Extrahepatic manifestations*
EIA	*Enzyme immunoassay*
ELISA	*Enzyme Linked Immunosorbent Assay*
ESRD	*End stage renal disease*
ETR	*End-of treatment response*
FDA	*Food Drug Administration*
GFR	*Glomerular filtration rate*
HCV	*Hepatitis C Virus*
HBV	*Hepatitis B Virus*
HbA1c	*Glycosylated hemoglobin*
HCC	*Hepatocelular carcinoma*
HCWs	*Health care workers*
HD	*Hemodialysis*
HIV	*Human Immunodeficiency Virus*
HTN	*Hypertension*
Ig	*Immunoglobulin*
K/DOQI	*kidney Disease Outcomes Quality Initiative*
IFNs	*Interferons*
LPDs	*Lymphoproliferative disorders*
MC	*Mixed cryoglobulinemia*

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List of Abbreviations (Cont.)

MHD *Maintenance Hemodialysis*

MPGN *Membranoproliferative glomerulonephritis*

NCR *Non coding region*

NIH *National Institute of Health*

NK *Natural killer*

NKF *National Kidney Foundation*

PCR *Polymerase Chain Reaction*

PD *Peritoneal dialysis*

PEG-IFN *Pegylated interferon*

RCTs *Randomized controlled trials*

RF *Rheumatoid factor*

RIBA *Recombinant Immunoblot Assay*

SVR *Sustained viral response*

TMA *Transcription mediated amplification*

TLR3 *Toll like receptors*

WHO *World Health Organization*

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More than 170 million people worldwide are chronically infected with the hepatitis C virus (HCV), which is responsible for over 1 million deaths from cirrhosis and primary liver cancers **(Poynard et al, 2003).**

Hepatitis C is the most common cause of chronic viral liver disease in haemodialysis patients (**Hinrichsen et al., 2002**)

Both HCV and chronic renal disease are common and potentially serious medical problems throughout the world. In recent years, it has become clear that these two conditions are linked in several important ways. Indeed, some forms of renal disease are precipitated by HCV infection **(Meyers et al, 2003)**. However, patients with end-stage renal disease (ESRD) are at increased risk for acquiring HCV infection **(Meyers et al, 2003)**

Hemodialysis patients are at particular high risk for bloodborne infections because of prolonged vascular access and potential for exposure to contaminated equipment. It has been estimated that, among patients on hemodialysis, the prevalence of HCV infection varies greatly, from less than 5% to nearly 60% according to different areas of the world **(Furusyo et al, 2000 and Tang and Lai , 2005)**.

Regardless of the geographic location, however, the prevalence is consistently associated with patient age and the number of transfused blood products **(Tang and Lai , 2005)**

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HCV infection is also a major health care issue in renal transplantation. Among HD patients in Egypt, the prevalence of HCV infection before transplantation is reported as high as 40% (**Bloom and Lake , 2006).**

The prevalence of HCV infection among HD patients varies from country to country and from one center to another. The reported prevalence of HCV infection among dialysis patients in developed countries ranges from 3.6 to 20%; (**Jadoul et al., 2004).** it is much higher in developing countries (**jaiswal et al., 2002**). The prevalence of anti-HCV among dialysis patients was 8.4% in the United States (2000) 43.9% in Saudi Arabia (2001), 30% in India (2002), and 41% in Turkey (2001) (**Tokars et al., 2002**). In Egypt according to the Egyptian renal registry the prevalence is 52.1 % (**Afifi 2009)**.

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