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The Prevalence and Demographic Data of Patients with Hepatitis B Surface Antigen on Regular Haemodialysis in Al-Gharbia Governorate

Thesis

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Eman Refat Elsisy

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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
ESRD	End Stage Renal Disease
FDA	The US Food and Drug Administration
FT	Fibro Test
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
HLA	The human leukocyte antigen
IFN	Interferon
IU	International units
IVDA	Intravenous drug abuse
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
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

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Introduction

Introduction

Patients with end stage renal disease have been increasing in the last decade, which lead to rapid increase in haemodialysis units. Within these units patients may suffer many risks; one of the most important risks is infection. Viruses are considered from the most important causative agents of infection in haemodialysis units, one of these viruses is hepatitis B virus (HBV) ***(Furusyo et al., 2000).***

Chronic infection with hepatitis B virus (HBV) currently affects about 400 million people, particularly in developing countries, and it is estimated that worldwide over 200,000 and 300,000 chronic HBV carriers die each year from cirrhosis and hepatocellular carcinoma (HCC), respectively ***(Perz, 2006)***.

Hepatitis B virus (HBV) is an important cause of morbidity and mortality of hemodialysis (HD) patients. The prevalence rate of a positive HBsAg among HD patients is 12% ***(Telaku et al., 2009)***.

The rate of serum hepatitis B surface antigen (HBsAg) seropositivity in patients on maintenance hemodialysis in the developed world is currently low (0-10%) but outbreaks of acute HBV infection continue to occur in this setting. The prevalence of HBV infection within dialysis units in developing countries appears higher (2-20%) based on relatively few reports. Although data are limited, HBV infection in dialysis population diminishes survival; HBV viral load in HBsAg-positive dialysis patients is reportedly low and stable over time ***(Messa et al., 2008)***.

Patients on maintenance dialysis and chronic HBsAg carriers are typically anicteric and rarely develop symptoms of hepatitis. HBsAg positivity is significantly associated with hepatocellular damage in dialysis patients ***(Fabrizi et al., 2002).***

Chronic hepatitis B is important cause of liver disease in hemodialysis units. The most important route of transmission is the inapparent parenteral route; known risk factors are the high prevalence of HBV infections in hemodialysis units, increased exposure to blood products, shared haemodialysis (HD) equipment, breaching of skin and immunodeficiency, previous blood transfusions, long-term dialysis treatment, frequent changes of hemodialysis unit, and previous renal transplants. The studies investigating the natural history of viral hepatitis in hemodialysis patients are few and limited by a short follow-up, but they show an independent and negative impact on survival due to an increased risk of liver cirrhosis and hepatocellular carcinoma ***(Nicolard et al., 2010).***

The HBsAg positive patients on dialysis had serum amino-transferase activity significantly higher than that measured in HBsAg negative individuals. However, mean transaminase levels in HBsAg positive patients on dialysis were below the upper limit of normal for the reference range of healthy controls. HBsAg positive dialysis patients with active viral replication showed the greatest liver damage ***(Bisegna et al., 2002).***

The quantifiable level of HBsAg has been suggested as a predictor of treatment response in chronic hepatitis B. HBsAg levels show significant differences during the natural course of HBV-infection and

between HBV-genotypes. These findings may have important implications for understanding the natural history of HBV-infection and for using quantitative HBsAg as a diagnostic tool, i.e. as a marker for predicting HBV-reactivation ***(Jaroszewicz et al., 2010)***

The substantial variations of total serum HBsAg in the different phases of HBV infection proposes quantitative HBsAg as a new diagnostic tool for the characterization of the HBV carrier in combination with HBV-DNA. The two HBV markers providing complementary information on the status of HBV infection may be very useful in clinical practice to define the specific condition of the HBV carrier during the highly dynamic phases of chronic HBV infection. ***(Brunetto, 2010)***.

Dialysis unit staff members are at risk of infection through exposure during the dialysis procedure. Infection with HBV compromises their own health, and risks further staff-to patient transmission of HBV. Vaccination of all dialysis unit staff is recommended by guidelines, and response rates are >90% ***(Tele et al., 2001).***

Screening of dialysis patients for hepatitis B is recommended to reduce opportunities for person to person transmission of infection within the dialysis centers ***(MMWR, Recomm, Rep, 2001).***

Aim of the Work

Aim of the Work

The aim of the present work is to study retrospective the prevalence and demographic data of positive hepatitis B surface antigen (Hbs Ag) patients on regular haemodialysis in Al-Gharbia Governorate.

Review of Literature