DIALYZER REUSE & HEPATITIS C IN HAEMODIALYSIS

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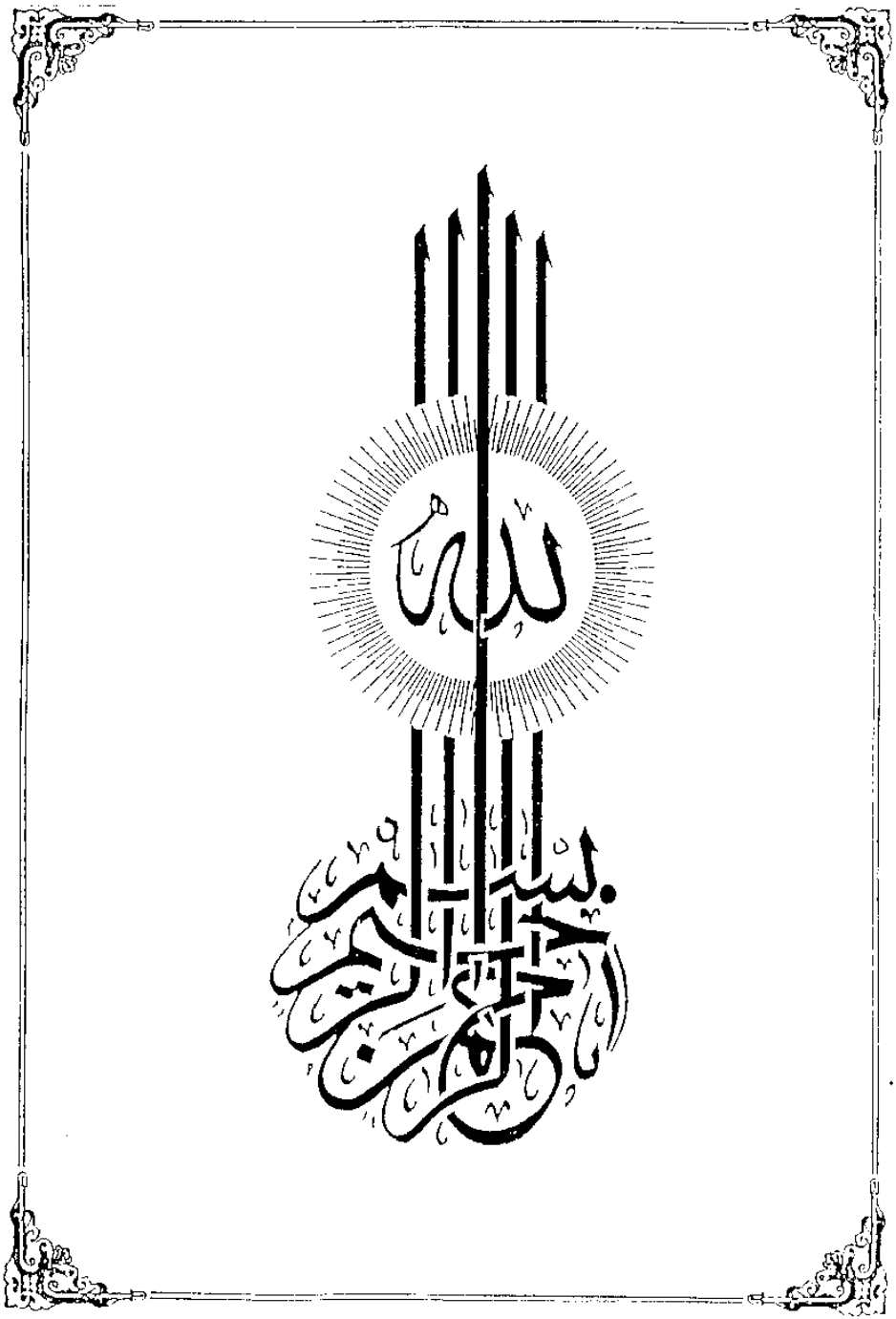

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List of Contents

Introduction and Aim of the Work

INTRODUCTION

The improvement in research work for anti-viral antibodies reveals that hepatitis C virus spread is often greater than our present knowledge and that it is highly prevalent in chronic renal failure patients treated in dialysis units ***(Giammaria et al., 1992).***

Hepatitis C virus infection is currently seen as an emerging problem in these units, not only for its rapidly increasing incidence, but also because of some doubts and uncertainty about the routes of its transmission among patients undergoing regular hemodialysis, in whom a condition of immunodeficiency is present ***(Yamaguchi et al., 1990).***

In the present few years it has become clear that hemodialysis patients are at a high risk of acquiring HCV infection as several studies have reported a prevalence of positive anti HCV tests from 8% to over 50% in those patients and a considerable portion of those (i.e., 50% of cases) with acute hepatitis C, develop histologically proven chronic hepatitis ***(Blumberg et al., 1995).***

There is still much we don't know about hepatitis C in dialysis units even though a majority of cases have been attributed to administration of blood transfusions contaminated with HCV, yet there is still a large number of cases acquiring HCV infection in dialysis units by means other than blood transfusion ***(Caramelo et al., 1994).***

Also the meaning of the presence of the anti-HCV antibodies and the preventive measures to be taken are still controversial ***(DiBenedetto et al., 1992).***

Dialyzer reuse is an increasingly common practice in the management of chronic renal failure patients maintained on regular hemodialysis ***(Caramelo et al., 1994).*** There is much contradiction between opinions about role of dialyzer reuse in the transmission of HCV infection. Some say that dialyzer reuse increases the possibility of transmitting HCV infection as they found in their study that patients in whom dialyzers were reused showed 60% positivity as compared to only 17% in those single use ***(Kumar et al., 1994).*** While many others support strongly the opinion that dialyzer reuse has nothing to do with HCV infection transmission as they found that seroconversion was not increased with dialyzer reuse ***(Jadoul et al., 1993).***

Aim of the work:

The aim of this study is to help answering the on-going question: Is dialyzer-reuse considered a risk factor in transmitting HCV infection among hemodialysis patients or not?.

Review of Literature

Hepatitis C Virus Infection

Hepatitis: Which is defined as inflammation of the liver, can be caused by several different agents such as viruses, bacteria, drugs, toxins or excessive alcohol intake or autoimmune causes ***(Abbott et al., 1990).***

Viral hepatitis: Is a condition caused by infection with one of several viruses which produce hepatic inflammation and necrosis leading to varying degrees of hepatic dysfunction. Clinically the liver may be enlarged and tender with or without jaundice and laboratory evidence of hepatocellular damage is invariably found in the form of elevated transaminases level ***(Okner, 1992).*** The severity ranges from subclinical infection or mild disease to occasional cases of fulminant disease which may be rapidly fatal. Infection may be self limited, completely resolving within 1 to 3 months without specific therapy or certain viruses may initiate a chronic process associated with cirrhosis and liver failure or cancer ***(Weisiger, 1989).***

Hepatotrophic viruses:

At least 5 different viruses are responsible for the major causes of viral hepatitis (HAV, HBV, HDV, HCV, HEV) and new HFV & HGV. All of which are endemic world wide ***(Dienstag et al., 1991).***

Hepatitis A virus:

HAV is caused by a very small single stranded enterovirus type 72 and is 27 nm RNA virus within the pico RNA viridae family, transmitted by faeco-oral route and via intimate exposure ***(Feinstone et al., 1973 and Dienstag et al., 1991).***

Hepatitis B virus:

HBV was the first recognized hepadna virus and classified as type I within hepadna viridae family. It was found to be double stranded circular DNA virus, 42 nm in diameter ***(Francis, 1983)***. HBV consists of outer viral envelop protein (containing the HB surface antigen) and viral nucleocapsid (the nucleus contains HB core antigen, the capsid contains HB envelop "the precore" antigen). The entire gene of HBV has been cloned ***(Robinson et al., 1984).***

HBV is parentrally and sexually transmitted and through close personal contact. Also perinatal transmission of HBV infection can occur in 60-80% of babies born to mothers infected with HBV who become carriers can spread the virus for the rest of their lives ***(Abbott et al., 1990)*** and ***(Sherlock et al., 1993)***

Hepatitis D virus:

HDV is found only in patients who are infected with HBV and is caused by a defective small (36 nm), single stranded circular RNA virus. This defective delta agent requires the helper function of HBV for its survival, replication and expression. Infection with delta virus occurs either as a coinfection with HBV (both inoculated simultaneously at the same time) or as a superinfection of a HBV established case or HBV carrier and might lead to fulminant hepatitis or chronic progressive hepatitis ***(Rizzetto et al., 1977 and Abbott, 1990).***

Non A Non B hepatitis:

NANBH includes at least 3 different agents or disease types uptill now. The first one is similar to HAV, causes epidemic form of disease or enterically transmitted acute NANBH and is a small single stranded (32-34 nm) RNA virus and is termed HEV with high mortality rate in pregnant women ***(Alter, 1989 and Sherlock et al., 1993).*** The second