

PREVALENCE OF HEPATITIS C VIRUS ANTIBODIES AMONG HEMODIALYSIS PATIENTS

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SUMMARY : The frequency of hepatitis C virus (HCV) infection was investigated in 53 patients on chronic hemodialysis program by means of enzyme immunoassay for serum anti-HCV antibodies. Anti-HCV antibody was positive in 13 patients (24.5%) and anti-hepatitis B core (anti-HBc) was positive in 19 patients (36%) of these series. Intravenous drug abuse (IVDA) and/or anti-HIV positivity were absent in our patients. Of these anti-HCV (+) patients 11 had been given transfusion earlier while of the 41 patients which were anti-HCV (-) 31 had a history of former transfusion. There was therefore no statistically significant correlation between transfusion and HCV positivity in our patients. There was no history of IVDA and/or homosexuality. HCV transmission must have had therefore occurred by one of the other routes of contamination.

Key Words : Hepatitis C virus, hemodialysis, blood transfusion.

INTRODUCTION

Non-A, non-B hepatitis (NANBH) is one of the most severe complications of blood transfusion. The incidence of post transfusion hepatitis was reported 7-12% before 1980 (3). HCV has been demonstrated as the most common cause of NANBH (2).

Although the incidence of viral hepatitis in hemodialysis units has declined over the past 20 years, some hemodialysis patients have transient and/or prolonged elevations of aminotransferase levels (1). To estimate incidence of anti-HCV and to determine which factors predispose to have antibody to HCV we studied 53 serum samples from patients going on hemodialysis.

MATERIALS AND METHODS

Fifty-three hemodialysis patients, 37 males 16 females were evaluated for anti-HCV antibody. Hepatitis B surface antigen and other hepatitis markers were tested using commercially available ELISA kits. Two thousand and eleven blood donors were used as control for anti-HCV antibody assay.

Anti-HCV antibody was detected by an enzyme immunoassay (Ortho Diagnostic Systems, USA). Serum samples found to exceed the serum cut off value on the initial assay were repeated in duplicate; if at least two results were over the cut off value, the sample was considered anti-HCV positive.

Elevated levels for alanine aminotransferase (ALT) values was defined more than 40 U/L and for aspartate aminotransferase (AST) values more than 30 U/L

Chi square analysis with a Yates correction was used for statistical analysis.

RESULTS

Anti-HCV positivity was found in 13 patients (24.5%). Four patients were HBsAg (+) and one of them had also anti-HCV antibody. Putative liver disease of patients were not encountered. There was no correlation between number of blood transfusion and anti-HCV positivity ($p=0.8761$ corrected, $p=0.5826$ observed). Additionally there were not any correlations between HCV positivity, sex and high level aminotransferase, HBsAg positivity and anti-HBc positivity (Table 1).

DISCUSSION

Despite the fact that considerable progress has been attained during the last years viral hepatitis still remains as an important problem for patients on hemodialysis program (7). Available data suggests that HCV is a major cause of NANBH (5). In our hemodialysis unit the incidence of anti-HBc and anti-HCV was found 46% and 24.5% respectively. These levels are quite high compared to those reported in the literature (6).

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The route of contamination was considered in detail which led to elimination of those except transfusion. The route of transmission of the virus is supposedly different in our series from the other studies reported in the literature (4). Because we could not find any correlation between the blood transfusion and anti-HCV positivity in our series.

Table 1: Characteristics of the 53 hemodialysis patients tested for Anti-HCV Serology.

	Anti-HCV (+) n=13	Anti-HCV (-) n=40	Difference
Age	37.3-12.8	38.1-12.6	NS
Female/Male	7/6	8/32	NS
Blood transfusion			
Yes	11	31	NS
No	2	9	NS
AST/ALT level high	5	11	NS
Normal	8	29	NS
HBsAg (+)	1	3	NS
Other hepatitis marker	(9)	(33)	
Anti-HBs	5	10	
Anti-HBc	5	14	NS
Anti-HBe	3	5	
HBeAg	1	3	

* NS = (p>0.05).

Meanwhile the incidence of anti-HCV was found in our blood bank donors in this region as 0.79% (16/2011).

Other studies suggested that IVDA may be an important risk factor for HCV infection. It is important to note that our patients did not have IVDA and/or HIV infection. In our series transaminase levels were not elevated neither the incidence of hepatitis B infection was elevated. It is to be noted also that sexual transmission rate of HCV is also low. According to the reports in the literature homosexuality is the cause of high risk for transmission of HIV and HBV infection but not HCV infection. The presence of HCV infection is not correlated to the presence of HBV and HIV (6).

The incidence of HCV infection was very high in our hemodialysis unit compared to the reports of other centers. We believe than the route of transmission of HCV infection must be different in our locality from the known risk factors such as blood transfusion, IVDA and homosexuality.

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