HEPATITIS C AS A CAUSE OF CHRONIC LIVER DISEASE IN NORTHERN PAKISTAN

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ABSTRACT

The antibodies to hepatitis C virus (HCV) were tested in 45 histologically confirmed cases of chronic liver disease. Twelve cases had chronic hepatitis, 24 cirrhosis and 9 hepatocellular carcinoma. Anti-HCV was detected in 6 patients. Two (1 6.67%) were suffering from chronic hepatitis, 3 (12.5%) had cirrhosis and one (11.11%) hepatocellular carcinoma. None of the anti-HCV positive cases had past history of blood transfusion. The patients of chronic liver disease in this study had a much higher prevalence of HBV infection which indicates that in northern Pakistan hepatitis C virus infection is not a common cause of chronic liver disease whereas HBV infection plays an aetiological role in a much larger number of these cases. (JPMA 42: 67, 1992).

INTRODUCTION

The cloning of the virus of post-transfusion NAMB hepatitis (hepatitis C) was a breakthrough[1] which led to the development of serological assay for diagnosis of hepatitis C[2]. Hepatitis C accounts for 70-95% cases of post-transfusion hepatitis in the western countries[1], however a large number of community acquired hepatitis C cases have no history of blood transfusion[3,4]. A substantial number of cases of hepatitis C develop chronic hepatitis (41%), cirrhosis (20%) and hepatocellular carcinoma[3]. The prevalence of anti-HCV in chronic liver disease varies from 20-75%[5-7]. This study was conducted to assess the prevalence of anti-HCV in histologically proven cases of chronic liver disease and to compare it with the exposure to hepatitis B virus (HBV) infection in cases of chronic liver disease in northern areas of Pakistan.

PATIENTS AND METHODS

Forty-five cases of chronic liver disease were included in this study. Their relevant clinical details were recorded on a proforma. Ten ml blood was collected in vacutainers from all cases and sera separated by centrifugation were stored at -70°C until analysed for HBsAg, anti-HBc (IgM/IgG) and anti-HCV. Needle biopsies of liver done in all cases were fixed in 10% formal saline and embedded in paraffin. Serial 3-4u sections were cut and stained with H&E, reticulin, PAS and Von Gieson in the department of pathology, Army Medical College which receives specimens from most of the hospitals in Rawalpindi/Islamabad area. Diagnosis of chronic hepatitis, cirrhosis and hepatocellular carcinoma was histologically confirmed in all cases. For detection of HCV antibodies in sera, the Abbott HCV EIA kits were used which employ an in vitro quantitative enzyme immunoassay for detection of antibody to proteins expressed by C100-3 clone region of the HCV genome. Briefly, the serum was diluted in a specimen diluent and incubated with a polystyrene bead coated with recombinant HCV C100-3 antigen. If the antibody was present in the serum sample, immunoglobulins in the patient's sample were fixed to the coated bead. After washing, the immunoglobulins bound to the solid phase were detected by incubating the bead-antigen-antibodycomplexwith a solution containing horseradish peroxidase labelled goat antibodies directed against human immunoglobulins. The 0-phenylene diamine (OPD)

solution containing hydrogen peroxide was used as colouring agent. The serum specimen with absorbance values greater than or equal to the cut off value were considered initially reactive by Abbott HCV EIA and were repeated in duplicate. For detection of HBsAg, anti-HBc (IgM and IgG), the Abbott laboratory kits namely Auszyme, Corzyme and Corzyme-M were used.

RESULTS AND OBSERVATIONS

Forty-five cases of histologically confirmed chronic liver disease were studied. They included 12 cases of chronic hepatitis; 24 cases of cirrhosis and 9 cases of hepatocellular carcinoma. Six cases were anti-HCV positive, 2 (16.67%) had chronic hepatitis, 3 (12.5%) had cirrhosis and one (11.11%) had hepatocellular carcinoma (Table I).

TABLE I. Prevalence of hepatitis C in patients of chronic liver diseases in comparison with HBV infection.

Diseases	Sera Analysed	Hepatitis Serology		
		Anti-HCV	HBsAg	Anti-HBc
Chronic hepatitis	12	2 (16.67%)	3 (25%)	7 (58.33%)
Cirrhosis	24	3 (12.50%)	5 (20.83%)	11 (45.82%)
Hepatocellular Carcinoma	9	1 (11.11%)	7 (77.78%)	8 (88.89%)
Total	45 (100%)	6 (13.3%)	15 (33.3%)	26 (57.8%)

One cirrhotic was HBsAg carrier and another one with hepatocellular carcinoma had an evidence of past HBV infection (anti-HBc positive) (Table II).

TABLE II. Detailed serology of patients positive for anti-HCV.

Patient No.	Diagnosis	Seromarkers of AVH			
		HBsAg	anti-HBc	IgM anti-HBc	anti-HCV
1.	Chronic hepatitis	-	-	-	+
2.	Chronic hepatitis	-	-	-	+
3.	Cirrhosis	-	-	-	+
4.	Cirrhosis	+	+	-	+
5.	Cirrhosis	-	-	-	+
6.	H.C.C	-	+	-	+

AVH = Acute viral hepatitis.
HCC = Hepatocellular carcinoma

A significant observation was that none of these cases had any history of blood transfusion in the past. A much higher rate of previous exposure to HBV infection (anti-HBc) was observed in cases of chronic hepatitis (58.33%), cirrhosis (45.82%) and hepatocellular carcinoma (88.89%) (Table I). However, none of these cases revealed any evidence of hepatitis B infection in the recent past (IgM anti-HBc).

DISCUSSION

The prevalence of HBc infection varies in various population groups in different countries[5-8]. The present study revealed a low prevalence of antibody to hepatitis C in cases of chronic liver disease (13.33%) in the northern parts of Pakistan and none of these cases had any history of blood transfusion in the past. This prevalence of HCV infection in northern parts of our country is closer to findings of a study carried out in Taiwan[5], in which a prevalence of hepatitis C infection was found in 21.3% cases of chronic active hepatitis, 33.3% patients of cirrhosis and 33.7% cases of hepatocellular carcinoma, with an overall prevalence of 29% HCV infection. From Saudi Arabia, Fakunle and co-workers[8] reported a nearly similar prevalence of HCV infection in patients of cirrhosis (28.9%) and hepatocellular carcinoma (25%). This study and reports from Taiwan[5] and Saudi Arabia[8] indicate that HBV infection, as evidenced by HBsAg carrier rate, was much higher as compared to HCV infection. A recent study from South Africa has revealed HCV positivity in 110 (28.05%) out of 380 cases of hepatocellular carcinoma but a much higher rate of HBV infection[6]. It appears that HCV infection plays an important aetiological role in a larger proportion of cases of chronic liver disease in the western countries as compared with oriental population. Bruix and associates[7] reported that 56% cases of cirrhosis and 75% patients of hepatocellular carcinoma had antibodies to HO/in Spanish population. Another study from Spain revealed that 62% cases of chronic hepatitis and cirrhosis which were positive for anti-HCV had a history of blood transfusion in the past[9]. Italian workers reported anti-HCV positivity rate of 74% in cases of cirrhosis and 65% in hepatocellular carcinoma[10]. The patients of chronic liver disease in northern Pakistan have much less prevalence of antibody to hepatitis C virus as compared to antibody to hepatitis B virus. A pertinent finding is that none of our cases of chronic liver disease due to hepatitis C had past history of blood transfusion and may therefore, have community acquired disease. Hepatitis C virus infection is not amajor cause of chronic liver disease in northern Pakistan.

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