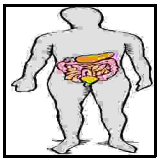

ORIGINAL PROF-597

HEPATITIS VIRAL STATUS IN SINDH

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ABSTRACT

OBJECTIVE: To evaluate the prevalence of hepatitis viruses, presented with acute hepatitis (AH) at Liaquat University Hospital Hyderabad / Jamshoro. **DESIGN:** Hospital based descriptive of 100 individuals. **PLACE &DURATION:** This study was conducted in the medical wards of Liaquat University of Medical and Health Sciences Hospital from January, 2000 to July, 2001. **MATERIAL &METHODS:** A total sera of 100 patients admitted with acute hepatitis were investigated to determine the cause. Serum samples were tested for anti-HAV, HBsAg, anti-HBs and anti-HBc, anti-HCV, anti-HEV and HGV RNA. RESULTS: Results showed that eight (8%) individuals were screened as hepatitis A and four (4%) had HAV/HBV co-infection. Thirty nine (39%) had hepatitis B and hepatitis D super infection amongst HBsAg positive was found in two (2%) of individuals. Antibody to HCV was detected in nine (9%) individuals, three with HBV and two with HEV infection, while rest of the four were exclusively infected with HCV. Fourteen (14%) individuals probably with hepatitis E, five of whom had evidence of antecedent HBV infection. Five (5%) individuals were screened as HGV, two of these were found to have co-infection with HCV, another two of them were found to have mixed infection with hepatitis B and C viruses. The viral hepatitis markers were all negative in nineteen (19%) of the total individuals. CONCLUSION: Our data demonstrate a strong background of HBV infections rising concern about its chronic sequelae in this part of country. Because HBV infection is highly endemic in Sindh, we propose that the community based mass immunization must be conducted as soon as possible particularly in this area of Sindh.

INTRODUCTION

Viral hepatitis is the most common cause of acute and chronic hepatitis and is caused by one of the six distinct viruses[1,2,3]. It constitutes a major public health problem[3]. It is a worldwide problem particularly in the developing countries[4]. Oda-T: 1999[5] reported that in Asia, where the incidence rate has been the highest in the world. In Pakistan viral hepatitis is endemic and is punctuated by periodic out breaks[4]. Almost all known hepatitis viruses, A to G are prevalent here. However, the prevalence varies from area to area and population to population due to variability in ethnicity and socio-economic conditions[6]. Hepatitis A and E viruses, transmitted by infected blood, blood products and body fluids[2,7]. Apart from the wide spread morbidity caused by acute phase of infection there is a predilection to chronicity (chronic carrier state and chronic hepatitis) by HBV, HCV, HDV and HGV in a certain proportion of patients[2,4,7]. People with chronic viral hepatitis can develop chronic liver

disease, cirrhosis and hepatocellular carcinoma[2,7]. Since, hepatitis A to G viral infection have been prevalent with endemicity throughout the world including Pakistan[8]. This study was conducted to screen the hepatitis viral status in individuals admitted with acute hepatitis at Liaquat University Hospital Jamshoro/Hyderabad, Sindh, Pakistan.

MATERIAL & METHODS

100 selected hospitalized patients with clinical diagnosis of acute hepatitis were investigated. The diagnosis was based on history, clinical findings and raised alanine aminotransferase (ALT) levels of more than 2.5 times the maximum limit. Relevant information regarding their socio-economic background, history of drug intake, injections, transfusion, vaccination and contact with a case of hepatitis was recorded. A complete blood picture, urinalysis, Liver Function Tests and Prothromin Time was performed. Samples were collected in vacationers for sero-makers, sera separated by centrifugation and stored at -70°C until analyzed. An ELISA technique was used to determine the presence of HAV (Murex Kits for anti-HAV-IgG). Sero determination of HbsAg and HCV antibody was performed by reverse-passive haemagglutination (SERODIA-HBs, Fujire bia-Inc, Tokyo, Japan) and second - generation passive heamagglutination (Abbot Laboratories, Chicago, IL) tests respectively. Sero-determination of HDV and HEV was performed by enzyme immuno assay that detected anti-HDV and anti-HEV. Determination of HGV-RNA was performed by polymerase chain reaction (PCR) and ELISA was used to determine the serum anti-HGV.

RESULTS

There were 70 males 30 females. The mean age of adult patients was 32 years. The age distribution showed 20 patients (13 males & 7 females) between 0-20 years, 50 (38 males & 12 females) between 21-40 years and 30 patients (19 males and 11 females) of 41 years or above. Sixty patients belonged to rural areas and forty from urban setting. The number of patients was almost equally distributed between lower and middle class i.e. 46 and 44 subjects respectively with only 10 patients from the upper class. History of contact with a case of hepatitis during the preceding 6 months was present in 20(20%) and of injections during the similar period in 29(29%) patients. There was a past history of Jaundice in 32 and blood transfusion in 9 patients. There is no history of vaccinations against hepatitis B. The serum bilirubin ranged between 2.5 - 21 mg/dl.

Table -I.

HAV-Ab	Hbs Ag/Anti-HBs/anti-HBc	HCV-Ab	HDV-Ab	HEV-Ab	HGV-RNA
08 (8%)	39 (39%)	09 (9%)	02 (2%)	14 (14%)	05 (5%)

Table -II.

HAV-Ab/HBs Ag	HCV-Ab/HBsAg	HCV-Ab/HEV-Ab	HDV-Ab/HBsAg	HEV-Ab/HBsAg	HGV-RNA/HCV-Ab	HGV-RNA/HCV-Ab/HBsAg
04 (4%)	03 (3%)	02 (2%)	02 (2%)	05 (5%)	02 (2%)	02 (2%)

In 48 patients, serum bilirubin was more than 10 mg/dl and in 52 patients less than 10 mg/dl. The APT levels ranged between 95-2500 1 U/L with levels of more than 10 times of upper limit in 58 patients. The prevalence of hepatitis A to G virus markers among 100 individuals of acute hepatitis (AH) are shown in Table-1. Finding based on overall prevalence of mixed / co-infection hepatitis virus

markers among the individuals are depicted in Table-II.

DISCUSSION

A number of studies are being conducted to determine the prevalence of hepatitis viruses. Chien[9] reported seroprevalence of hepatitis was HbsAg 0% anti-HBc 24.1%, anti-HBs 19.5%, anti-HAV 79.9%, anti-HCV 4.5% and HGV-RNA 10.6%. Butter T reported that overall detection of each of the three screening markers was 35% for HBV, 39% for HCV and 10% for HGV[10]. Chu- CM reported 12 cases (3.6%) of acute hepatitis A, 17 cases (5.1%) of acute hepatitis B, 128 cases (38.3%) of acute NANB hepatitis and 177 cases (53%) of acute hepatitis HbsAg carriers[11]. A study from Rawalpindi hospital showed NANB as the predominant type 77% whereas, the next major type was HBV 23%[12,13]. Report from Karachi showed NANB is 53%, HBVin 45% and HAV is 2% of the adult patients[14]. Saat Z reported that HAV 26.1%, 1.4% anti-bodies were found to be positive for Hbc-IgM indicating recent HBV infection, 5.4% for total HCV-Ab, 0.9% for HDV-Ab and 0.4% for anti-HEV-IgM[15]. Osztrogonacy-H reported that HCV infection in 27 patients[16]. Tangkijivanich P reported that there was a clear two-fold higher prevalence of HBV 49% over HCV 27% infection and a four fold higher frequency compared to HGV 13% infection[17]. Kacabas E reported that HbsAg positively was found in 23 (15.5%) patients, HBV DNA positively in 12 (8.1%), HCV RNA positively in 9 (6.7%) and GDV-C RNA positively in 4 (2.7%)[18]. Our study showed that 8 (8%) individuals had acute HAV infection.

Malik IA reported that in Pakistan nearly 60% of these acute infection are due to HAV[13]. Almost 96% of children above 5 years and 100% adults get exposed to HAV[19,20,21]. They have anti-HAV IgG in their blood and are immune to symptomatic HAV infection. One study has suggested acute hepatitis A infection in 4% of pregnant woman[22]. In our study there were 4 (4%) other patients with HAV was associated with HBV co-infection. Chitkara YK reported that acute hepatitis was diagnosed in 113 (9.2%) patients, two patients having both HAV and HBV[23]. Similarly Ogilvie reported that 90% had been exposed to HAV, 8% were positive for exposure to HBV[24].

In this study acute HBV was diagnosed in 39 (39%) individuals negative test for HbsAg in 8 patients supports the observation that the presence of IgM anti-HBc provides critical diagnostic information for the acute phase of HBV infection. Malik reported that 10% of acute viral hepatitis in children and 30% in adult has been attributed to hepatitis B viral infection. Hepatitis B infection has been detected in 17% of acute viral hepatitis cases among pregnant woman[22]. Zuberi reported that 10% healthy adult population in the country has been found carrier to HBV and 34% showed past exposure to the disease[25]. In Multan 7.8% pregnant women were found carrier of the disease and 33.2% showed past exposure[26]. 60% chronic hepatitis patients and 67% hepatocellular carcinoma cases have been found infected with HBV[27].

Anti-HCV was positive in 9 (9%) individuals in our study 2 with acute and one with past HBV exposure and 2 with acute HEV infection while rest of the four were exclusively infected with HCV. Qamaruddin reported that HCV infection is prevalent all over the country but appears to be more frequent in urban areas. In Hafizabad, Punjab , 6% of general population have been found carriers of hepatitis C[28]. Akram DS reported that prevalence of HCV in children upto the age of 14 years has been found in 0.5% of cases[29]. Hepatitis C infection was found in 17% - 43% cases of chronic hepatitis and 33% cases of hepatocellular carcinomas[27,30,13]. Tangiguchi M reported 13 patients with dual infection associated with HbsAg and antibody to HCV positivity[38].

In this study the prevalence of delta super infection was low 2 (2%) amongst HbsAg positive individuals. A similar relatively low prevalence was reported from Rawalpindi 3.1% and Lahore 16%[32,33]. In Multan 27.3% patients suffering from acute viral hepatitis B infection were found suffering from HDV infection[34]. In 1.4% cases of acute viral hepatitis cases 24 and 44% cases of chronic hepatitis have been infected with HDV infection[27]. A high prevalence for HDV infection has been found in Northern Sindh, Southern Punjab and adjoining areas of

Balochistan[25].

In our study HEV was another group comprising of 14 (14%) individuals, 5 of whom had evidence of antecedent HBV infection. These cases were of hepatitis E which is common in developing countries[35]. In countries like USA, however, HCV account for a vast majority of community acquired NANB hepatitis[36]. Malik IA reported 70% acute viral hepatitis in adults and 30% in children are being attributed to HEV in the country. A study of pregnant woman with acute viral hepatitis infection has suggested that 40% of infection was due to HEV[22]. In clinical suspected non-A, non-B, non-C hepatitis patients, 71% appeared reactive to anti-HEV IgG antibodies, suggesting very high exposure rate of the disease in this population[37].

In our study 5 (5%) individuals were screened as hepatitis G virus RNA positive. Interestingly two of these were found to have co-infection with hepatitis C virus based on HCV Ab, another two of them were found to have mixed infection with hepatitis B and hepatitis C viruses. Hyams reported 39 patients with chronic liver disease were tested. HGV RNA was found in the sera of only two patients[39]. Khlopva reported 204 patients with acute viral hepatitis revealed HGV-RNA in 65 (32%) cases[40]. The prevalence of hepatitis G virus infection as reported, was 1.6% among volunteer blood[41]. With reference to Centres for Disease Control and Prevention (CDC), American, Liver Foundation[42], 779 volunteer blood donors with normal liver enzymes were tested for HGV-RNA positively, 1.7% were found to be infected with this new virus. Prevalence of HGV infection in Pakistan is in conformity with the reported studies about the volunteer blood donor of many countries. Rafiq reported that seven (1.5%) individuals were screened as hepatitis G virus. Probably hepatitis G virus has predilection with hepatitis C virus[8]. Hyams-Ke reported HGV-RNA positive in two patients, both of whom were also positive for anti-HCV. HCV[39]. Tanaka and Colleagues have reported (11%) co-infection of HGV with HCV. HCV co-infection, 6(10%) of 63 diagnosed cases of HCV infection has been reported by Harvey and his colleagues[44]. A similar surveillance study in U.S has detected 23(20%) HGV positive cases of 116 patients with hepatitis C viral infection[45]. The prevalence of HGV co-infection with HCV ranges widely in different studies depending upon the working facilities and co-ordination of the good team. In our study we found mixed infection of HGV with hepatitis B and C was noted in 2(2%) which is consistent with the report, where they have reported 1(0.3%) HbsAg, HCV-Ab and HGV-RNA positively in 298 hospitalized patients with acute hepatitis in ChoRay Hospital Ho Chi Minh. Chen-X: reported that patients with hepatitis C were more subjected to be overlapped with hepatitis G virus then the patients with hepatitis B, more over, HCV or HBV infection super-infected with HGV is associated with exacerbation of patients condition and the formation of chronic infection[46].

In our study viral hepatitis markers were all negative in 19(19%) of the total individuals. Bendre reported that etiological diagnosis of acute hepatitis was not possible in 22% of patients[47].

CONCLUSION

This study shows HBV as the major causative agent for acute viral hepatitis. However, there was evidence of past HBV infection in number of patients. Apart from HBV, HCV and HGV can pose a threat as it can last for indefinite period even after the resolution of hepatitis and has a high tendency to chronicity. In the light of the findings of broad-based hepatitis viral markers, we feel inclined to recommend that surveillance and screening programme duly supported by the public health sector be accelerated in general population particularly in this part of Sindh.

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