HEPATITIS C SEROPOSITIVITY AMONG CHRONIC LIVER DISEASE PATIENTS IN HAZARA, PAKISTAN

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Background: Hepatitis C is rapidly emerging as a major health problem in developing countries including Pakistan. The present study was conducted to document the frequency of Hepatitis C seropositive individuals reporting for hepatitis testing at a referral laboratory. **Methods:** Serum samples were collected from 614 people (436 males and 178 females) referred for chronic liver disease from all parts of Hazara division during the period July 2000 to July 2002. Hepatitis tests were performed by DOT immuno-chromatographic method for anti HCV antibodies. **Results:** A total of 251 (40.8%) sera tested positive for anti HCV antibodies, including 184 males (73.3%) and 67 females (26.7%). Of 436 males, 184 (42.2%) tested positive, while among females, 67/178 (37.6%) tested positive; this difference is not statistically significant. However the male/female ratio referred for testing was 2.4:1. **Conclusion:** There is a high frequency of HCV seropositive individuals of both sexes among patients referred for chronic liver disease. The frequencies obtained for Hazara division compare well with figures from other parts of Pakistan as well as developing countries. The male/female ratio could simply be a reflection of more males coming for treatment and testing in our setting.

Key Words: Hepatitis C, Hepatitis C Antibodies, Hepatitis C Antigen.

INTRODUCTION

Chronic liver diseases (CLD), i.e., chronic hepatitis and cirrhosis of liver due to Hepatitis C Virus is becoming a common problem worldwide[1]. It has now also become a major health hazard in Pakistan[2].

Hepatitis C virus has a higher propensity for causing liver disease in contrast to Hepatitis B virus[3]. It causes acute and chronic hepatitis, cirrhosis of liver and chronic carrier state[4]. It is also linked to hepatocellular carcinoma[5].

Hepatitis C virus was discovered in 1988. This virus has an RNA genome, which is single stranded with a positive polarity, having 10,000 nucleotides. It possesses 30 subtypes. The transmission is parenteral, i.e., commonest by blood transfusion & I/V drug abuse, vertical transmission from mother to child, needle prick, ear piercing, tattooing, barbers, razors, etc.[6]

Hepatitis C has been reported to be the cause of 70-95 % of post transfusion hepatitis in western countries[7]. Prevalence rates of 26%, 46% and 75.5% in cases of chronic liver diseases have been reported from India, Ethiopia and Egypt respectively[8,9,10]. In Pakistan one of the earliest studies shows anti HCV prevalence of 13.5% in chronic liver disease[11]. Studies conducted recently in Karachi show 43.06% seropositivity in chronic liver diseases and cirrhosis combined, with 45.7% cases of chronic liver disease and 37.7% cases in cirrhosis[12]. In another recent study 44% patients with chronic liver disease had HCV antibodies[13]. In hepatocellular carcinoma anti HCV antibodies were detected in 33% of cases[14]. Therefore it is evident that this virus is rapidly spreading, and it is now becoming a major cause of CLD in Pakistan.

The purpose of this study was to assess the HCV seropositivity in patients presenting with symptoms of chronic liver disease in Hazara Division and to find the male to female ratio of the infection.

MATERIAL AND METHODS

A total of 614 cases of CLD referred to a private clinical Laboratory in Abbottabad for the detection of anti HCV antibodies during the period July 2000 to July 2002 were included in this study.

Five ml of blood was collected from these cases and the sera separated by centrifugation and were tested for anti HCV antibodies within one hour. The anti HCV antibodies were tested by the Dot immuno chromatographic method. The Nobis anti HCV commercial kit was used. Appropriate controls were included to maintain quality control. The results were analyzed by chi-square (χ^2) test analysis.

RESULTS

The age of patients varied from 9 months to 60 years and belonged to a vast area of Hazara Division from Haripur to Kohistan. A total of 436 males and 178 females were tested for anti HCV antibodies. Out of 614 patients tested, 251 (40.8%) tested positive for Anti HCV while 363 (59.2%) were negative (Table-1).

Table-1: HCV seropositivity in Hazara Division (n=251)

Number		HCV Positive	HCV Negative
Total	(614)	251 (40.88%)	363 (59.12%)
Males	(436)	184 (42.20%)	252 (57.80%)
Females	(178)	67 (37.64%)	111 (62.36%)

The total number of male patients tested was 436 (71.01%) and total number of female patients tested was 178 (28.99%), as shown in Table-1. Of 436 males, 184 (42.20%) tested positive for anti HCV antibodies while of 178 females, 67 (37.64%) tested positive (Table-1). This difference is not statistically significant (p=0.1). The number of male patients visiting the laboratory was 2.45 times more than the female patients.

Out of the 251 positive cases, there were 184 (73.31%) males and 67 (26.69%) females (Table-2).

Table 2: Distribution of seropositive subjects by gender (n=251)

Gender	Number	Percentage
Males	184	73.31
Females	67	26.69

The number of male patients testing seropositive was 2.75 times more than the female patients testing seropositive for anti HCV antibodies (Table-2). This is statically significant (p<0.001)

DISCUSSION

A similar method to the one used in this study was used in a previous study and was found to have the same sensitivity and specificity as the 3rd generation Elisa test[15].

In this study 614 patients presenting with chronic liver disease were tested for anti HCV antibodies and 40.8% patients were seropositive. This finding is similar to a previous study carried out by Asghar and Hafiz[16]. The prevalence of anti HCV antibodies has been reported between 20–75 % in different studies[17,18]. In Italy HCV was the cause of liver cirrhosis in 40.1% of the case[19]. In another study carried out in Chicago in 1990 anti HCV antibodies reactivity was 58.9% in CLD[20].

In Pakistan, studies have been carried out with varying results. In Lahore in biopsy proven hepatitis, 77.7% were seropositive for HCV antibodies and in females twice as common as males, contrary to figures obtained in most studies[21]. In Rawalpindi, HCV seropositivity was detected in 60% of chronic active hepatitis cases 16.6% cirrhosis and only 6.6% in hepatocellular carcinoma[22].

Therefore, in Hazara Division the seropositivity for anti HCV antibodies in chronic liver disease is similar to other areas of Pakistan.

The male population testing positive for anti HCV antibodies is 42.20% and female population is 37.64% in this study. This difference is not statistically significant. These findings are similar to those mentioned by Zuberi[18]. In most of the previous studies the male were found HCV seropositive with increased frequency 2:1 male to female ratio.

This difference may be due to the fact that the male population may be seeking health care facilities with increased frequency in Pakistan. In our study the number of males visiting the laboratory for HCV testing was 2.45 times than the female population, while the male/female ratio for seropositivity is 2.75:1 This figure is similar to the rate of increased HCV seropositivity in males mentioned in the previous studies.

Since no vaccine is yet available against HCV and the treatment is very expensive and prolonged, great stress must be laid on proper preventive measures, such as screening of blood, proper sterilization of instruments and proper disposal of contaminated waste materials.

Due to lack of education and awareness of this disease, HCV infection is rapidly spreading and becoming a major health problem due to its immediate and long-term effects. Proper measures must be adopted to educate the community and for application of preventive measures to prevent its spread in the community. Therefore we conclude that HCV is a major health hazard in both the sexes in the Hazara Division and the following recommendations must be carried out for its prevention.

RECOMMENDATIONS

- HCV infection is widespread in Pakistan; to prevent its spread, people must be educated about this infection.
- Proper screening of blood and blood products must be carried out before transfusion.
- Proper sterilization of surgical and dental instruments must be carried out.
- Proper disposal of infected materials and disposable syringes must be carried out to prevent the spread of HCV viral infection in the community.

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