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Original Article

To Study Seroprevalence and Various Risk Factors associated with HBV in Hepatic Disorders

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ABSTRACT

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Background: HBV is the major factor in the development of hepatic disorders.

Aim: To study seroprevalence of HBsAg in liver disorders and risk factors associated with liver disorders and HBV.

Material and Methods: The study was conducted on 100 patients of hepatic disorders admitted in Medicine wards of Rajindra Hospital, Patiala. Detailed history was taken with special emphasis on risk factors like blood transfusion, alcohol, drug addiction, needle-injury, multiple sexual contacts and perinatal transmission. Then blood was tested for HBsAg.

Results: HBsAg positivity is highest in age-group of 21-40 years with a male preponderance. Maximum number of HBsAg positive cases had alcohol as a risk factor. Seroprevalence of Hep B in patients with drug addiction(23.3%), blood transfusion (16%) and HCC (25%). Overall 26% seropositivity of HBsAg in hepatic disorders.

Conclusions: Great stress must be laid on proper preventive measures such as screening of blood, safe sexual practices, proper sterilization of instruments, proper disposal of contaminated material, and immunization of people at risk particularly health care workers.

Key words: Hepatitis B virus, Prevalence, HCC (Hepatocellular carcinoma)

1. INTRODUCTION

HBV is a global public health problem. Nearly two billion people in the world have been acutely infected by HBV and there are nearly 350 million people chronically infected with HBV. It is the most common cause of chronic liver disease, including cirrhosis of liver and hepatocellular carcinoma worldwide.¹

HBV is a DNA virus belonging to family *hepadnaviridae*. It is a double shelled particle of about 42 nm in diameter. The most common modes of transmission are by transfusion by parenteral route i.e. by transfusion of blood or blood products, injection with unsterilized syringes, needles and

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instruments including those for ear piercing, tattooing, and acupunctures. HBV can also be transmitted by sexual route and in newborn by vertical transmission during parturition [8]. Incubation period is 30-150 days. Clinical expression of HBV infection is extremely variable ranging from asymptomatic, in apparent infection to anicteric hepatitis to fulminant hepatitis to death².

HBsAg is the serologic hallmark of HBV infection. It is detected in the serum by radioimmunoassay or enzyme immunoassays. It appears in serum 1-10 weeks after an acute exposure to HBV and approximately 2-6 weeks before the onset of symptoms or elevation of aminotransferases. Persistence of HBsAg for more than 6 months implies chronic infection. In India the carrier rate of HBsAg in hospital staff has been found to be higher (10.87%) than in voluntary blood donors (6%) and in general population (5%). In India there are only 806 licensed blood banks and the incidence of post transfusion hepatitis in multiple transfused patients is as high as 18 to 30%³.

2. MATERIAL AND METHODS

The study was done on 100 patients of hepatic disorders who were admitted in Medicine wards of Rajindra Hospital, Patiala from June 2010 to July 2012. The study was approved by Ethics committee of Rajindra Hospital, Patiala. These patients had deranged liver function tests and showed evidence of liver parenchymal disease radiologically (either or both on USG & CT) including four cytological proven Hepatocellular carcinoma cases with markedly raised AFP levels. These patients were screened for the presence of HBsAgin the Microbiology Department. The study group was represented by patients of various age groups, males and females and of different social strata.

After taking informed consents from patients, detailed history was taken with special emphasis on risk factors like blood transfusion, alcohol, drug addiction, needle-injury, multiple sexual contacts and perinatal transmission.

5 ml of blood was collected in a clean vial and serum was separated and tested for HBsAg. Technique used-Hepacard for detection of HBs Ag (J Mitra& Co Ltd.). It is visual, rapid, sensitive and accurate one step immunoassay for the qualitative detection of HBsAg in human serum or plasma. Positive test indicates acute infection and chronic infectious carriers of the HBV. Hepacard can detect HBs Ag in serum or plasma at a concentration as low as 0.5 ng/ml in 20 minutes.

3. RESULTS AND OBSERVATIONS

Out of 100 study cases, 27 were in age group of 21-40, 40 were in age group of 41-60, and 25 were in age group of above 60 years while 8 were in age group of 0-20 years. The age ranged from 17-70 years with mean±S.D of 47.44 ± 14.56.

Male: Female ratio 4:1. There was no statistically significant difference seen among number of males and females in various age groups ($p>0.05$).

Out of 100 cases, 58 were from rural area and 42 were from urban area.

There was statistically significant difference seen among various above mentioned hepatic disorders in relation to age groups ($p<0.05$). Out of total 8 cases in the age group 0-20 years 75% of these patients had viral hepatitis. Similarly out of total 40 cases in the age group 41-60 years, 50% of patients had cirrhosis. Out of total 25 cases above 60 years maximum 40% patients had cirrhosis.

There was statistically significant difference seen among hepatic disorders in relation to sex of the patient ($p<0.001$). Out of 30 cases of Alcoholic hepatitis, all were males and none were females. Similarly out of 40 cases of Cirrhosis liver, males outnumbered females with 32 males and 8 females. Out of 26 cases of viral hepatitis, 14 were males and 12 were females. Out of 4 cases of HCC, 4 were males and 0 were females.

There was statistically significant association seen in relation to the sexof the patient with history of alcohol/ drug addiction ($p<0.001$). Out of total 30 cases with history of alcohol/ drug addiction 100% were present in males. There were no statistically significance seen in relation to the sexof the patient with history of other risk factors ($p>0.001$).

Out of 100 cases of hepatic disorders, 26 were HBsAg positive. Maximum HBsAg positivity was seen in cases of cirrhosis liver i.e. 10. There was no statistically significant difference seen among various hepatic disorders in relation to HBsAg positivity ($p>0.05$).

In 0-20 age group, 2 cases were HBsAg positive, out of these, 2 were males and 0 were females. In 21-40 age groups, 16 cases were HBsAg positive, out of these, 14 were males and 2 were females. In 41-60 age groups, 4 cases were HBsAg positive, out of these, 3 were males and 1 was female. In above 60 age groups, 4 cases were HBsAg positive, out of these, 4 were males and 0 were females. Maximum HBsAgseropositivity was seen in 21-40 age groups and it was more in case of males. There was no statistically significant HBsAgseropositivityassociation seen in relation to age and sex of the patients ($p>0.05$).

Out of 26 HBsAg positive cases, 7 patients had alcohol as risk factor. Out of these, all 7 were males and 0 were females. 4 patients had blood transfusion as risk factor. Out of these, 3 were males and 1 was female. 2 patients had sexual contact as risk factor. Out of these, 1 was males and 1 was female.

Only 1 male patient had perinatal transmission as risk factor. 1 male patient had intravenous drug abuse as risk factor. 11 patients did not give history of any risk factor. Out of these, 10 were males and 1 was female. Maximum number of HBsAg positive cases had alcohol as a risk factor. There was no statistically significant difference seen between the sex of the patients and risk factors in HBsAgseropositivity($p>0.05$).

4. DISCUSSION

The study included 100 cases with hepatic disorders comprising of 26 cases of viral hepatitis, 30 cases of alcoholic hepatitis, 40cases of cirrhosis and 4 cases of HCC. Out of 100 patients, 26 (26%) were HBsAg positive. Out of 26HBsAg positive, 8 cases presented with viral hepatitis, 7 with alcoholic hepatitis,10 with cirrhosis liver and 1 with HCC.Kumar et al⁴ showed 17.34% HBsAg positivityamong hepatic disorders.

Out of 26 HBsAg positive cases, 2 patients were in the age group of 0-20 years, 16 patients were in the age group of 21-40 years, 4 patients were in the age group of 41-60 years and 4 patients were in the age group of above 60 years. Out of 26 patients, 23 were males and 3 were females (7.6: 1). Devi et al⁵ found HBsAgpositivity to be higher in the age group of 22-32 years. In the present study, HBsAgpositivity is highest in age-group of 21-40 years with a male preponderance so it is comparable with the above studies.

Out of 100 patients, 30 were drug addicts and 7 drug addicts were positive for HBsAg(23.3%). Tiwari et al⁶ obtained 23.6% prevalence in relation to alcohol/drug addiction.

Out of 100 cases, 25 gave history of blood transfusion. Out of 25, 4 were positive for HBsAg (16%). Nandi et al⁷1994 got the 10.58% prevalence of HBsAgpositivity in relation to blood transfusion.

Seroprevalence of Hep B in patients with HCC in the present study was 25% comparable to 33.35% in Khan et al⁸

So the results of the present study are comparable to other studies.

5. CONCLUSIONS

1. HBV is the major factor in the development of hepatic disorders. Routine evaluation of viral markers should be carried out in all hepatic disorders especially in acute cases to prevent them from becoming chronic hepatic disease.
2. WHO guideline of universal immunization of adolescents for the preventable HBV must be strictly followed as it's for all infants.
3. Great stress must be laid on proper preventive measures such as screening of blood, safe sexual practices, proper sterilization of instruments, proper disposal of contaminated material, and immunization of people at risk particularly health care workers.

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