

Evaluation of Seroprevalence of Hepatitis B Virus Infection among Patients: An Institutional Based Study

Arvind Chandora

Assistant Professor, Department of Microbiology, Dr. S. N. Medical College, Jodhpur, Rajasthan, India.

ABSTRACT

Background: Viral hepatitis is a significant public health problem affecting billions of people globally. The prevalence of HBV varies from one place to another and can be divided into regions of high, medium and low endemicity. Hence; the present study was undertaken for assessing sero-prevalence of hepatitis B virus infection among patients.

Materials & Methods: A total of 245 patients were included in the present study. A self-framed questionnaire was made and was given to all the patients. The questionnaire consisted of detailed demographic knowledge and clinical data. Blood samples were obtained from all the patients and were sent to central laboratory for further assessment. From the serum samples, HBsAg detection was done using ELISA kit. All the samples that came out to be positive were again tested further for conformation.

Results: Among 245 patients enrolled in the present study, 2.04 percent of the patients were HBsAg positive while the remaining 97.96 percent of the patients were HBsAg negative. 2 patients each belonged to age group of 30 to 05 years and more than 50 years. 1 patient was less than 30 year of age. 3 seropositive patients were males while remaining 2 were females. 3 seropositive patients were of urban residence

while the remaining 2 were of rural residence. 3 seropositive patients were illiterate, while 2 seropositive patients were educated upto level of less than secondary education.

Conclusion: HBsAg prevalence is quite low in the present study population. This might be due to the advancement in the diagnostic techniques and increasing awareness among general population.

Key words: Hepatitis B, Seroprevalence.

*Correspondence to:

Dr. Arvind Chandora,
Assistant Professor,
Department of Microbiology,
Dr. S. N. Medical College, Jodhpur, Rajasthan, India.

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INTRODUCTION

Viral hepatitis is a significant public health problem affecting billions of people globally. Hepatitis B virus (HBV) is one of the principle causes of severe liver disease, including 70% cases of chronic hepatitis, 80% cases of hepatocellular carcinoma and 80% cases of cirrhosis-related end-stage liver disease. It has been estimated that about 2 billion people worldwide have serological evidence of current or past HBV infection and approximately 350 million people are chronically infected with this virus.¹⁻³

Worldwide, two billion people are infected by Hepatitis B virus (HBV) with about 400 million chronically infected cases. The prevalence of HBV varies from one place to another and can be divided into regions of high, medium and low endemicity.^{4, 5} In addition, HBV is 50–100 times more infectious than HIV, and 10 times more infectious than Hepatitis C virus (HCV), hence has a lower infectious dose.

Furthermore, it has been documented that HBV can survive outside the body for seven days or more on table tops, work benches and other instruments, making it highly transmissible

through contaminated razors and blades.⁶ Hence; the present study was undertaken for assessing sero-prevalence of hepatitis B virus infection among patients.

MATERIALS AND METHODS

The present study was planned in the Department of Microbiology, Dr. S. N. Medical College, Jodhpur, Rajasthan (India) and it included evaluation of sero-prevalence of hepatitis B virus infection among patients of known population. A total of 245 patients were included in the present study. Ethical approval was approval was obtained from institutional ethical committee and written consent was obtained from all the patients after explaining in detail the entire research protocol.

A self-framed questionnaire was made and was given to all the patients. The questionnaire consisted of detailed demographic knowledge and clinical data. Also, vaccine coverage for hepatitis B and knowledge of subject towards hepatitis B was also included in the questionnaire. Blood samples were obtained from all the

patients and were sent to central laboratory for further assessment. From the serum samples, HBsAg detection was done using ELISA kit. All the samples that came out to be positive were again tested further for conformation. All the results were

summarized in Microsoft excel sheet and were analysed by SPSS software. Chi- square test and independent t test were used for assessment of level of significance. P- value of less than 0.05 was taken as significant.

Table 1: Seropositive results

Parameter	HBsAg positive	HBsAg negative	Total
Number	5	240	245
Percentage	2.04	97.96	100

Table 2: Profile of seropositive results

Parameter	No.	%	
Age group	Less than 30	1	20
	30 to 50	2	40
	More than 50	2	40
Gender	Males	3	60
	Females	2	40
Residence	Rural	2	40
	Urban	3	60

Table 3: Literacy level of seropositive patients

Literacy level	No.	%
Illiterate	3	60
Less than secondary	2	40

RESULTS

Table 1 shows the seropositive results. Among 245 patients enrolled in the present study, 2.04 percent of the patients were HBsAg positive while the remaining 97.96 percent of the patients were HBsAg negative. Table 2 shows the profile of seropositive patients. 2 patients each belonged to age group of 30 to 05 years and more than 50 years. 1 patient was less than 30 year of age. 3 seropositive patients were males while remaining 2 were females. 3 seropositive patients were of urban residence while the remaining 2 were of rural residence. Table 3 shows the literacy level of seropositive patients. 3 seropositive patients were illiterate, while 2 seropositive patients were educated upto level of less than secondary education.

DISCUSSION

Hepatitis B virus (HBV) is a small double-stranded DNA virus which predominantly affects the liver. It is a global public health problem accounting for more than 300 million HBV carriers worldwide and is found to be high in the developing countries particularly in Asia and Sub-Saharan Africa with a prevalence rate of 10-20%. HBV is one of the most common causes of acute and chronic liver disease.^{5,6}

HBV is one of the most commonly transmitted blood-borne viral infections in healthcare settings; hence it is the leading issue of concern particularly in resource-limited healthcare settings. About 240 million people are living with chronic hepatitis B virus (HBV) infection worldwide, majority of them from low-and middle income countries. HBV is a major causative agent of chronic hepatitis and can cause liver cirrhosis and hepatocellular carcinoma. Most people including health care workers (HCWs) are unaware of their

HBV serological statuses. Antiretroviral drugs like Entecavir and tenofovir reduces aggressiveness of the disease and reduces mortality.^{7,8} Hence; the present study was undertaken for assessing sero-prevalence of hepatitis B virus infection among patients.

In the present study, among 245 patients enrolled in the present study, 2.04 percent of the patients were HBsAg positive while the remaining 97.96 percent of the patients were HBsAg negative. Table 2 shows the profile of seropositive patients. 2 patients each belonged to age group of 30 to 05 years and more than 50 years. 1 patient was less than 30 year of age. 3 seropositive patients were males while remaining 2 were females. 3 seropositive patients were of urban residence while the remaining 2 were of rural residence. Shao ER et al determined seroprevalence of hepatitis B virus infection and associated factors among healthcare workers in northern Tanzania. This cross-sectional study included 442 healthcare workers (HCWs) from a tertiary and teaching hospital in Tanzania before the nationwide hepatitis B vaccination campaign in 2004. Serological markers of HBV were done using Laborex HBsAg rapid test. Serology was done at zero months and repeated after six months. A total of 450 surveys were sent out, with a 98.2% response rate. Among the 442 HCWs who answered the questionnaire, the prevalence of chronic hepatitis B virus infection was 5.7% (25/442). Only 50 (11.3%) of HCWs were aware of the HBV status. During the second HBsAg testing which was done after six months one participant sero-converted hence was excluded. Adjusted for other factors, history of blood transfusion significantly increased the odds of HBV infection while HBV vaccine uptake was protective against HBV infection. The majority of HCWs with chronic HBV infection had poor to fare

knowledge about HBV infection but this was not statistically significant when controlled for confounding. Prevalence of HBV among health care workers was 5.7% which is similar to national prevalence.⁹ In the present study, 3 seropositive patients were illiterate, while 2 seropositive patients were educated upto level of less than secondary education. Khatoon R et al evaluated the seroprevalence of hepatitis B infection among patients attending a hospital at a semi-urban North India. A total of 1537 patients were included in the study whose venous blood samples were collected, and serum was tested for the presence of HBsAg using a rapid one-step immunoassay test kit. Out of 1537 patients whose blood samples were tested, 61 were found to be reactive to HBsAg giving the prevalence to be 3.9%, with 49 males and 12 females. Out of 61 reactive patient's majority belonged to inpatient (82.0%) as compared to outpatient department (18.0%). The majority of the reactive patients belonged to age group 28-37 years (37.7%), belonged to rural areas (86.9%), were illiterate (67.2%), were skilled workers (63.9%) and belonged to socioeconomic Class 4 (50.8%). Among the reactive patients, the most frequent suspected risk factor for hepatitis B infection was found to be visiting a community barber (19.7%). HBV infection is a dreadful disease, and its accurate and timely diagnosis using rapid immunoassay test kit is useful as it gives an indication about its seroprevalence in a given geographical area even with limited resources.¹⁰

CONCLUSION

From the above results, it can be concluded that HBsAg prevalence is quite low in the present study population. This might be due to the advancement in the diagnostic techniques and increasing awareness among general population.

REFERENCES

1. Nkrumah B, Owusu M, Frempong HO, Averu P. Hepatitis B and C viral infections among blood donors from rural Ghana. *Ghana Med J*. 2011;45(3):97-100.
2. Tahereh K, Ayat S et al. Analysis of knowledge, attitudes, and prevalence of Hepatitis B and C seromarkers among barbers in Tehran. *Hepat. Mon*. 2017;6(9):394-16.
3. Baha W, Foullous A, Dersi N, They-they TP, El alaoui K, Nourichafi N, et al. Prevalence and risk factors of hepatitis B and C virus infections among the general population and blood donors in Morocco. *BMC Public Health* 2013;13:50.
4. Kanodia V, Yadav M, Bittu R, Maheshwari RK, Singh SK. Seroprevalence of hepatitis B surface antigen in hospital based population of Jaipur, Rajasthan. *MedPulse Int Med J* 2015;2:123-5.
5. Lok AS, McMahon BJ. Chronic hepatitis B. *Hepatology* 2007;45:507-39.
6. Rukadikar A, Agarwal SG, Jain S, Teja V. Seropositivity of hepatitis B surface antigen in tertiary care hospital, central India. *Int J Curr Microbiol Appl Sci* 2015;4:714-7.
7. Nwobegahay JM, Njukeng PA, Kengne M, Ayangma CR, Abeng EM, Nkeza A, Tamoufe U. Prevalence of Hepatitis B virus infection among blood donors at the Yaounde Military Hospital, Cameroon. *Net J*. 2016;4(2):6-10.
8. Adoba P, Boadu SK, Agbodzakey H, Somuah D, Ephraim RK, Odame EA. High prevalence of hepatitis B and poor knowledge on hepatitis B and C viral infections among barbers: a cross-sectional study of the Obuasi municipality, Ghana. *BMC Public Health*. 2015;15:1041.
9. Shao ER, Mboya IB, Gunda DW, Ruhangisa FG, Temu EM et al. Seroprevalence of hepatitis B virus infection and associated factors among healthcare workers in northern Tanzania. *BMC Infect Dis*. 2018 Sep 21;18(1):474.
10. Khatoon R, Jahan N. Evaluation of seroprevalence of Hepatitis B virus infection among patients attending a hospital of semi-urban North India using rapid immunoassay test. *Niger Postgrad Med J* 2016;23:209-1.

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