

Burden of hepatitis B virus infection at tertiary care hospital

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Abstract

Background: Hepatitis B is a life threatening disease, endemic throughout the world especially in tropical and developing countries like India. Prevalence of this infection varies in different geographical areas. Estimated clinical data from the hospital gives the burden of disease in a community as patients from different backgrounds attend the hospital.

Aim and Objective: To know the burden of Hepatitis B virus infection at tertiary care hospital. **Material and Methods:** The study was carried out in Department of microbiology, Dr. Shankarrao Chavan Government medical college and Hospital, Nanded during July 2016- February 2017. Blood samples of all age groups sent by various clinical departments (OPD and IPD) for testing HBsAg were included in the study. For qualitative detection of HbsAg, test was done by Immunochromatographic method (Aspen Laboratories Pvt. Ltd. Delhi) and test was performed and interpreted according to manufacturer's instructions. The collected data was analyzed to know the burden of HBV infection. Results: A total 6856 blood samples were tested. 132 (1.92%) were positive for HBsAg, which comes under low endemicity (< 2%) as per WHO guidelines. Males predominate over females and majority of the positive patients were younger than 40 years in this study. Conclusion: It can be an alternative option for community based studies and also helps to improve the public health and to prevent the spreading of disease in the local population.

Key Words: HBsAg, Burden, tertiary care hospital.

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INTRODUCTION

Hepatitis B is a major global health problem. More than two billion people worldwide have evidence of past or current HBV infection and 350 million are chronic carriers of the virus, which is harbored in liver and causes an estimated 6 lac deaths from cirrhosis of liver and hepatocellular carcinoma.¹ Hepatitis B prevalence is

highest in sub-Saharan Africa and East Asia, where between 5–10% of the adult population is chronically infected. In the Middle East and the Indian subcontinent, an estimated 2–5% of the general population is chronically infected.² One million Indians are at high risk of HBV and about one lack die from HBV infection every year.¹ The significance and magnitude of the problem vary from country to country. As per WHO guidelines, Countries are classified on the basis of endemicity of hepatitis-B virus (HBV) infection into high (8% or more), intermediate (2-7%), or low (less than 2%) incidence countries. The prevalence of chronic HBV infection in India ranges from 2% to 10% as shown in different studies. India therefore comes under the intermediate to high endemicity category.⁷ The majority of people are unaware of their HBV infection, and usually they are only diagnosed when complications such as cirrhosis or hepatocellular carcinoma become evident.³ Unawareness of an ongoing infection of HBV delays the diagnosis of

HBV-related liver disease and favors the spread of the virus. Therefore an attempt was made to know the seropositivity of HBV at tertiary care center which helps to improve the public health and to prevent the spreading of disease in the local population.

MATERIAL AND METHODS

The study was carried out in central clinical laboratory, Department of microbiology, Dr. Shankarrao Chavan Government medical college and Hospital, Nanded during July 2016- February 2017 to know the burden of Hepatitis B virus infection. Blood samples of all age groups and both genders sent by various clinical departments (OPD and IPD) for testing Hepatitis B Surface antigen were included in the study. Two ml of blood sample was collected by using all aseptic precautions. The serum was separated and it was used for the present study. The test was performed on the same day of sample collection. For qualitative detection of HbsAg, test was done by Immunochromatographic method (Aspen Laboratories Pvt. Ltd. Delhi) and test card was labeled with identification number. The test was performed and interpreted according to manufacturer's instructions. The kit has sensitivity and specificity of 100%. Personal details of patients were noted down and the HBsAg test result (positive or negative) was noted of individual person. The collected data analysed to know the burden of HBV infection.

RESULTS:

A total of 6856 patients were screened for HBsAg, of that 2849 were male while 4007 were female and seropositivity of HbsAg was 1.92% (Table 1). Table 2 shows that, out of 2849 male patients 85 were positive (2.98%) and out of 4007 female patients 47 were positive (1.17%) for HBsAg. Majority of the sero-positive patients were younger than 40 years in this study (Table 3).

Table 1: Total number of samples tested and positive for HBsAg

Month	Total No. of samples screened	Total No. of HBsAg Positive samples	Total Positive %
July	527	14	2.65
August	809	16	1.97
September	876	32	3.65
October	812	17	2.09
November	965	16	1.65
December	969	11	1.13
January	948	14	1.47
February	950	12	1.26
Total	6856	132	1.92

Table 2: Gender distribution of samples tested and positive patients for HBsAg

Males			Females		
Tested	Positive	Percentage (%)	Tested	Positive	Percentage (%)
2849	85	2.98	4007	47	1.17

Table 3: Agewise distribution of patients tested and seropositive for HBsAg

Age (Years)	Total No. of samples Tested	Total No. of positives	Total Positive (%)
0-19	557	00	0.00
20-40	4790	113	2.35
Above 40	1509	19	1.25

DISCUSSION

A total 6856 blood samples were tested. Out of these, 132 (1.92%) were positive for HBsAg, which comes under low endemicity (< 2%) as per WHO guidelines. Although India lies in intermediate to high endemic category, the prevalence of hepatitis B virus infection is low in Nanded region. It is likely that an effective childhood immunization programme will reduce the burden of infection in our country. The similar study carried out in Maharashtra also showed prevalence < 2% (1.57%).¹¹ Another study by Lodha *et al*⁹ has concluded that HBsAg prevalence is between 1-2%. A study conducted by Bhatta CP *et al*⁸ showed prevalence rate of HbsAg as 2.5%. Studies carried out in Birbhum district of West Bengal showed that, prevalence of HBsAg was 2.97% while in costal Karnataka overall seroprevalence of HBsAg was observed to be 0.62%¹⁰ There is a wide variation in the prevalence in different regions of the country. This may be due to the age group covered, general population sample versus risk population samples, and geography of the study population. The present study has reported higher positive rate among males (2.98%) compared to females (1.17%). Many studies shows male preponderance compared to females. Mindolii *et al*⁴ reported 1.99% seroprevalence in males and 1.30% in females. Singh *et al*⁵ reported 0.65% in males and 0.25% in females. Higher seropositive rate among males is also noted by Smita Sood *et al*⁶. It is hypothesized that females clear HBV more efficiently compared to males. In the present study higher prevalence rate was seen in the age group of 20-40 years. Similar findings were noted in Smita Sood *et al*⁶ and Bulle *et al*¹¹ study. This may be due to higher chances of exposure to HBV infection due to sexual activity.

CONCLUSION

Burden of hepatitis B virus infection is low in our region. Effective childhood immunization programme might reduce the burden of infection in our area. Hospital based

studies like this can be an alternative option for community based studies and also helps to improve the public health and to prevent the spreading of disease in the local population.

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