



SEROPREVALENCE OF HEPATITIS B IN A TERTIARY CARE CENTRE IN BIJAPUR, KARNATAKA: A TWO YEARS PROSPECTIVE STUDY

*Preeti B. Mindolli¹, Manjunath P. Salmani²

¹Associate Professor, Department of Microbiology, Al Ameen Medical College, H &RC, Athani Road, Bijapur, Karnataka, India.

²Associate Professor, Department of Microbiology, SBMP Medical College, H &RC, Solapur Road, Bijapur, Karnataka, India.

*Corresponding author email: drmindolli@rediffmail.com

ABSTRACT

Background: Hepatitis B virus infection is endemic throughout the world especially in tropical and developing countries. Clinical data collected in the hospital gives the estimation of burden of disease in the community as patients with different background attend the hospital. With this background the present study was designed. It is a prospective study estimating the prevalence of HBV infection in a tertiary care centre. **Objective:** Study was conducted to know the prevalence of hepatitis B virus infection in a tertiary care centre in Bijapur, Karnataka.

Methodology: Patients attending Out-Patient Department (OPD) and In-Patient Department (IPD) with various diagnosis who were advised for HbsAg testing were included in this study. Immunochromatographic method (Hepacard) was used for qualitative detection of HbsAg to diagnose HBV infection. **Results:** A year wise seropositivity showed there was slight increase in the HBV positive cases. In 2012 prevalence rate was 1.54% and in 2013 it was 1.65%. Male preponderance compared to females was seen. More number of cases was seen in active age group i.e. 31-40 years. **Conclusion:** The present study shows there is slight increase in number of cases in 2013 compared to 2012. This study also highlights that hospital based studies can be an option for community based studies.

Keywords: Hepatitis B; Immunochromatography; Seroprevalence

INTRODUCTION

Hepatitis B virus (HBV) is common human pathogen and causes acute and chronic liver disease throughout the world. Chronic illness develop in 5-10% of infected adolescents or adults and up to 90% in infected neonates. Chronic HBV infection is a major cause of liver cirrhosis and primary cell carcinoma.^[1]

Hepatitis B is endemic throughout the world, especially in tropical and developing countries and also in some regions of Europe. Its prevalence varies from country to country and depends on behavioral environment and host factor.^[2]

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 6,00,000 deaths from cirrhosis of liver and hepatocellular carcinoma.^[3]

In Middle East and Indian subcontinent, an estimated 2-5% of general population is chronically infected and falls in intermediate category according to World Health Organization (WHO) classification.^[2,3]

Several surveys for HbsAg screening have been carried out at different places for blood donors, pregnant women. Surveys for screening HBsAg have been primary, simple and most useful mode for determining HBV infection rate.^[4]

MATERIALS AND METHODS

Source of data: The study group comprises of patients of all age groups and both sexes admitted during January 2012 to December 2013 in IPD of all departments of Shri B.M. Patil Medical College, Hospital and Research Centre, Bijapur, Karnataka.

Type of study: Prospective analysis

Ethics committee approval: The study was approved by the Institutional Ethics Committee (IEC).

Methodology: Two ml of blood sample was collected with aseptic conditions. The serum was separated and it was used for the present study. Specimens containing visible precipitates or cloudy specimens are clarified prior to testing by high speed centrifugation i.e. 10,000 revolutions per minute for fifteen minutes before testing. The test was performed within twenty four hours from the sample collection. For qualitative detection of HbsAg, test was done by Immunochromatographic method (Hepacard) to diagnose HBV infection performed and test card was labeled with identification number^[5]. The test was performed and interpreted according to manufacturer's instructions. The kit has sensitivity and specificity of 100%.

Data collection: Patients personal details like age, sex, address was noted down. The HBsAg test result (positive or negative) was noted of individual person. The collected data is represented in tabular form and prevalence rate was calculated. The speed, sensitivity, ease to perform and interpret the results makes it more useful for both individual as well as large scale studies.^[5, 6]

RESULTS

The study was conducted from January 2012 to December 2013. A total of 18, 372 samples were screened for HbsAg during this period and year wise prevalence rate was calculated.

From January-December 2012, 8,944 samples were screened, out of which 138 were positive and prevalence rate was 1.54%. From January-December

2013, 9428 samples were screened out of which 156 were positive and prevalence rate was 1.65%.

There is slight increase in prevalence rate in 2013 compared to 2012 (Table 1).

Male preponderance is seen compared to females (Table 2).

Increased prevalence of HBV infection is seen in 31-40 years age group followed by >50 years age group (Table 3).

Table 1 Seropositivity of HbsAg among hospital based population

Year	Total No. of cases	Total No. of HbsAg positive	Total positive (In %)
2012	8944	138	1.54%
2013	9428	156	1.65%

Table 2: Sex distribution of seropositivity of HbsAg in hospital based population

Sex	No. of sera tested	Total No. of HbsAg positive	Total positive (In %)
Male	9,268	159	1.71%
Female	9,104	135	1.48%

Table 3: Age distribution of hospital based general population for HbsAg positivity

Age (Years)	Total No. of sera tested	Total No. of HbsAg positive	Total positive (In %)
0-10	820	08	0.97%
11-20	2727	40	1.46%
21-30	4040	65	1.60%
31-40	4632	84	1.81%
41-50	3932	59	1.50%
>50	2221	38	1.71%

DISCUSSION

In our study of hospital based population the prevalence rate of HbsAg in year 2012 was 1.54% and in 2013 it was slightly increased to 1.65%. This may be due to increased awareness about HBV infection and number of samples to be tested has also increased.

Similar studies on prevalence of hepatitis B are conducted in India. A study conducted by Singh et al among blood donors in Mangalore showed prevalence as 0.62%.^[7] Another study conducted by Ronald Roche et al in Mangalore in 2012 showed prevalence rate of HbsAg as 1.56%.^[8] According to

WHO definition one could categorize Karnataka into a HBV low endemic state.

Another review of hepatitis B prevalence in India by Lodha et al has concluded that it is between 1-2%.^[9] Smita sood and Shirish malvankar have noted 0.87% prevalence which is hospital based study similar to us.^[10] A study conducted by Bhatta CP et al in Kathmandu Medical College teaching hospital in 2003 showed prevalence rate of HbsAg as 2.5%.^[11]

Our study has reported higher prevalence among males (1.71%) compared to females (1.48%).

Many studies shows male preponderance compared to females. Dutta et al reported 35.3% in males and 19.3% in females.^[12] Singh et al reported 0.65% in males and 0.25% in females. Higher prevalence among males is also noted in Smita Sood et al study.^[10] It is hypothesized that females clear HBV more efficiently compared to males.

In our study higher prevalence rate was seen in the age group of 31-40 years followed by > 50 years. Similar findings were noted in Smita Sood et al study^[10]. This may be due to higher chances of exposure to HBV infection due to sexual activity.

CONCLUSION

The present data is limited to patient population served by our hospital and not applicable to other centers. Hospital based studies can be alternate option to community studies which are difficult to conduct. The present study provides good reference to formulate strategies to reduce the seroprevalence rate. The patient attending our hospital represents cross section of Bijapur district population with mix of rich and poor and urban and rural population. Therefore our study highlights HBV infection rate of this part of state and shall provide reference for future studies on epidemiology of HBV infection.

REFERENCES

1. Brian WJ. Hepatitis B. In: Topley and Wilson's Microbiology and Microbial Infections: 10th edn Vol 2 London: Arnold Publishers; 2005 :1226
2. Park K. In: Park's textbook of Preventive and Social Medicine.21st ed. Jabalpur, India: M/s Banarasidas Bhanot Publishers; 2011: 231-32
3. WHO (2009), Weekly epidemiological records, N 040, 2nd Oct 2009.

4. Sayed A. Quadri, H.J. Dadapeer, K. Mohammed Arifulla and Nazia Khan. Prevalence of Hepatitis B Surface Antigen in hospital based population in Bijapur, Karnataka. Al Ameen J Med Sci 2013; 6(2) :180-82.
5. Kaur H, Dhanao J, Oberoi A. Evaluation of rapid kits for detection of HIV, HbsAg and HCV infections. Indian J Med Sci 2000; 54: 432-34.
6. Torlesse H, Wurie IM, Hodges M. The use of immunochromatography test cards in the diagnosis of hepatitis B surface antigen among pregnant women in West Africa. Br J Biomed Sci 1997; 54 (4): 256-59.
7. Sing K, Bhat S, Shastry S. Trend in seroprevalence of Hepatitis B virus infection among blood donors of coastal Karnataka. Indian J Infect Dev Ctries 2009; 3 (5): 376-79.
8. Ronald Roche, Shriyan Amrita, Leslie, Ranjana Nayak. Prevalence of the Human Immunodeficiency Virus, the Hepatitis B Virus and the Hepatitis C Virus among the Patients at a Tertiary Health Care Centre: A Five Year Study. Journal of Clinical and Diagnostic Research. 2012 May; 6(4): 623-26.
9. Lodha R, Jain Y, Anand K, Kabra SK, Pandava CS. Hepatitis B in India: A review of disease epidemiology. Indian Pediatr 2001; 38: 1318-22.
10. Sood S and Malvankar S. Seroprevalence of Hepatitis B surface Antigen, Antibodies to Hepatitis C virus and Human immunodeficiency virus in a Hospital based population in Jaipur, Rajasthan. Indian J Community Med 2010; 35 (1): 165-69.
11. Bhatta CP, Thapa B, Rana BB. Seroprevalence of Hepatitis B in Kathmandu Medical College teaching hospital. Kathmandu Univ Med J 2003; 1: 113-16.
12. Dutta S, Shivanand PG, Chatterjee A. Prevalence of hepatitis B surface antigen and antibody among hospital admitted patients in Manipal. Indian J Public Health 1994; 38: 108-12.