

## Prevalence of Hepatitis B Surface Antigen among Patients Attending a Rural Teaching Hospital at Puducherry

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### Abstract

**Background:** HBV infection in humans is a global health problem which accounts for morbidity and mortality rates associated with its serious complications like cirrhosis of liver and carcinoma of liver. The incidence of HBV in India has an intermediate range of 2 % to 7%. A five year retrospective study was conducted on the seroprevalence of HBs Ag among the patients attending Sri Manakula Vinayagar Medical College and Hospital, Pudhucherry from January 2011 to December 2015.

**Materials and methods:** A total of 67903 patients of both sexes and ages ranging from 1 year to 88 years were included in this study. HBsAg screening was primarily done by rapid card test and reconfirmed by ELISA.

**Results:** 1.73 % of the study population was positive for the presence of HBsAg with a male predominance of 2.73% over female (1.09%). A gradual increase in the prevalence rate was seen during each successive years of this study.

**Conclusion:** An increasing prevalence was observed in each succeeding year of the study. Preventive measures and awareness programmes are to be taken into serious consideration to control the rising trend of HBV infection.

**Keywords:** ELISA, HBs Ag, HBV, Seroprevalence,

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Quick Response Code:	Website: www.innovativepublication.com
	DOI: 10.5958/2394-5478.2016.00018.2

that kill about one million each year (1,2,3,4). This article depicts the prevalence rate and trend of Hepatitis B Virus infection among the patients attending a rural teaching hospital.

### Materials and Methods

This study was carried out in Sri Manakula Vinayagar Medical College and Hospital, puducherry. Patients who attended OPD (Out Patients Department) and also IP (Inpatients) during the period of January 2011 to December 2015 were screened for HBV infection on referral from the treating clinicians. A total of 67903 patients including 34111 males and 33792 females were screened for the presence of HBsAg (Hepatitis B Surface Antigen) during the study period. The age group includes 1 to 88 years. Patients were initially screened by rapid card test and positive cases were confirmed by ELISA (HEPALISA, India). ELISA was performed according to the manufacturer's protocol.

### Results

Among the 67903 samples tested 1178 (1.73%) were positive for presence of HBsAg. The prevalence of HBsAg was found to be high among male (2.73%) than female (1.08%) during the study period (Table 1). HBsAg was most prevalent among the active working age groups of 20 to 40 years. The results of this study has shown an increasing rate of prevalence of HBsAg with successive years during 2011 to 2015 (Table 2)

### Introduction

One of the major health problems in India is Hepatitis B virus (HBV) infection. Of the 25 million infants born every year, over one million run the lifetime risk of developing chronic HBV infection. Estimates indicate that annually over 100,000 Indians die due to illnesses related to HBV infection. Countries are classified as having high (8% or more), intermediate (2-7%), or low (less than 2%) HBV endemicity based on the prevalence of hepatitis B carrier state in the general population. India is at the intermediate endemic level of hepatitis B, with hepatitis B surface antigen (HBsAg) prevalence between 2% and 7% among the populations studied. The prevalence does not vary significantly by region in the country. The number of HBsAg carriers in India has been estimated to be over 40 million (1,2). Hepatitis B is one of the major diseases of mankind and is a serious global public health problem. Of the 2 billion people who have been infected with the hepatitis B virus (HBV) in the world, more than 350 million have chronic (lifelong) infections and these people are at high risk of death from cirrhosis of the liver and carcinoma of the liver,

**Table 1: Age and sex wise distribution of HBV infected patients**

Age	Male	Female	Total
0 TO 10	9	2	11
11TO20	29	18	47
21TO30	165	116	281
31TO40	193	80	273
41TO50	160	68	228
51TO60	128	49	177
61TO70	100	27	127
>70	25	9	34
<b>Total</b>	809 (2.37%)	369 (1.09%)	1178 (1.73%)

**Table 2: Year Wise Incidence of HBsAg (2011 to 2015) among male and female patients**

Year	Male	Female	Total
<b>2011</b>			
Total	6058	6775	12833
Positive	99(1.63%)	54(0.79%)	153(1.19%)
<b>2012</b>			
Total	6907	7424	14331
Positive	136(1.96%)	68(0.91%)	204(1.42%)
<b>2013</b>			
Total	6864	6952	13816
Positive	151(2.19%)	56(0.80%)	207(1.49%)
<b>2014</b>			
Total	7144	6582	13726
Positive	211(2.95%)	85(1.29%)	296(2.15%)
<b>2015</b>			
Total	7138	6059	13197
Positive	212(2.97%)	106(1.74%)	318(2.4%)

## Discussion

India has over 40 million Hepatitis B infected patients, second only to China, and most people with chronic Hepatitis B or C are unaware of their infection, putting them at the serious risk of developing cirrhosis or carcinoma of liver which are life threatening (1,2,3,4). The prevalence of HBV in our study is 1.73% which was reported as 2.0% in a three year retrospective study conducted in our hospital during 2007 to 2010. A decreasing prevalence was reported in every successive year during 2007 to 2010 (5). An overall dropdown of HBsAg prevalence from 2.0% to 1.73% among the people of this locality has been seen, but the study also shows a gradual increase during successive years of study from 1.19% in 2011 to 2.4% in 2015 (Table 2). Male predominance was seen consistently in all age groups in all the five years from 2011 to 2015. The previous study from our institute also showed a higher incidence among male (5). Most of the previous reports also show a male predominance for HBsAg (6,7,8,9,10). Men are more likely to remain infected with HBsAg and women are more likely to develop anti-HBs rapidly. Men are more prone to hepatitis related chronic disease conditions. This is due

to the difference in immune response to HBsAg between males and females (11,12). People of age between 20 to 50 were found to be more prone to HBV infection. A highest rate of prevalence was seen in the 21 to 30 age group in both males and females, followed by 31 to 40 and 41 to 50 age groups. This result is similar to the other reports in the literature (13,14,15).

## Conclusion

Despite the awareness programmes and wide coverage of HBV vaccination among people, our study reveals an increase in prevalence over the past 5 years. This has to be viewed seriously and control measures should be taken accordingly. Compulsory vaccination procedure and continuous awareness programmes could pave the way to control the rising trend of HBV infection and its serious complications like cirrhosis of liver, hepatocellular carcinoma, etc.

**Conflict of Interest: None**

**Source of Support: Nil**

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**How to cite this article:** Balamurugan R, Gopal R, Saleem M, Kaviraj M, Sunil S. Shivekar, Mangaiyarkarasi T. Prevalence of Hepatitis B Surface Antigen among Patients Attending a Rural Teaching Hospital at Puducherry. *Indian J Microbiol Res* 2016;3(1):74-76.