ISSN: 0976-3031

Available Online at http://www.recentscientific.com

International Journal of Recent Scientific Research
Vol. 7, Issue, 10, pp. 13915-13918, October, 2016

International Journal of Recent Scientific Research

Research Article

SEROPREVALENCE OF HBV IN A TERTIARY CARE HOSPITAL – A HOSPITAL BASED STUDY

Sasikala A., Naga Srilatha B*., Sasidhar M and Bharathi M

Department of Microbiology, RIMS Medical College, Kadapa

ARTICLE INFO

Article History:

Received 10th July, 2016
Received in revised form 14th August, 2016
Accepted 08th September, 2016
Published online 28th October, 2016

Key Words:

Hepatitis B virus, Hepatitis B surface antigen, seroprevalence

ABSTRACT

Introduction: Hepatitis B infection is one of the major public health problems globally and is the 10th leading cause of death. Hepatitis B viral infection leads to a wide spectrum of clinical presentations, ranging from asymptomatic carrier state to acute self-limiting infection or fulminant hepatic failure, chronic hepatitis with progression to cirrhosis, and hepato cellular carcinoma. HBV infection may go undetected as it is asymptomatic in infants, children and immunodeficient individuals as pathogenesis of hepatitis is immune mediated. The majority of people are unaware of their HBV infection. Unawareness of an ongoing infection delays the diagnosis of HBV-related liver disease and favors the spread of the virus.

Materials and methods: The study was done from January 2015 to December 2015. After separation of serum from blood, HBsAg detection was done by immunochromatographic method.

Results: A total of 23,457 cases were screened for HBsAg. More number of cases were from OBG department. Majority of cases were from the age group of 21-30 years. The overall seropositivity for HBsAg was 2.19%. In males seropositivity was high in the age group of 41-50 years (4.54%) followed by in 31- 40 yrs age group (3.41%). The seropositivity among males was more (3.13%) when compared to females (1.61%).

Conclusions: 1. Seroprevalence of HBsAg among hospital patients was 2.19% 2. Most common age group with HBsAg was 41-50 years (2.19%) 3. No seropositive case was present in the age group of <10 years.

INTRODUCTION

Hepatitis B infection (HBI) is one of the major public health problems globally and is the 10th leading cause of death.[1] Hepatitis B virus (HBV) infection is a significant health problem, as it can lead to chronic hepatitis (CHB), liver cirrhosis, and hepatic carcinoma.[2] Chronic hepatitis B virus (HBV) infection– defined by WHO as persistence of hepatitis B surface antigen (HBsAg) for six months or more. HBsAg is the first seromarker to indicate active HBV infection either acute or chronic. It would appear in patient's serum usually 2-10 weeks after being infected with HBV.[3] HBV infection leads to a wide spectrum of clinical presentations, ranging from asymptomatic carrier state to acute self-limiting infection or fulminant hepatic failure, chronic hepatitis with progression to cirrhosis, and hepatocellular carcinoma (HCC).[4] Between 20% and 30% of those who become chronically infected will develop the complications, and an estimated 650 000 people will die annually due to CHB.[5] HBV is easily transmitted to non-immune persons, via contact with infected blood or body fluids such as saliva, semen, vaginal secretions, hence it could be acquired through blood transfusion with infected blood, intimate sexual contact; particularly during unprotected sex, sharing of contaminated sharp objects such as needles, and close personal contact in over-crowded households. It could also be transmitted from an infected mother to her un-born child through the placenta.[6] HBV infection may go undetected[7] as it is asymptomatic in infants, children and immunodeficient individuals as pathogenesis of hepatitis is immune mediated.[8] The majority of people are unaware of their HBV infection, and therefore often present with advanced disease.[5] Infection is usually only diagnosed when complications such as cirrhosis or hepatocellular carcinoma become evident.[9] Unawareness of an ongoing infection delays the diagnosis of HBV-related liver disease and favors the spread of the virus.[7] Hence we made an attempt to know the seroprevalence of HBV in patients who represent general population and whose blood samples were sent for HBsAg by clinicians in our hospital.

Aim and objectives

1. To know the seroprevalence of Hepatitis B Surface antigen in our area
2. To know the most common age group that is infected with Hepatitis B virus.

*Corresponding author: **Srilatha B***
Department of Microbiology, RIMS Medical College, Kadapa

MATERIALS AND METHODS

Inclusion criteria: Patients whose blood samples were sent for HBsAg by clinicians know HBV status.

Exclusion criteria: Patients with Jaundice.

The study was done for the period of one year from January 2015 to December 2015. Blood samples of all age groups sent by various clinical departments for testing Hepatitis B Surface antigen were included in the study. After separation of serum from blood, HBsAg detection was done by immunochromatographic method in Microbiology clinical laboratory, RIMS, Kadapa. Standard operative test procedure was followed all the time.

Statistical analysis

Data was entered in Microsoft Excel for analysis.

RESULTS

It was a retrospective study to assess the HBV prevalence among the hospital based population in a tertiary care hospital, Andhra Pradesh. A total of 23,457 cases were screened for HBsAg. More number of cases were from OBG department (8,133/23,457) followed by ophtholmology (4,791/23,457) and general medicine (1,202/2,814). Among all cases, majority were from the age group of 21-30 years as shown in table 1.

Among total cases males comprised 38.25% and females 61.75% of cases. In males 21.12% of cases were from >60yrs age group, which showed 3.06% HBsAg seropositivity. Whereas in females highest number of cases were from 21-30yrs age group (43.78%) and showed 1.87% of HBsAg seropositivity. The overall seropositivity for HBsAg was 2.19%. In males seropositivity was high in the age group of 41-50 years (4.54%) followed by in 31- 40 yrs age group (3.41%). In females high seropositivity was observed in the age group of 51 - 60 years as shown in table 2. The seropositivity among males was more (3.13%) when compared to females (1.61%). Though the screened cases for HBsAg were more from females (61.75%) than males (38.25%), the observed seropositivity was in reverse that was 54.56% from males and 45.44% from females among total seropositive cases as shown in table 3. The mean age among total cases was 38.20 ± 17.27 yrs (45.66 ± 18.38 yrs in males and 34.45 ±15.46 yrs in females). The mean age and median age for seropositive cases were 42.26 ± 15.76 yrs and 40yrs respectively as shown in table 4.

DISCUSSION

Hepatitis B virus infection is endemic throughout the world especially in tropical and developing countries.[10] The number of HBV carriers is estimated to be around 50 million, forming the second largest global pool of chronic HBV infection.[11]

Table.1 Showing Age and Department vise distribution of cases

Age group in years	General medicine	General surgery	OBG	ENT	Ophthalmology	Ortho pedics	Paediatrics	Dentistry	ART	DVL	Psychiatry	Total
<10	-	114	-	39	10	15	207	1	7	9	-	402
11-20	457	315	1307	225	38	41	52	23	24	30	2	2514
21-30	1181	697	5129	312	95	158	-	52	130	121	2	7877
31-40	962	687	982	175	225	176	-	32	83	83	5	3410
41-50	752	686	543	108	833	204	-	8	40	49	5	3228
51-60	537	450	129	43	1700	150	-	13	26	35	2	3085
>60	414	390	43	34	1890	111	-	16	18	25	-	2941
Total	4303	3339	8133	936	4791	855	259	145	328	352	16	23457

Table.2 Age and Gender vise distribution of cases and HBsAg seropositives

Age group in years	Males		Females		Total	
	No. of cases	Positives	No. of cases	Positives	No. of cases	Positives
<10	274(3.05%)	-	128(0.88%)	-	402(1.71%)	-
11-20	660(7.35%)	8(1.21%)	1854(12.79%)	13(0.70%)	2514(10.71%)	21(0.83%)
21-30	1535(17.11%)	42(2.73%)	6342(43.78%)	119(1.87%)	7877(33.58%)	161(2.04%)
31-40	1437(16.02%)	49(3.41%)	1973(13.62%)	32(1.62%)	3410(14.53%)	81(2.37%)
41-50	1562(17.41%)	71(4.54%)	1666()11.50%	23(1.38%)	3228(13.76%)	94(2.91%)
51-60	1609(17.93%)	53(3.29%)	1476(10.18%)	32(2.16%)	3085(13.15%)	85(2.75%)
>60	1895(21.12%)	58(3.06%)	1046(7.22%)	15(1.43%)	2941(12.53%)	73(2.48%)
Total	8972(38.25%)	281(3.13%)	14485(61.75%)	234(1.61%)	23457	515(2.19%)

Table.3 Gender vise distribution of cases and HBsAg seropositives

	Males	Females	Total
No. of cases	8972(38.25%)	14485(61.75%)	23457
No. of seropositives	281 (54.56%)	234(45.44%)	515
% of seropositivity	3.13	1.61%	2.45%

In our study it was observed that majority of cases screened for HBsAg were in the age group of 21-30 years as obstetrics and gynecology contributed more cases. It represents that almost all cases registered as antenatal were screened for HBsAg.

Table.4 Mean, Median & Standard deviation of cases &Seropositives

	Males		Females		Total	
	All cases	seropositives	All cases	seropositives	All cases	seropositives
Mean (in yrs)	45.66	47.35	34.65	36.14	38.20	42.26
Median (in yrs)	48	47	28	30	35	40
Standard deviation	18.38	15.05	15.46	14.38	17.27	15.76

This gives a good scope to prevent mother to child transmission by various means and there is a chance in preventing carrier state of infant by giving hepatitis B Ig and HBV vaccine treatment for newborns of HBV-infected mothers at the time of delivery.[12] No seropositive case was seen in < 10 years age group in the present study suggested that there is no vertical transmission among these children, and the same is implied the fruitfulness/success of screening of all pregnant mothers for HBsAg and if found positive with implementation of subsequent corrective measures. This observation also suggested the absence of horizontal transmission among them, indicates the importance of inclusion of HBV vaccine in UIP.

Wide variations in the prevalence of hepatitis B has been observed from country to country depending upon a complex mix of various environmental and host factors.[12] India has intermediate endemicity of HBV infection, with population prevalence rate of around 4% (2-8%).[4] The seroprevalence of HBsAg in present study was 2.19% which is near to a study by Balamurugan *et al*[13] study which was conducted in south India (1.73%) and Preeti *et al* [10](1.76%). Whereas it was high when compared to studies by Mathur *et al*[12](0.94%), Smitha *et al*[14] (0.57%), Quadri *et al*[15] (1.63%), Jadeja *et al*[16] (1.32%) and Vazhavandal *et al*[3] (1.61%) and very low to studies by Sharif *et al*[17](11%), Sameen *et al*[18] (4.6%), Ejele *et al*[19](4.98%), Uddin *et al*[20](8%) and Asuke UA *et al*[6] (12%). Male predominance (3.13%) of HBsAg seropositivity was observed not only in our study but also in several studies.[12, 13,15,14, 16] The age group of high seropositivity was 41-50 years (2.91%) in present study. But some studies showed that the age group with high seropositivity was 21-30 years in Uddin *et al*[20] study, 25-34 years in studies by Sharif *et al* and Asuke UA *et al* [17,6], 31-40 years in studies of Mathur *et al* and Preeti *et al* [12,10], 21-40 years in a study by Vazhavandal *et al*[3] and 51-60 years in Quadri *et al* study[15]. No case was seropositive in <10 years age group in our study. In a study by Sharif *et al* on febrile illness cases no seropositives cases was seen in > 45 years group.[17] Among the seropositives cases the seroprevalence in males and females were 54.56% and 45.44% respectively. It was 73% & 27% in Vazhavandal *et al*[3] study and 72.7% & 27.3% in Sharif *et al* [17]study.

Universal hepatitis B immunization programmes that target infants, with the first dose at birth, have been highly effective in reducing the incidence and prevalence of hepatitis B in many endemic countries. However, these programmes will not have an impact on HBV-related deaths until several decades after their introduction.[5] That's why it is advisable to take HBV vaccine not only by persons at risk, like health care professionals (HCPs) but also by all adults, to reduce the incidence of CHB and subsequent HBV-related deaths. To achieve this WHO launched its first "Guidelines for the prevention, care and treatment of persons living with chronic hepatitis B infection" in March 2015. In May 2016, The World Health Assembly (WHA) adopted the first "Global Health Sector Strategy on Viral Hepatitis, 2016-2021". The strategy highlights the critical role of Universal Health Coverage and the targets of the strategy are aligned with those of the Sustainable Development Goals. The strategy has a vision of eliminating viral hepatitis as a public health problem and this is encapsulated in the global targets of reducing new viral hepatitis infections by 90% and reducing deaths due to viral hepatitis by 65% by 2030.[12] With strict implementation of UIP and strict compliance of strategies for prevention of CHB by WHO & WHA, we are looking into the future, of converting India into low endemic country initially and then its progression for eradication.

CONCLUSIONS

1. Seroprevalence of HBsAg among hospital patients was 2.19%
2. Most common age group with HBsAg was 41-50 years (2.19%)
3. Male prepondarence was observed.
4. No seropositive case was present in the age group of <10 years.

References

1. World Health Organization. (2013). Hepatitis B Virus fact sheet no. 204. Geneva: http://www.who.int/mediacentre/factsheets/fs204/en/index.html
2. Asfaw Negero, Zufan Sisay, Girmay Medhin "Prevalence of Hepatitis B surface antigen (HBsAg) among visitors of Shashemene General Hospital voluntary counseling and testing center" BMC Research Notes, 2011; 4(35): pp 1-5 http://www.biomedcentral.com/1756-0500/4/35
3. Vazhavandal G., Vallab Ganesh Bharadwaj B., Uma A., Chitra Rajalakshmi P. "Seroprevalence of hepatitis B virus among patients at a rural tertiary health care centre in South India: a four year study" *International Journal of Research in Medical Sciences*, 2014 Feb;2(1):pp 310-313
4. Shazia Parveen. S, Shyamala. R, Janardhan Rao R. and Rama Rao M. V. "Sero-prevalence of Hepatitis B surface antigen among pregnant women attending antenatal clinic in a teaching hospital" *J. Microbiol. Biotech. Res*., 2012, 2 (2):343-345
5. WHO:Guidelines for the prevention, care and treatment of persons with chronic hepatitis B infection. © World Health Organization 2015, pp 1-166
6. Edia-Asuke UA, Abubakar Z and Asuke S "Seroprevalence of Hepatitis B Infection among out Patients Attending a Public Tertiary Hospital in Kaduna State, Nigeria" Tropical Medcine and Surgery, 2015; 3(3): pp 1-4
7. Andreas A Besong Frambo, Julius Atashili, Peter Nde Fon and Peter Martins Ndumbe
8. "Prevalence of HBsAg and knowledge about hepatitis B in pregnancy in the Buea Health District, Cameroon: A cross-sectional study" BMC Research Notes, 2014; 7(394): pp 1-7 : http://www.biomedcentral.com/1756-0500/7/394
9. Ananthanarayan and Paniker"s Textbook of Microbiology; 9th edition; Chapter 58 – Hepatitis viruses: pp 546.
10. Alexander Walz, Stefan Wirth, Jurgen Hucke, and Patrick Gerner "Vertical Transmission of Hepatitis B Virus (HBV) from Mothers Negative for HBV Surface Antigen and Positive for Antibody to HBV Core Antigen" *The Journal of Infectious Diseases* 2009; 200: pp1227–31
11. Preeti B. Mindolli and Manjunath P. Salmani "Hepatitis B Virus Seroprevalence among Hospital Based General Population in a Tertiary Care Centre" *International*

Journal of Current Microbiology and Applied Sciences, 2015; 4(10): pp. 964-967
12. T.K.V. Sharavanan, E. Premalatha, N. Dinakaran "Seroprevalence of Hepatitis B Surface Antigen among Rural Pregnant Women Attending a Tertiary Care Hospital" *Scholars Journal of Applied Medical Sciences*, 2014; 2(4C):1351-1354
13. Payal Mathur, Priyanka Soni Gupta, Ranveer Singh, Geeta Parihar and Priyam Sharma. 2016. Seroprevalence of Hepatitis B Surface Antigen and Anti-hepatitis C Virus Antibody in a Hospital-Based Population in Ajmer, Rajasthan, India. *Int. J. Curr. Microbiol. App. Sci*. 5(10):1023-1029.
14. 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
15. Smita Sood and Shirish Malvankar "Seroprevalence of Hepatitis B Surface Antigen, Antibodies to the Hepatitis C Virus, and Human Immunodeficiency Virus in a Hospital-Based Population in Jaipur, Rajasthan" *Indian J Community Med*. 2010 Jan; 35(1): 165–169.
16. 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 Sc i 2013; 6(2) :180-182
17. Poojaba Jadeja, Ashmeet Kaur, Himanshu Shekha "Trend in Seroprevalence of Hepatitis B Virus Infection Among Blood donors at a Tertiary Care Centre of Rajasthan, India" *national journal of medical research*, 2014; 4(3): pp 205-207
18. Mohammed, Y., Sharif, A. and Dabo, N.T. "Seroprevalence of HBsAg Among Patients with Febrile illnessess in Murtala Muhammad Specialist Hospital, Kano, Nigeria" *Bayero Journal of Pure and Applied Sciences*, 8(1): 19 – 23
19. Sameen Afzal Junejo, Nisar Ahmed Khan, Arshad Ali Lodhi "Prevalence of Hepatitis B and C infection in patients admitted at Tertiary Eye Care Centre: A Hospital based study" *Pak J Med Sci*, July - September 2009 ; 25 (4): pp 597-600
20. Ejele OA, Ojule AC. "The prevalence of hepatitis B surface antigen (HBsAg) among prospective blood donors and patients in Port Harcourt, Nigeria." *Nigeria Journal of Medicine*., 2004 Oct-Dec;13(4): pp 336-8.
21. Kazi Rasel Uddin, Salina Akter, Chaklader Md. Kamal Jinnah, Ali Azam Talukder "Epidemiological study of active Hepatitis B and C viruses' infection among patients attended in tertiary care hospital in Dhaka City, Bangladesh" *Journal of Applied Pharmaceutical Science*, 2014; 4 (9): pp 102-109

****

How to cite this article:

Sasikala A *et al*.2016, Seroprevalence of HBV In A Tertiary Care Hospital – A Hospital Based Study. *Int J Recent Sci Res.* 7(10), pp. 13915-13918.