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TO EVALUATE THE PREVALENCE OF HEPATITIS B VIRUS INFECTION IN PATIENTS ATTENDING TERTIARY CARE TEACHING HOSPITAL

Dr Shubhra Sengupta[1*], Dr Sunita R Bhandari[2]

[1*]Associate Professor, Department of Microbiology, SMBT Institute of Medical Sciences and Research Centre, Dhamangoan Nashik
[2]Professor, Department of Microbiology, SMBT Institute of Medical Sciences and Research Centre, Dhamangoan Nashik

***Corresponding Author:**Dr Shubhra Sengupta
*Associate Professor, Department of Microbiology, SMBT Institute of Medical Sciences and Research Centre, Dhamangoan Nashik, Email: shubhrasengupta9@gmail.com

Abstract:
Background: Infection with the Hepatitis B Virus (HBV) is a global health problem. Epidemiological studies worldwide show wide variations in the prevalence patterns of the Hepatitis B infections. Hepatitis caused by hepatitis B virus is potentially a fatal liver infection. It causes acute and chronic liver disease and puts people at high risk of death from cirrhosis and hepato-cellular carcinoma. Early detection can timely diagnosis of the patients with early treatment, can limit the transmission of the infection.
Aim: To estimate HbsAg sero-positivity among patient attending tertiary care centre.
Materials and Methods: Present study was conducted in department of microbiology at tertiary care centre from June 2021 to June 2022. A total of 23760 samples were tested for hepatitis B surface antigen using CLIA (Chemiluminescent immunoassays) quantitative method. Details of various sociodemographic variables of the patients were collected. The test results of the patient were noted and analyzed.
Results: Out of 23760 sera which were studied, 792 (3.33%) were sero-positive cases. Among the positive cases (792), the seroprevalence in males and females were 70% (554) and 30% (238) respectively and the frequency of HBV among age groups 0-20 , 21-40, 41-60, >60 was 7.57% (60), 49.24% (390), 31.56% (250),11.61% (92) respectively. Among the positive cases, a majority were in the age group of 21 to 40 years. The Seroprevalence over one year was found to be 3.33%
Conclusions: Present study highlights the prevalence of hepatitis B infection among patients attending tertiary care centre. The overall prevalence for this HBsAg marker among the patients who attended the rural tertiary teaching hospital in this study was comparatively similar to that which was reported by other studies from India.

Keywords: Hepatitis B (HBV), Immunoassay, Seroprevalence,

INTRODUCTION:

Hepatitis B virus (HBV) infection is a global public health problem affecting millions of people every year and causing morbidity and mortality[1]. HBV infection is the 10th leading cause of death and HBV related hepatocellular carcinoma (HCC) is the 5th most frequent cancer worldwide[2].

Hepatitis B virus (HBV) is one of the prime causes of severe liver disease, leading to morbidity and mortality, not only because of the acute illness but also due to its chronic sequelae like chronic hepatitis, cirrhosis, and hepatocellular carcinoma[3]. In highly endemic areas, hepatitis B is most commonly spread vertically from mother to child at birth (perinatal transmission), or through horizontal transmission (exposure to infected blood), especially from an infected child to an uninfected child during the first 5 years of life[4]. An estimated 50% to 80% of cases of primary liver cancer associated to infection with HBV[5]. A large number of patients suffering from HBV infection are asymptomatic. Occupational transmission from HBV infected patients to health care workers are also major modes of transmission having fourfold increased risk of acquiring HBV infection compared to general population. Hepatitis B is also spread by sexual route[6-7]. The silent nature of the disease with severe morbidity and mortality necessitates early and reliable diagnostic methods[8]. Laboratory diagnosis is essential as it is difficult to differentiate hepatitis B from hepatitis caused by other viral agents on clinical grounds[9].

The prevalence varies significantly between different regions of the world. In India the prevalence rate is between 2%-7% among the population studied[10]. There are very few studies which are available regarding the prevalence of HBV among the patients in the northern part of maharastra. Hence the present study was undertaken to estimate the prevalence of HBV in both sexes and different age groups tertiary care center

METHODS:

The present retrospective study was conducted at tertiary care center, over a period of 1 year from June 2021 to June 2022. All the patients of OPD and IPD who were advised HbsAg serological investigation based on the clinical findings of HBV infection, as a part preoperative screening and antenatal screening were included in the study. Previously diagnosed Hepatitis B infection patients were excluded from the study. Total of 23760 samples studied based on inclusion and exclusion criteria. Samples were tested for hepatitis B surface antigen using CLIA (Chemiluminescent immunoassays) quantitative method. The test results of the patient were noted and analyzed. Details of various socio demographic variables age, sex, type of work, etc were collected. Statistical analysis was done by tabulating the data & analyzed using Microsoft Excel & SPSS version 22. Chi square test was applied wherever necessary.

RESULTS:

A total of 23760 patients tested over a period. 792 (3.33%) were sero-positive cases (Graph 1). Among the positive cases (792), the seroprevalence in males and females were 70% (554) and 30% (238) respectively (Table 1). The frequency of HBV among age groups 0-20, 21-40, 41-60, >60 was 7.57% (60), 49.24% (390), 31.56% (250),11.61% (92) respectively.(Table 2). Among the positive cases, a majority were in the age group of 21 to 40 years. The Seroprevalence over one year was found to be 3.33%.

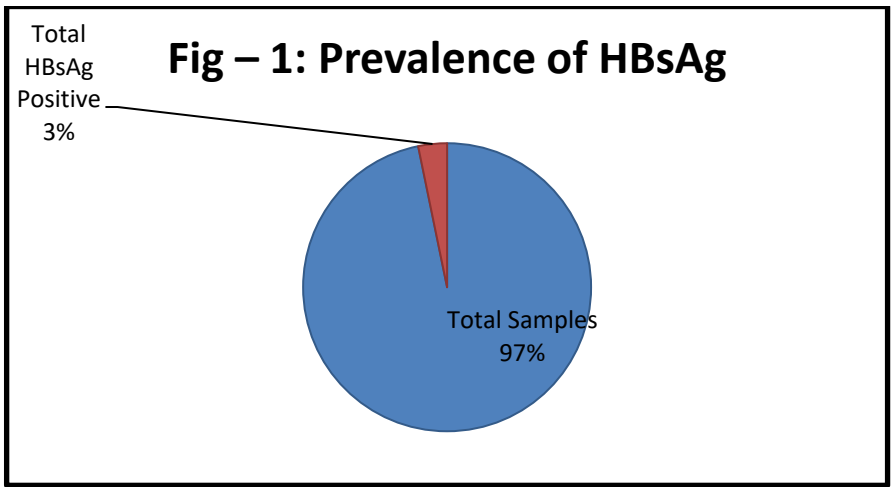

Table 1: Sex wise distribution of HBsAg sero positive patients

	Total Sample (23760)	HBsAg Positive (792)
Male	15444	554
Female	8316	238

Table 2: Age wise distribution of HBsAg Positive Patients

	HBsAg Positive (792)
0-20 years	7.57% (60)
21-40 years	49.24% (390)
41-60years	31.56% (250)
>60 years	11.61% (92)

DISCUSSION:

The prevalence of Hepatitis B, there is a wide variation in the prevalence in different regions of our country. The difference may be because of the type of population studied, not same geographical region, health factors and socioeconomic status. Prevalence is lesser in high standard countries high standards of living like effective vaccination, improved sanitation and safe transfusion measures and highest in countries or areas with low socioeconomic Levels.

In the present study, the seroprevalence was found to be 3.33%. Chowdhury A[11] reported that 3-4% of the Indian population are HBV infected with the highest prevalence among the aborigines of Andaman as well as from Arunachal Pradesh . Our study was in similar to a study conducted in a hospital-based population at Kathmandu Medical College Hospital, Nepal, the prevalence rate was found to be 2.5%[12]. A study on the prevalence of HBsAg in patients attending a surgical OPD in Rawalpindi, Pakistan, reported 2.28%[13]. Our study results were higher to studies reported by other studies from Vellore district, Tamilnadu (1.7%), Rajasthan (0.87%), and Chennai (1.9%)[14,15,16].

In present study We reported higher prevalence in males in similar studies with Dutta et al[17], and Sood S et[15] al8 also reported higher male preponderance because of the possible explanation was higher exposure to occupational HBV risk factors in man.

In our study, higher prevalence belonged to the age group of 21-40 years which was in similar to study by Prity P. Narwade et al.[17] Studies by kumar S et [18] al showed age range 31-45 years was found to have highest prevalence rate with seropositivity of 5.38 %. This could be because of the increased exposure of this population to the risk factors like parenteral drug abuse higher exposure to occupational risk factors etc.

CONCLUSION

The overall prevalence for this HBsAg marker among the patients who attended the rural tertiary teaching hospital in this study was higher to that which was reported by other studies from India, HBV causes a considerable disease should be addressed on national programs in India because significant loss of human life. Possible gaps in the available epidemiological data that need to be addressed before a comprehensive policy can be devised for control of HBV infection in India.

References.

1. World Health Organization. Prévention et lutte contre l'hépatite virale: cadre pour l'action mondiale. 2012. http://www. who. int/ csr/ disease/hepatitis/ GHP_ Framework_ Fr. Pdf
2. Hepatitis B: Fact sheets WHO (http://www.who.int/ mediacentre/factsheets/fs204/en).
3. Razia Khatoon, Noor Jahan.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;23:209-14.
4. World Health Organization. Hepatitis B: fact Sheet. 2016. http://www.who. int/ mediacentre/ factsheets/ fs204/ en/

5. Perz JF, Armstrong GL, Farrington LA, *et al*. The contributions of hepatitis B virus and hepatitis C virus infections to cirrhosis and primary liver cancer worldwide. J Hepatol 2006;45:529–38.
6. Nyalika, B.S. (2021)Prevalence and Associated Factors of Hepa-titis B Surface Antigen (HBsAg) among People Living with HIV (PLWHIV) Attend-ing at CTC Mawenzi Regional Hospital Kilimanjaro, Northern Tanzania. Advances in Infectious Diseases, 11, 216-231.https://doi.org/10.4236/aid.2021.112020
7. Mueller et al. Prevalence of hepatitis B virus infection among health care workers in a tertiary hospital in Tanzania.BMC Infectious Diseases (2015) 15:386 DOI 10.1186/s12879-015-1129-z
8. K S Rashmi, Syeda Misbah-Ul-Khair, K L Ravikumar. Profile of Hepatitis B 'e' Antigen and Antibodies to Hepatitis B 'e' Antigen in Hepatitis B SeropositivePatients at a Tertiary Care Hospital in Bengaluru, India. International Journal of Scientific Study | October 2015| Vol 3 | Issue 7.DOI: 10.17354/ijss/2015/447
9. Razia Khatoon, Noor Jahan.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;23:209-14.
10. Parimal H. Patel, Alka B. Nerurkar , Mehul R. Patel. Seroprevalence of Hepatitis B Surface Antigen in patients attending a tertiary care hospital Valsad, South Gujarat, India.International Journal of Medical Microbiologyand Tropical Diseases, July-September, 2016;2(3):103-106
11. Chaudhary A. Epidemiology of hepatitis B virus in India. Hep B Annual. 2004;1:17-24.
12. Bhatta CP, Thapa B, Rana BB. Seroprevalence of Hepatitis B in Kathmandu Medical College Teaching Hospital. Kathmandu Univ Med J (KUMJ) 2003;1:113-6.
13. Chaudhary IA, Khan SS, Majrooh MA, Alvi AA. Seroprevalence of hepatitis B and C among patients reporting in a surgical OPD at Fauji Foundation Hospital, Rawalpindi: Review of 5 year literature. Pak J Med Sci. 2007;23:514-7.
14. Balaji N, Nadarajah R, Sankar S, Varadhan C. Hepatitis B Virus and Human Immunodeficiency Virus Infections are a Public Health Problem Even in Rural Communities of Vellore District, Tamil Nadu. Indian J Med Microbiol.2009; 27(1):80-81.
15. Sood S and Malvankar S. Seroprevalence of Hepatitis B Surface Antigen, Antibodies to the Hepatitis C Virus and Human Immuno Deficiency Virus in a Hospital based population in Jaipur, Rajasthan. Indian J Community Med ed. 2010;35(1):165-169.
16. Sachan D, Varghese J, Joseph J, Vijaya Srinivasan, Jayanthi V, and Rela M. HBsAg positives patient characteristics in Hospital and Blood donation Camps. SRN Hematol. 2013;2013:675191.
17. Dutta S, Shivananda 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.