

Seroprevalence of Hepatitis B Antibodies Among Year One Students of Federal College of Veterinary and Medical Laboratory Technology, Vom, Plateau State

Ashi RR^{1*}, Chukwu OO¹, Funmilayo IP¹, Dalyop PD¹, Nwankiti AJ¹, Shehu A¹, Kinjir H², Abakaba QO¹, Joshua OE¹ and Zamfara IR³

¹Department of Histopathology, Federal College of Veterinary and Medical Laboratory Technology, Vom, Nigeria

²Department of Hematology, Federal College of Veterinary and Medical Laboratory Technology, Vom, Nigeria

³Department of Virology, Federal College of Veterinary and Medical Laboratory Technology, Vom, Nigeria.

Received December 20, 2023; Revised December 30, 2023; Accepted January 02, 2024

ABSTRACT

The prevalence of HBV was carried out among students of year one who are new in the environment to know the rate of infection associated to them. The study was carried out using a rapid visual immunoassay for the qualitative presumptive detection of the antibody to HBV in the serum. Out of the 117 students tested, 13(22.5%) were positive for the virus. Out of 64 females, 6(9.38%) were positive for HBV. Similarly, 7 (13.21%) of the 53 males were positive. Considering the risk factors analyzed, 38% treated their finger nails with local instruments, 19% patronized the local barbers and 13% had history of blood transfusion, while 3% had multiple sex partners. The age bracket of 21 to 25 had the highest positivity of 8(68%), while the age bracket 26 to 30 showed no positive case. These results showed that some students admitted have HBV infection and the college authority must take deliberate measure to prevent spread of the disease. And there should be proper awareness campaign to the student population on the danger of the disease.

Keywords: HBV, Immunoassay, Disease, Blood transfusion

INTRODUCTION

Historically hepatitis surface antigen (HBsAG) was formally called Australian antigen because it was first described in the serum of an Australian aborigine in 1963. Subsequently in 1968 it was discovered that this Australian antigen was related to type B hepatitis. These particles were designated as hepatitis B virus (HBV).

The prevalence of HBV in infection account for about one million deaths globally and annually [1]. The disease was originally known as a serum hepatitis and constitutes serious and devastating effect on the liver where it becomes the major factor of liver disease and hepatocellular carcinoma in the victims. Hepatitis B virus became a major public health challenge worldwide and it is more prevalent in the developing countries. It is reported that more than two billion people are infected with HBV globally while 280 million are chronic carriers and about 2million of the carriers die each year due to cirrhosis or primary liver cancer induced by the virus. The virus is responsible for 80% of all cases of primary liver cancer, which is one of the leading causes of death in Asia and Africa and about 5 -10% of the infected adults become chronic carriers [2].

Hepatitis B virus as a serious infection to humanity has constituted a global public health problem. It can be transmitted through several routes which include vertical transmission, early life and horizontal transmission, adult life [3]. Nigeria has been considered to be among the highly endemic countries of sub-Sahara Africa with HBV infection. Despite the NPI policy, Nigeria has one of the highest prevalence of HBV infection globally. This is because most people are knowledgeable of HBV but are not aware of the mode of transmission and the health implications [4]. However, HBV infection is a vaccine preventable disease. The vaccination with the monovalent HBV vaccine was

Corresponding author: Ashi RR, Department of Histopathology, Federal College of Veterinary and Medical Laboratory Technology, Vom, Nigeria, Tel: 08035963029; E-mail: ashirobert@yahoo.com

Citation: Ashi RR, Chukwu OO, Funmilayo IP, Dalyop PD, Nwankiti AJ, et al. (2024) Seroprevalence of Hepatitis B Antibodies Among Year One Students of Federal College of Veterinary and Medical Laboratory Technology, Vom, Plateau State. BioMed Res J, 8(1): 658-660.

Copyright: ©2024 Ashi RR, Chukwu OO, Funmilayo IP, Dalyop PD, Nwankiti AJ, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

introduced in 2004 as one of the national programs on immunization (NPI) to be given at 6, 10 and 14 weeks of age. It was recommended that there should be improved surveillance of HBV infection and screening [5].

MATERIALS AND METHOD

Sample collection

Well-structured questionnaire was distributed to the year one students of the college to obtain the demographics and risks factors of each. About 3ml of venous blood was collected from ante-cubital vein into plain containers. The blood was kept for clot formation and retraction. The sera were separated into cryovials and stored at -20 degree Celsius.

Sample examination

The samples were tested using a proprietary Rapid Test Strip manufactured by Skytec in the Virology Laboratory of the

College. The test strip was removed from the foil pouch and was placed on a nonabsorbent, clean and dry surface. Two drops of the serum sample were placed on the sample pad with a disposable pipette and mixed well. The mixture was allowed to stand for 10 min. A positive result was indicated by two color bands, one on the control and one on the test region. While a color on the control band only was the indication of negative result. The appearance of color on the test band only or no color at both control and test band meant invalid result.

RESULT

Out of the total number of one hundred and seventeen (116) samples tested thirteen (13) were positive, seven (7) males and six (6) females while one hundred and four (104) were negative (Table 1).

Table 1. Showing Prevalence of HBV of Age Groups in Relation to Sex.

Age gap (years)	Male	Female	No of Males Pos/%	No of Females Pos/%	Total/%
16-20	13	22	3(2.58)	1(0.86)	4(3.44)
21-25	31	37	3(2.58)	5(4.31)	8(6.89)
26-30	7	3	0	0	0
31-40	2	1	1(0.86)	0	1(0.86)
	53	63	7(6.02)	6(5.17)	13(11.19)

DISCUSSION

This work was carried to evaluate the seroprevalence of HBV infection among the Year students of the college. Out of the 136 students served the questionnaires, 116 students responded and they were subsequently screened for the HBV antibodies. The result showed the positivity with 13 students. This is 11.19% positivity, which falls within the alarming rate of 9-39% recorded by [6]. The earlier study done over 30 years ago compared to the more recent ones to different population in Nigeria on the prevalence of HBsAg have not shown any significant difference. The need to immunize children is the best option to drastically reduce the infection with HBV. Studies revealed that the HBV vaccination program applied in 1992 by Egypt with the schedule of 2, 4 and 6 months of age was a huge success. According to the report, among all populations, children under 20 years with HBV vaccination history in infancy had the lowest prevalence of 0.65%. This is an indication that HBV vaccination during infancy provides adequate protection [7]. Other researchers attributed the high rate of HBV to lack of awareness and knowledge of HBV transmission, especially among Health care workers [4].

The risk factors associated to HBV were also analyzed closely. It was discovered that invasive dental procedures done outside the health facility was shown to be a predictor of HBV infection. Secondly, the reuse of razor blades and needle sticks injuries has been identified as risk factors to HBV infection. However, in another study, unprotected sex, mouth to mouth kissing, blood transfusion, public barbing saloon clipper cuts, manicure and pedicure cuts and scarification was not associated to HBV infection, even though it was reported students who have been cut with reused razors blades and had needle stick injuries were more likely to be infected with HBV [1].

CONCLUSION

Hepatitis viral infection is a worldwide menace that must be given close attention to control its health hazard to any given population. There is need to create adequate awareness on the mode of transmission and the risk factor of the virus.

The program of vaccination should be a deliberate policy of government at all levels, to reduce the infection rate.

REFERENCES

1. Adebola TO, Akin O, Abdulsalami N (2016) Seroprevalence of Hepatitis B Infection in Nigeria: A National Survey. *Amn J Trop Med Hyg* 95 (4): 902-907.
2. Clement C, Kane M, Hu DJ, Kim-Farley R (1990) Hepatitis B vaccine joins fight against Pandemic Disease. *World Health Forum* 11: 165-168.
3. Nongo BH, Agida TE, Ogbenegbu U, Yunusa T (2016) Seroprevalence of HBV among Antenatal attendees at the University of Abuja Teaching Hospital, Nigeria. *Nigeria Med J* 10: 58-62.
4. Nur HM, Nor AM, Nor SMD, Mohd H, Abdul M, et al. (2022) Seroprevalence of Hepatitis B among Healthcare Workers in Asia and Africa and its Association with their Knowledge and Awareness: A Systematic Review and Meta-Analysis. *Front Public Health* 10: 859350.
5. Mustapha UG, Abdulrasul I, Muhammad SB, Chukwu DU, Aisha IM (2020) Seroprevalence of Hepatitis B Virus among Antenatal Clinic Attendees in Gamawa Local Government Area, Bauchi State. *BMC Infect Dis* 20: 194.
6. Ezegbudo CN, Agha MI, Agbolahor DE, Nwobu GO, Igwe CU (2004) The Seroprevalence of Hepatitis B Surface Antigen and Human Immunodeficiency Virus among Pregnant Women in Anambra State of Nigeria. *South Eastern Med J* 5: 20-22.
7. Ahmed A, Heba K, Mohamed AR (2023) Seroprevalence of Hepatitis B virus surface antigen (HBsAg) in Egypt (2000-2022): A systematic review with meta-analysis. *BMC Infect Dis* 23: 151.