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Short communication

Hepatitis B Virus (HBV) Infection Amongst Staff of a Nigerian University

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ABSTRACT

The prevalence of Hepatitis B Virus amongst Ebonyi State University Staff was investigated following undocumented reports of its presence amongst the University personnel. A total of 500 samples collected from volunteer Staffs were screened for Hepatitis B virus using HBsAg rapid test kit. Results obtained were statistically analyzed using statistical packages for social sciences (SPSS 2.0). Only 8 (1.6%) of the 500 samples screened were positive for Hepatitis B Virus. A greater percentage of the positive samples were from males. Age group of 31-40 years had the highest positive samples. Only few of the subjects had previous knowledge of Hepatitis B virus despite working in the university where high level of HBV awareness was expected. This study reports the presence of HBV among Ebonyi State University Staff. This finding underscores the need for HBV sensitization, education and routine screening of Ebonyi State University Staff and other apparently healthy individuals in the environs.

Keywords: *Hepatitis B, Prevalence, Staff, Ebonyi, State, University.*

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INTRODUCTION

Hepatitis is a liver disease commonly associated with viruses. Although the disease can be self-limiting, there is high propensity for progression to fibrosis and cirrhosis which in most cases lead to complete liver damage and possibly cancer (Thomas, 2013).

Viral hepatitis has emerged as a major public health problem throughout the world affecting several hundreds of millions of people. It is associated with considerable morbidity and mortality in humans, usually from chronic active hepatitis to cirrhosis (Nakamoto, 2003). Hepatocellular carcinoma is one of the 10 most common cancers worldwide, which is closely associated with hepatitis B virus (El-sera *et al.*, 2007). Infection result from sexual and parenteral contact with infected body fluids (Howard, 2000). HBsAg secreted into the blood serves as a marker for active infection and infectivity which is usually characterized by high titre of liver enzymes; bilirubin, alkaline phosphatase, alanine amino transferase, aspartate amino transferase (Beck and Nassal, 2007).

Hepatitis B virus is endemic in human population and hyper endemicity has been recorded in many parts of the world (Schaefer, 2007). The prevalence of HBV is high in places like China, South-East Asia and sub-Sahara Africa, Eastern Europe and southern America (Chan *et al.*, 2011). Risk subjects include, persons born in places where hepatitis B infection is common, health care workers, people having sex with an HBV-infected partners, those living in the same household with an HBV-infected person or in closed communities as prisons and some cultural practices that encourage shared use of sharps and lancets among others (Ikobah *et al.*, 2016).

HBV has remained a global problem. In 2013 about 1.5 million people died from viral hepatitis arising mostly from hepatitis B and hepatitis C. with East Asia as the worst affected region of the world (Chan *et al.*, 2011). Symptoms associated with it include muscle and joint pain, fever, loss of appetite, abdominal pain usually at the right upper quadrant, dark urine, nausea and vomiting.

Although various body fluids including blood, saliva, seminal fluid, and breast milk have been implicated in the spread of the infection, infectivity appears to be mostly related

to blood. The epidemiologic properties of this infection are, therefore, wide.

Several studies have reported HBsAg presence and prevalence across settings and demographics in Nigeria (Abiodun and Okolo, 1991; Chukwuka *et al.*, 2003; Agbede *et al.*, 2007; Ugwuja and Ugwu, 2009; Adoga *et al.*, 2010; Ikobah *et al.*, 2016). There is insufficient data on the public health problem among residents in Ebonyi State, especially among the University staff members. This information gap therefore informed the need for the study.

MATERIALS AND METHODS

This study was a cross sectional study carried out between June and September 2016 to determine the sero-prevalence and predictors of viral hepatitis B amongst Ebonyi State University Staff, Abakaliki, Ebonyi State, Nigeria. Rumors from unconfirmed sources were that some deaths in the University were caused by HBV. Ethical approval for the conduct of this study was obtained from the College of Health Sciences Research Ethics Committee and Ebonyi State University Ultramodern Diagnostic Laboratory. All ethical precepts regarding research on humans were duly followed.

Study population: The study population consisted of Ebonyi State University Staff between the ages of 21 to 60 years and who had never been vaccinated against hepatitis B virus. Structured questionnaire was administered to staff to select the right participants for the screening.

Sample Collection /Laboratory analysis: A qualitative detection of HBsAg from the blood samples were carried out using rapid immunochromatographic screening test kit (SKYTEC, USA). Two (2) mls of venipuncture blood sample was collected from each volunteer staff and transferred into a clean plain bottle and allowed to clot. Serum was separated and used for the analysis. With a micropipette, 20 µl of the patient's serum was dropped on the hepatitis B rapid test kit and allowed to stand for 5 minutes. It was then observed for reactions. Reactions with single bands indicate negative results whereas those with double bands stand for seropositivity.

Statistical analysis: The data obtained was analyzed using statistical package for social sciences (SPSS) version 20.2 (Inc. Chicago, Illinois –USA). A p-value of 0.05 was considered statistically significant.

RESULTS

A total of 500 blood specimens consisting of 250 males and 250 female staff members of Ebonyi State University Abakaliki were analyzed. Only 8 (1.6%) subjects were positive out of the 500 staff's samples screened. Age ranges of patients were between 21 to 60 years categorized into 4, 21-30yrs, 31-40yrs, 41-50yrs and 51- 60yrs Table 1).

The age range with the highest incidence of Hepatitis B virus was between 31 and 40 years. The number of positive

samples was 1.6% (8). HBsAg distribution in relation to gender was male 6 (2.4%) and female, 2 (0.85) (Table 2). The result of the relationship between educational qualification and incidence of HBsAg was degree holders 1 (1.00%), WAEC holders and above (non-degree) 4 (2%) and non WAEC holders 3 (1.5%). Overall percentage degree holders positive was 0.2% (1) and non-degree holders (WAEC and below) 1.75% (7).

Table 1:

Age-related prevalence of HBsAg among Staff of Ebonyi State University Abakaliki.

Age range (years)	Number of participant (male & female)	Number of positive (%)	X ² Value	P- Value
21-30	125	2 (1.6)	3.049	.084
31-40	125	4 (3.2)		
41-50	125	1 (0.8)		
51-60	125	1 (0.8)		

N = 500 df = 3

Table 2:

Gender-related prevalence of HBsAg among staff of Ebonyi State University, Abakaliki

Gender	Number of tested	Number positive for HBsAg (%)	X ² Value	P-value
Male	250	6 (2.4%)	2.033	.285
Female	250	2 (0.8%)		

N = 500 df = 1

Table 3:

Educational status-related prevalence of HBsAg among staff of Ebonyi State University Abakaliki.

Educational qualifications	No. of screened participants (male & females)	Prevalence (%)	X ² Value	P- Value
Degree & above	100	1 (1%)	.445	
None degree (post WAEC)	200	4 (2%)		.801
WAEC & below	200	3 (1.5%)		

N = 500 Df = 2

DISCUSSION

Different HBsAg prevalence has been reported across settings in Nigeria (Abiodun and Okolo, 1991; Agbede *et al.*, 2007; Ugwuja and Ugwu, 2009; Adoga *et al.*, 2010). The differences

might be due to different levels of awareness of the mode of transmission of the virus and lack of vaccination. The percentage prevalence of hepatitis B amongst Ebonyi State University staff was 1.6%. Similar study in Calabar, Nigeria by Ikobah *et al.* (2016) amongst pre-adult school children reported prevalence of 1.2% among pupils who were between ages of 11-19 years old. Though the 1.6% prevalence reported in this study was slightly higher than the report of Ikobah *et al.* (2016), probably because of differences in the study group, it was in sharp contrast with reports from the same environment by Ugwuja and Ugwu (2009), who reported a prevalence of 4.1% amongst adolescents in Abakaliki metropolis. The different levels of prevalence now reported in Abakaliki, Ebonyi State could be attributed to the different age groups involved. Life style changes with age and exposure to infection increases with age

Majority of the positive subjects were males (2.4%) with females (0.8%). Most studies have reported prevalence in both males and females (Donbraye *et al.*, 2014; Ikobah *et al.*, 2016). However, the reason for the gender difference in this study where males had higher HBsAg prevalence despite that equal numbers of male and female subjects were screened could not be established. However, it is a common knowledge that males tend to share sharp instruments like clippers and razor blades more readily during shaving and barbing of hair than their female counterparts. Males are polygamous in nature, engaging and marrying many wives, thereby exposing themselves more as they engage in sexual activities. This study reports that there was no significant difference between gender and incidence of HBsAg ($p>0.5$).

The reason for the differences in the incidence of the virus amongst degree holders' non-degree and non-WAEC holder staff of Ebonyi State University might not be far-fetched. Awareness about the virus was either very low or non-existent in most cases as documented among the participants through the structured questionnaire. There was no significant difference between educational qualification and incidence of HBsAg ($P>0.5$).

Vaccination against hepatitis virus has not been implemented in this environment (a failure on part of government) despite its introduction into Nigeria Healthcare System many years back. Transmission hepatitis infection is encouraged by some traditional medicine men (herbalists) who use one sharp blade or pen-knife on many of their patients when trying to access blood to introduce herbs. This has been vigorously reported by Chukwuka *et al* (2003) that awful tradition practices such as scarification marks involving the use of one razor blade that are used amongst the youths during initiation remained a major risk factor. This study reports that some of the subjects screened admitted that they had at one time or another been attended to by local herbalist who used blade to scare them at the shoulder. Whether there was relationship between HBsAg and scaring was not investigated and remains subject for further research. In addition, blood for transfusion is processed by private laboratories manned by quack medical laboratory scientists who transfuse blood poorly screened for hepatitis B virus.

The age-specific prevalence of HBsAg was investigated. There was no association between age and HBsAg seropositivity. The age distribution of Ebonyi State University

Staff showed that staff within the age bracket (31-40) had HBsAg prevalence of 3.2% as against the age bracket of 21-30 with HBsAg prevalence of 1.6%. Age bracket of 41-50 and 51-60 had prevalence of 0.8% each. Reason for this is not clear but could be attributed to high sexual activity involving multiple sexual partners, travels and adventurism amongst male of this age group. Worst still, males and females of this age bracket in Ebonyi State rarely care about protective measures such the use of condom and vaccination which can be sourced from private vendors.

This study concludes that hepatitis B virus prevalence of 1.6% was recorded amongst staff of Ebonyi State University. It also reports that cases of hepatitis B virus were more prevalent amongst males than females and were highest amongst age bracket of 31-40. Compared to reports elsewhere (Musa *et al.*, 2015) where $\leq 1\%$ HBsAg prevalence was documented, HBsAg prevalence of 1.6% was too high for an agrarian state like Ebonyi, although higher prevalence has been reported elsewhere. As a consequence, further studies are recommended to ascertain whether the demographic prevalence observed were wide spread or limited to Ebonyi State University alone. Further sensitization of EBSU staff especially the non-academic staff among whom the prevalence was observed is advocated. Health education for the entire Ebonyi people is recommended. Government is encouraged to mount a state wide awareness campaign on the dangers of hepatitis B virus and patronage of unscreened blood and need for protective sex as well as providing vaccines to curb further spread of the virus.

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