The Knowledge and reported vaccination status of hepatitis B virus amongst medical students in a Nigerian tertiary teaching hospital

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Abstract

Objective: Preventing the occupational risk of contracting the Hepatitis B virus (HBV) is against a backdrop of knowledge and vaccination. The aim of the study was to assess the knowledge of the medical students on HBV infection and their vaccination status.

Method: A cross-sectional study on was conducted using a self-administered questionnaire. Data of 202 students were analyzed using SPSS v. 20. Descriptive statistical tests were applied.

Result: Subjects' ages ranged from 19 to 36 years, mean age of 25.65± 3.3years, 54.1% were males. The knowledge score on general knowledge was 79.2%, on risks factors and mode of transmission of virus was 74.9% whilst on prevention was 89%. The reported vaccination status was 22.8%. Eighty one of them (40.1%) had been tested for the HBV with 4(4.9%) testing positive.

Conclusion: The medical students had good knowledge of the Hepatitis B virus however the vaccination status was low.

Keywords: Chronic Hepatitis B, Health care workers, mode of transmission,

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Connaissance et statut vaccinal du virus de l'hépatite B chez des étudiants en médecine d'un établissement d'enseignement supérieur nigérian

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Abstrait
Objectif: le risque professionnel de contracter l'hépatite B peut être prévenu par une éducation adéquate en matière d'infection, qui influence l'attitude et la couverture vaccinale.
Objectif: évaluer les connaissances des étudiants en médecine et leur statut vaccinal.

Méthodes: Un questionnaire structuré a été utilisé pour obtenir les réponses des étudiants en médecine. Résultat: sur les 207 étudiants en médecine, âgés de 19 à 36 ans (âge moyen = 25,65 ± 3,3 ans), seuls 25% ont correctement identifié tous les modes de transmission; 97,5% pensaient que le vaccin conférait une protection contre le virus, mais 22,2% seulement des étudiants en médecine étaient vaccinés. Comparativement, les étudiants en médecine des années V et VI avaient une connaissance plus générale et le mode de transmission de l'hépatite B que l'année IV (p = 0,00).

Conclusion: cette étude a révélé la vulnérabilité des étudiants en médecine à l'hépatite B en raison de la connaissance insuffisante du mode de transmission du virus et de la faible couverture vaccinale.

Mots-clés: Hépatite B chronique, travailleurs de la santé, mode de transmission,

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INTRODUCTION

Hepatitis B virus (HBV) infection is a major global health challenge with an estimated 240 million people chronically infected with hepatitis B and approximately 780,000 people die each year due to consequences of hepatitis B (1). The prevalence of HBV chronic infection is particularly high in sub-Saharan Africa, ranging from 7 to 26% (2). In Nigeria, the prevalence of HBV ranges from 7.3- 24% of the population (3). Sexual transmission, vertical transmission, and unsafe injections, including intravenous drug use, are the most common routes of infection for HBV.

Hepatitis B virus is an important occupational hazard for healthcare workers (HCW); medical students are likely to be at high risk to get and spread HBV because their activities involve contact with patients or blood or other body fluids in healthcare practice and laboratories (4-6). The risk of contracting the infection is said to be highest during their professional training (7-9) and it is acquired in the hospital setting via needle prick injuries from contaminated needles, eye contact with infected body fluids or from contact of infected body fluids with broken skin (10). Prevention is the only safe strategy against high prevalence of the viral hepatitis. Having enough knowledge and proper attitudes toward this infection and vaccination are the cornerstones of preventing transmission. Medical students have a very important role in preventing the disease by improving the disease knowledge among themselves and the patients they treat (11). As far as we know, there is paucity of data as regards assessment of the knowledge of medical students about the Hepatitis B virus as well as the vaccination situation in Nigeria. It is therefore with this background, this study aimed to determine the knowledge and hepatitis B vaccination status of medical students at a Tertiary Teaching Hospital in Nigeria.

MATERIALS AND METHODS

Study location and design: Olabisi Onabanjo University Teaching Hospital is 205 bedded hospital situated in Sagamu, Ogun State; she is located in the south western part of Nigeria and receives referrals from both public and private hospitals from Lagos metropolitan and the communities around Sagamu for both inpatient and outpatient care. This was a descriptive cross-sectional study conducted in August 2015 among medical students in their clinical years.

Study Participants and Sampling: Participants were recruited through a non-randomized sampling of eligible medical students who were available during lectures during the period of the study. Eligible participants were students in the clinical years (IV, V and VI). There were one hundred and sixteen, fifty three and one hundred and fifty four medical students in year IV, V and VI classes respectively so that the total numbers of eligible students were three hundred and twenty three. The invitation to participate was made during lectures, generally about 80% of students attend lectures and therefore only students available during the lectures on different occasions were recruited. The objectives of the study were explained to the participants and they were aware that their participation to fill a self-administered questionnaire was voluntary. Anonymity was assured to each subject before the students included in the study. Before filling the questionnaire, the students signed an informed consent form (ICF); consenting participants were given printed copies of the questionnaire and allowed time to fill them at their will and convenience. Ethical approval was obtained from the Health Research and Ethics Committee of the Teaching hospital before commencement of study.

For the collection of data, we used a structured questionnaire that was adopted from a previous study (11). The language of instruction at the medical school is English therefore the questionnaire was administered in English Language. The questionnaire consisted of four sections:

1. Socio-demographic and academic characteristics;
2. Knowledge of the HBV;
3. HBV prevention;
4. Vaccination status.

In the context of the present study, we considered participants adequately vaccinated if they had received a minimum of three intramuscular injections of 20 micrograms of HBsAg (hepatitis B surface antigen) at a schedule of 0, 1 and 6 months. Their knowledge was considered "good" if the mean percentage of correct answers was equal or greater than 75%, "fair" if it was less than 75% and equal or greater than 50%, and "poor" if it was less than 50% (12). The data obtained were analyzed using the statistical package for social science (SPSS) version 20.0. The univariate analysis was performed by descriptive statistics through frequencies and percentages. Categorical variables were expressed as frequency (%), and

group comparison were by the Pearson's Chi-square. A p-value of 0.05 or less was used as cut off level for statistical significance.

RESULTS

Two hundred and fifty eight students were available during lectures and of which 207 (80.2%) respondents returned the questionnaire properly filled. The ages of the students ranged from 19 to 36 years with a mean age of 25.65 years ± 3.3. Ninety six (46.4%) were female. Information on sex was missing for one participant (0.5%). Eight (3.9%) of them were married while one hundred and ninety nine of them were single (96.1%). See table 1 for demographic characteristics of the participants.

General Knowledge of Chronic Hepatitis B.

The study revealed that 202(97.6%) were aware or had heard of chronic hepatitis B virus infection. As regards the general knowledge on Hepatitis B, the knowledge score was 79.2% which was good. Out of those aware of the virus, 195(96.5%) knew it was of viral origin. One hundred and twelve (55.4%) of the students knew that chronic Hepatitis B was mostly asymptomatic and 156 (77.2%) responded that patients with hepatitis B should be allowed to work. The respondents who knew that doctors and medical students were more prone to the infection were 177(87.6%). See Table 2

Knowledge on Mode of Transmission and Risk Factors of Hepatitis B

Among all the respondents, as regards the mode of transmission and risk factors of the hepatitis B virus, their knowledge score was fair (74.9% of correct answers), although only 52(25.7%) of the students knew all the mode of transmission of the virus and 31(15.3%) correctly identified all the risk factors associated with contracting the virus. Fifty two(25.7%) identified dental procedure as a risk factor to contracting Hepatitis B infection when compared to blood transfusion (183; 90.6%), Piercing and Tattooing (152;75.2%), Needle pricks (147;72.8%) and sexual transmission (137; 67.8%) and vertical transmission (104; 55.5%. See Table 3.

Knowledge on Prevention of Hepatitis B and the Vaccination Status

The knowledge score on the prevention of hepatitis B was good (89% correct answers); 194(96.0%) responded that hepatitis B infection can be prevented with 189(92.8%) of them responding that the vaccine confers protection against the HBV, however only 160(79.2%) knew that the ideal time for receiving immunization against the virus was at infancy. See table 4. Eighty one of the participants (40.1%) had been tested for the HBV infection with 4(4.9%) of them testing positive. Of the total of 202 students, forty six (22.8%) were adequately vaccinated against hepatitis B (received ≥ 3 doses of the vaccine), forty (19.8%) had incomplete vaccination (one or two doses of the vaccine), and 116 (57.4%) were unvaccinated (received zero, did not know their vaccination status or did not know the number of vaccine doses received). See Figure 1. Year IV medical students were less vaccinated than years V and VI ($p < 0,001$). There was no significant statistical association between HBV vaccination status and gender ($p = 0.629$) (Table5). Among the forty students who had incomplete vaccination against hepatitis B, 22 students (55%) received one dose while eighteen (45%) received two doses.

DISCUSSION

In this study we sought to assess the knowledge of Hepatitis B as regards the general knowledge, mode of transmission, and the vaccination status of the medical students in their clinical years. We looked at the knowledge of chronic hepatitis B infection and the reported vaccination status among medical students because their knowledge of the Hepatitis B virus which influences the vaccination status is imperative to reduce the transmission and therefore the burden of HBV related chronic liver disease considering the fact that they have increased risk of acquiring the virus in their clinical years. Most of the medical students were aware or had good general knowledge of the HBV infection which is similar to findings among other health workers in previous studies in Nigeria (13, 14); which may be due to a general public awareness as there are increasingly more awareness campaigns of viral hepatitis in the media, apart from the fact that they would have been taught as part of their lectures. Our findings also revealed that majority of the responses indicate adequate knowledge regarding some modes of HBV transmission for example blood transfusion (90.3%), Piercing and Tattooing (74.9%), Needle pricks (72.5%) and sexual (67.6%) while the knowledge of dental visits as a risk factor for transmission of HBV was low at 25.1%. In general, they had a fair knowledge of the mode of transmission and risk factors of the virus. This finding appears to be in contrast with other reported studies where their respondents had general low knowledge of the mode of

transmission (12, 15, 16). There is a gap in the knowledge of the medical students regarding all the mode of transmission of this potentially life threatening infection. The plausible reason could be inadequate training programs on prevention and control of HBV. This gap in knowledge needs to be addressed as the scientific knowledge of the modes of HBV transmission is valuable so that the medical students can learn to protect themselves during their clinical posting. (16-19).
A significant number of the respondents knew that the disease is preventable and that the vaccine protects against the infection however only 22.8% of the medical students had been adequately vaccinated, while the rest had incomplete vaccination or were unsure of their vaccination status. The finding of 22.8% vaccination status in our undergraduates was low and less than studies done in Sweden 40% (20), Bangladesh (40.7%) (5), and Saudi Arabia, 52.2% (4). However the vaccination status was higher than an earlier reported study by Odusanya et al (6) in Nigeria in 2007 where only 2.6% of their respondents were vaccinated. This might perhaps mean that more awareness of the occupational hazard of the HBV has been created since then albeit still inadequate. A significant proportion, 57.4% which were classified as unvaccinated consisted of respondents who were unsure of their vaccination status. This finding is similar to a study conducted that examined self-reported vaccination among medical students which revealed that students had poor specific knowledge of their previous vaccinations (18). It is worrisome that the reported vaccination status among the students is low considering the fact that the need for HBV vaccination among all medical students should be a priority (21-23).

CONCLUSION

This study demonstrated that the student had a good general knowledge of the Hepatitis B virus, fair knowledge on the mode of transmission and the risk factors in contracting the virus. There was good knowledge on prevention of the virus using vaccine however the reported vaccination status was low among the medical students. There is therefore a need to implement a policy to make vaccination a priority among medical students.

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Conflict of interest: The authors declare none.

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Table 1: Demographic characteristics of 207 study participants.

Parameter	Number of Subjects	Percentage
CLASS		
IV	70	33.8
V	41	19.8
VI	96	46.4
GENDER		
Male	110	53.1
Female	96	46.4
Unspecified	1	0.5
MEAN AGE(SD)	25.65± 3.3	
MARITAL STATUS		
Married	8	3.9
Single	199	96.1

Table 2: Responses to questions on general knowledge on Hepatitis B for 202 students.

QUESTIONS	RESPONSES	FREQUENCY	PERCENTAGE
Most cases of chronic	Asymptomatic	112	55.4
Hep B	Symptomatic/do not know	90	44.6
Doc & students more	Yes	177	87.6
prone to infection	No/ No response	25	12.4
Hepatitis patient	Yes	156	77.2
allowed to work	No/ No response	46	22.8
Causative agent	Virus	195	96.5
	Bacteria	3	1.5
	Protozoa	1	0.5
	Do not know	3	1.5

Table 3: Correct Answers on the knowledge on the mode of transmission and risk factors

QUESTION	CORRECT RESPONSES	FREQUENCY	PERCENTAGE
Mode of spread	All mode of transmission	52	25.1
	Blood Transfusion	183	90.6
	Sexual	121	59.9
	Vertical transmission	104	51.5
	Contaminated food	187	92.6
	Physical contact	156	77.2
	Saliva	156	77.2
Risk factors	All risk factors	31	15
	Smoking	179	86.5
	Alcohol use	149	72.0
	Piercing & tattoo	155	74.9
	Blood transfusion	183	90.6
	Dental visit	52	25.1
	Contaminated food	194	93.7
	Contaminated drinks	194	93.7
	Needle pricks	150	72.5
	Sexual	140	67.6

Table 4: Responses to questions on prevention of Hepatitis B

Questions	Responses	Frequency	Percentage
Hepatitis B preventable	Yes	198	95.7
	No/No response	7	3.4
Vaccine protects against the infection	Yes	189	93.6
	No/ No response	13	6.4
Ideal age of vaccination	Infancy	161	77.8
	Youth	20	9.7
	Adulthood	7	3.4
	No response	19	9.2

Table 5: Comparatively analysis of reported vaccination status among the levels of students and Gender of Students.

Level of class	Complete vaccination	Incomplete vaccination	Not vaccinated	X2	P value
VI	36(37.5)	21(21.9)	39(40.6)	30.81	0.0000
V	8(19.5)	7(17.1)	26(63.4)		
IV	2(3.1)	12(18.5)	51(78.5)		
Male	21(19.4)	21(19.4)	66(61.1)	2.61	0.629
Female	25(26.9)	19(20.4)	49(52.7)		

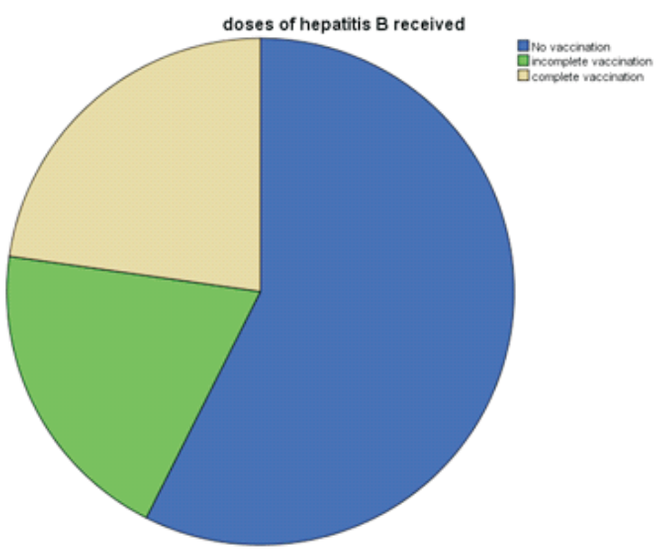

Figure 1: Reported vaccination status among 202 students