

Hepatitis B surface antigen seropositivity and knowledge of Hepatitis transmission

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Abstract

Introduction: Despite its staggering toll on health, diseases arising from hepatitis are largely unknown, unappreciated, undiagnosed and untreated. Many Nigerians are unaware of their hepatitis B status and often present late to hospital with advanced chronic liver disease. The objectives were to determine the hepatitis B sero-prevalence rate; assess respondents' risk factors for hepatitis B and knowledge about hepatitis B infection.

Methods: The study was a descriptive cross-sectional survey of persons who attended the 2012, World Hepatitis Day ceremony at the Benue State University Teaching Hospital in Makurdi, Nigeria. Interviewer-administered questionnaires were used to obtain information from consenting participants. All consenting respondents were also screened for hepatitis B using the Hepatitis B surface antigen (HbsAg) test.

Results: Hepatitis B sero-prevalence rate was 14.2%. Most of the respondents were: aged 15-49 years (75.8%), males (51.5%), currently employed (55%), and had 6-10

persons in their household (51.7%). Only 6.4% had ever been transfused with blood, 4.3% had a history of jaundice, and 15.2% had a family member with hepatitis B infection. Majority (85.1%) had poor knowledge regarding hepatitis B and only 27.4% had previously screened for it. Factors predictive of hepatitis B sero-positive status were: male gender ($P = 0.001$), a prior hepatitis B screening test ($P = 0.002$) and family member with hepatitis B infection ($P = 0.047$).

Conclusions: Sero-positivity to HbsAg is high among the participants of this study, yet awareness is remained poor. There is the need for renewed commitment of all stakeholders towards prevention and control of hepatitis B in Nigeria.

Keywords: Hepatitis B, Knowledge, Prevalence, Risk Factors

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Introduction

Despite its staggering toll on health, diseases arising from hepatitis are largely unknown, unappreciated, undiagnosed and untreated.^{1,4} Many Nigerians like other populations across the world are unaware of the different forms of hepatitis: they do not know what causes hepatitis or how hepatitis viruses are transmitted; neither do they know who is at risk of acquiring hepatitis nor the known methods of prevention and treatment of hepatitis available.^{2,5}

Furthermore, many Nigerians have never tested for hepatitis B in their lifetime.⁵ Where individuals test for

hepatitis B and are found to be infected, they often become victims of con men offering instant cure through herbal/alternative medicine. For instance, a popular alternative medicine centre in Jos, the capital of Plateau State in North-central Nigeria claims hepatitis B virus (HBV) cure following three injections given on three consecutive days. This centre is highly patronised by a lot of people across the country and is indeed just one of such hepatitis 'miracle houses' operating in Nigeria. At these centres, clients are advised on several issues. Often, these advises are not helpful in the care of people with hepatitis B. For instance, centres dispensing herbal medicines frequently advise their clients to avoid modern hospitals; claiming that hepatitis B is not treated in hospitals. Clients with hepatitis B are often given dietary advice by their care provider, concerned family members or neighbours. Such clients are advised to abstain from oil and protein of all kinds, and their meals are reduced to just carbohydrate; erroneously claiming that such meals worsen hepatitis. This dietary counsel is often imposed to the extent that some individuals become malnourished.

The high acceptability of alternative medicine as evidenced by the high turnout at the alternative

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hepatitis care centres could be a reflection of the low level of awareness concerning hepatitis in Nigeria.⁵ This low level of awareness does not only pose a great medical danger for the infected individual, their relations and the general public, but it is equally economically wasteful. Poor understanding of hepatitis B constitutes a barrier to prevention and control of hepatitis B.^{5,6} People with hepatitis B may not be aware of the infection until the symptoms of liver disease begin to occur.⁷ They present late to hospital with advanced chronic liver disease (CLD), are often very ill, and sometimes die from the complications of CLD. Unfortunately, most individuals with HBV begin to manifest with illness at a prime age when they form part of the essential workforce and are bread winners for their families. Their ill health leads to loss in man hours, reduction in manpower and productivity as well as dwindling resources for the family. The objectives of this study were to determine the hepatitis B sero-prevalence rate; assess respondents' risk factors for hepatitis B and knowledge about hepatitis B infection.

Materials and Methods

Study design and scope

The study was a descriptive cross-sectional survey of persons attending the 2012 World Hepatitis Day ceremony which held on the 28th of July 2012, at the Benue State University Teaching Hospital, Makurdi, Nigeria. A convenience sampling technique was used to recruit participants into the study after obtaining informed verbal consent.

Measures

A concise, interviewer-administered questionnaire was used to obtain information on: (1) Respondents' socio-demographic characteristics including age, gender, current employment status and number of persons per household. (2) Respondents' awareness of hepatitis B including a previous screening test. (3) Risk factors for hepatitis B infection including a history of blood transfusion and jaundice, and whether a family member was infected or not. (4) Respondents' knowledge of the modes of transmission of hepatitis B.

Knowledge of the modes of transmission of hepatitis B was assessed on a four-item, three-point Likert scale. The four items were: (1) hepatitis B can be spread through blood; (2) hepatitis B can be spread through needle prick and sharp objects; (3) hepatitis B can be spread through sexual intercourse; and (4) hepatitis B can be passed from mother-to-child. The Likert scale 3-point response categories were: "agree", "don't know", and "disagree", corresponding to scores of 3, 2 and 1, respectively. The total knowledge score for each respondent was calculated by summing up his/her scores for the four items. The possible range of total knowledge scores were 12 (high), 8 (mid-point) and 4 (low). Since the mid-point was "don't know", the

Likert scale was dichotomized to represent "good knowledge" and "poor knowledge" corresponding to scores of 12 and less than 12, respectively.

All consenting participants were also screened for hepatitis B using the Hepatitis B surface antigen (HbsAg) Acumen diagnostic tests kit and the results were privately disclosed to them. Those who tested positive were linked with the health care system for further management.

Data analysis

Data were entered into Microsoft Excel programme and imported into SPSS version 16 for analysis. The outcome variable was hepatitis B sero-status while the independent variables were socio-demographic characteristics, risk factors for hepatitis B, and knowledge of hepatitis B. Descriptive statistics were generated for each variable, including frequencies and percentages for categorical variables. Associations between variables were tested with chi-square; and multiple logistic regression was performed to identify factors predicting hepatitis B infection. Only variables associated with a P value <0.10 in bivariate analyses were considered eligible for inclusion in multiple logistic regression analysis. Level of statistical significance was set at P <.05. Cases were excluded if they were missing data required for specific analyses.

Results

Socio-demographic characteristics

Four hundred and fifteen people were in attendance at the 2012 World Hepatitis Day ceremonies in Makurdi. Out of these, 388 (93.5%) consented to participate in the study. Within this study population, 55 respondents tested positive for hepatitis B surface antigen, giving a sero-prevalence rate of 14.2%. About three quarters (75.8%) were aged 15-49 years; while slightly over half were males (51.5%), with 6-10 persons in their households (51.7%); and were currently employed (55%) as shown in Table 1.

Risk factors for and knowledge about hepatitis B infection

Only 25 (6.4%) respondents had ever been transfused with blood; 17 (4.3%) reported a history of jaundice, while 59 (15.2%) knew a family member who was infected with hepatitis B. Majority (85.1%) of the respondents had poor knowledge of the modes of transmission of hepatitis B and only about a quarter (27.4%) had previously screened for it (Table 1).

Associations between outcome and independent variables

On bivariate analysis, a significantly higher proportion of persons aged 50 years and above (21.1%) were found to be hepatitis B positive compared with persons in the other age groups (P = 0.042). Significantly more males (19.5%) tested positive for hepatitis B compared with females (8.5%) (P = 0.002). Other significant

associations were family member with hepatitis B ($P = 0.002$) and a prior hepatitis B screening test ($P < 0.001$) (Table 1).

Table 1: Socio-demographic characteristics, risk factors for hepatitis B infection, and knowledge about hepatitis B infection in Makurdi, Nigeria

	Total n (%)	Hepatitis B sero-status		P value
		Positive n (%)	Negative n (%)	
Socio-demographic characteristics				
Age group (years)				
< 15	75 (19.3)	4 (5.3)	71 (94.7)	0.04
15-49	294 (75.8)	47 (16.0)	247 (84.0)	
50	19 (4.9)	4 (21.1)	15 (78.9)	
Males	200 (51.5)	39 (19.5)	161 (80.5)	0.002
Currently employed	213 (55.0)	31 (14.6)	182 (85.4)	0.83
Number of persons in household				
1-5	179 (46.5)	25 (14.0)	154 (86.0)	0.52
6-10	199 (51.7)	30 (15.1)	169 (84.9)	
Don't know	7 (1.8)	0 (0)	7 (100)	
Risk factors for hepatitis B infection				
History of blood transfusion	25 (6.4)	2 (8.0)	13 (76.5)	0.36
History of jaundice	17 (4.3)	4 (23.5)		0.25
Family member with HBV	59 (15.2)	16 (27.1)	43 (72.9)	0.002
Knowledge about hepatitis B infection				
Knowledge of hepatitis transmission				
Good			23 (92.0)	0.92
Poor	58 (14.9)	8 (13.8)	50 (86.2)	
Prior hepatitis B screen	330 (85.1)	47 (14.2)	283 (85.8)	<0.001
	106 (27.4)	28 (26.4)	78 (73.6)	

Table 2: Logistic regression model of factors predicting hepatitis B infection in Makurdi, Nigeria

Variable	Adjusted odds ratio	95% Confidence Interval	P value
Age group (years)			
<15	0.35	0.07-1.88	0.22
15-49	0.93	0.24-3.58	0.91
50			
Male sex	3.10	1.58-6.07	0.001
Prior Hepatitis B test	2.74	1.43-5.27	0.002
Family member with hepatitis B	4.86	1.02-23.15	0.04

On logistic regression analysis, male gender was most predictive of hepatitis B infection (OR = 3.10; CI = 1.58-6.07; $P = 0.001$), followed by a prior hepatitis B screening test (OR = 2.74; CI = 1.43-5.27; $P = 0.002$) and having a family member with hepatitis B infection (OR = 4.86; CI = 1.02-23.15; $P = 0.047$) (Table 2).

Discussion

This study of participants attending an awareness programme to mark the 2012 World Hepatitis Day showed a high HbsAg sero-prevalence rate with

associated correlates being the male sex, older age and having a family member infected with HBV. Additionally, our study demonstrates a poor knowledge of the transmission of HBV infection.

The sero-prevalence rate in our study is comparable with the generally reported high endemicity (8-20%) of hepatitis B in sub-Saharan Africa^{4,8}. Our findings are also similar to those of other workers in Nigeria who had documented prevalence of 10-15% in different cohorts of patients.^{9,11} This observation suggests that Benue State and indeed other parts of Nigeria are hyper endemic for hepatitis B. Other studies among predominantly male blood donors had reported higher prevalence rates compared to our study which may be explained by the fact that males are more prone to hepatitis B.^{12,13} This position is further strengthened by reports from several authors documenting lower prevalence of hepatitis B among pregnant women compared to our study.¹⁴⁻¹⁹ Of critical importance is the finding of a study by Bukbuk et al²⁰ among primary school pupils in a rural school in north eastern Nigeria which reported a very high prevalence of hepatitis B in 44.7% of the pupils tested. Overcrowding and clustering in the school and non availability of HBV vaccine in the remote villages might have been contributory to such high prevalence in that study. The study by Bukbuk et al²⁰ indicates that vertical and horizontal transmissions still remain important means of transmission of hepatitis B in the young population in Nigeria and emphasizes the importance of vaccination in childhood. About three quarters (75.8%) of the subjects were aged 15-49 years similar to several studies among blood donors and pregnant women in Nigeria.¹⁰⁻¹³ This study had approximately equal number of males and females participating unlike most of the other studies where there was either a male predominance among blood donors^{9,11-13} or a homogenous female study involving pregnant women.¹⁴⁻¹⁹ About half of the study populations lived in crowded homes with 6-10 persons in their households reflecting the extended family structure practiced in Nigeria²¹.

Majority of the respondents in this study had poor knowledge of the modes of transmission of hepatitis B. Our finding is similar to that of several workers who independently reported poor knowledge to transmission of hepatitis B in parkistan.²²⁻²⁴ Only about a quarter of the participants had previously screened for hepatitis B implying that majority of them do not know their hepatitis status further emphasizing the poor knowledge on hepatitis. This is particularly worrisome considering the high prevalence documented in this study. Few (6.4% and 4.3%) of the respondents had previous history of blood transfusion and history of jaundice respectively which was not statistically significant similar to the report from Jos.²⁵

This study showed that a significantly higher

proportion of persons aged 50 years and above were HbsAg positive ($P = 0.04$) compared with persons in the other age groups. This finding is consistent with the observation by several other authors that HbsAg seropositivity rises with age.^{20,26-28} However the lower rates seen in the younger age groups in this study could be a reflection of the impact of the widely practiced routine vaccination of all new born children for HBV introduced in Nigeria about a decade ago.

The findings of our study must be interpreted in the light of some of the limitations encountered. Firstly, the participants are highly selected as they volunteered to attend the workshop. A multi-stage sampling method would have circumvented this. Secondly, we relied on historical account of the occurrence of risk factors for HBV in this study and as such, the findings are subject to recall bias. Finally, our study is limited by the relatively small sample size. However, our findings document a high prevalence of HbsAg positivity among these subjects.

Early identification of chronic hepatitis B infection through screening of asymptomatic people using HbsAg test has remained a crucial strategy in the management and control of hepatitis B. Makurdi is hyperendemic for hepatitis B infection, yet awareness has remained poor. We therefore recommend renewed commitment of all stakeholders towards prevention and control of hepatitis B.

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