
HIGH-RISK BEHAVIOUR AMONG HEPATITIS B VIRUS-INFECTED PATIENTS IN A NIGERIAN TERTIARY HOSPITAL

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Abstract

Background: We evaluated the pattern and socio-demographic predictors of high-risk behaviour for hepatitis B virus (HBV) transmission among HBV-infected Nigerian adults in order to provide clues for intensifying HBV prevention and control.

Methodology: 200 hepatitis B surface antigen (HBsAg) positive patients attending the Jos University Teaching Hospital were enrolled in a cross-sectional study from June to November, 2010. A structured interviewer-administered questionnaire was used to obtain information from the participants regarding their socio-demographic characteristics, and history of HBV-related risk factors in the 12 months preceding the study.

Results: The mean age of the participants was 34 ± 8 years, females (61.0%) were in the majority and only 2 subjects (1.0%) reported previous HBV vaccination. One hundred and fifty one subjects (75.5%) reported at least one risk factor for HBV transmission. The commonest risky practices were sharing of unsterilized sharp instruments for various purposes reported by 141 subjects (70.5%) and having multiple sex partners (46.5%). Sharing of sharps was significantly associated with male sex (79.5% vs. 62.7%, $\chi^2=4.97$, $p=0.03$) and low educational status (81.1% vs. 64.3%, $\chi^2=6.32$, $p=0.01$). Male subjects (70.3% vs. 35.0%, $\chi^2=22.52$, $p<0.0001$) and those with high educational status (54.0% vs. 33.8%, $\chi^2=7.64$, $p=0.006$) were significantly more likely to have multiple sex partners.

Conclusion: There is a high rate of risky practices for HBV transmission among HBV-infected patients and such practices have important socio-demographic predictors. This justifies a call for urgent and targeted steps to intensify HBV prevention and control in our environment.

Key words: Hepatitis B virus, high-risk behaviour, predictors

Introduction

It is estimated that there are more than 400 million chronic carriers of the hepatitis B virus (HBV) with about one million HBV-related deaths occurring annually worldwide.¹ HBV is the major aetiologic factor for liver cirrhosis and hepatocellular carcinoma.² Majority of the global HBV-infected population reside in the developing countries of South East Asia and sub-Saharan Africa where the lifetime risk of infection is estimated to be greater than 60% and carriage rates are in excess of 8%.¹ In Nigeria, HBV carriage rates of 10-17% have been reported in apparently healthy blood donors.^{3,4}

There are several efficient means of transmitting HBV including vertical (mother-to-child), horizontal (through close contact with infected

family members and playmates), sexual and parenteral/percutaneous routes. Epidemiological studies from areas of high endemicity suggest that HBV transmission often occurs in childhood through horizontal and perinatal mechanisms.

⁵However, HBV transmission in adults through sexual, parenteral or percutaneous means have been well documented in South-East Asia and sub-Saharan Africa.^{6,7} While sexual transmission of HBV in sub-Saharan Africa is predominantly heterosexual, parenteral/percutaneous transmission can take various forms including use of unsterilized sharp instruments, blood transfusion, needle stick injuries and intravenous drug use (IDU).

Activities which readily increase the chances of acquiring HBV infection are considered high-risk behaviour. On-going high-risk behaviour in individuals diagnosed of blood-borne viral infections has been observed in some populations and is considered a huge public health problem.⁸ There is limited information concerning risky practices in chronic HBV carriers in Northern Nigeria. We evaluated the pattern and socio-demographic predictors of high-risk behaviour among HBV-infected adults attending the Jos University Teaching Hospital. It is hoped that the findings of this study would provide useful information for HBV prevention and control strategies in our environment.

Methodology

This was a cross-sectional descriptive study involving 200 confirmed hepatitis B surface antigen (HBsAg) positive adult patients attending the Gastroenterology and other medical out-patient clinics at the Jos University Teaching Hospital (JUTH). The study was conducted over a six month period spanning June to November, 2010. JUTH is a tertiary Hospital in Plateau State, North-central Nigeria and also provides services to individuals from urban and rural communities in other neighbouring States within and outside North-central Nigeria. HBV infection is endemic in Jos and its environs with HBsAg prevalence rate of 14.3% in apparently healthy blood donors.⁹

The participants were consecutively recruited. A structured interviewer-administered questionnaire was used to obtain information from the participants regarding their socio-demographic characteristics as well as history of HBV-related risk factors and practices including sexual activity; use of unsterilized sharp instruments for various purposes; blood transfusion; needle tick injury; and IDU. An individual was regarded as having multiple sex partners (MSP) if he/she has a sexual relationship with more than one partner whether concurrently or sequentially.¹⁰ The time frame for risky behaviour was the 12 months preceding the study.

The study was approved by the Ethics Committee of JUTH. The purpose of the study was carefully explained to the participants and they individually consented before administration of the questionnaire. Confidentiality was ensured.

Data analysis was done using the Epi Info 2005 statistical software (CDC, Atlanta, GA). Data was presented as frequencies and percentages. The Chi squared test was used to test association between

socio-demographic parameters and high-risk activities. Probability values < 0.05 were considered significant.

Results

Characteristics of the study population

The characteristics of the study population are shown in Table 1. The mean age of the participants was 34 ± 8 years with 153 subjects (76.5%) less than 40 years. Majority of the subjects, 122 (61.0 %) were females. Most of them had at least a secondary level of education regarded as high educational status (63.0%), 106 (53.0%) were married and urban dwellers (59.5%) were in the majority. Only 2 participants (1.0%) reported previous HBV vaccination.

Table 1: Characteristics of the study population

Variable	N=200 n(%)
Age, Mean ± SD(years)	34 ± 8
Sex	
Female	122 (61.0)
Male	78 (39.0)
Marital status	
Married	106 (53.0)
Single/Divorced/Seperated/Widowed	94 (47.0)
Educational status*	
Low	74 (37.0)
High	126 (63.0)
Residence	
Urban	119 (59.5)
Rural	81 (40.5)
History of HBV Vaccination	
Yes	2 (1.0)
No	198 (99.0)

*MSP= multiple sex partners, *Educational Status: secondary/tertiary=high, others=low

Pattern of HBV-related risk factors/ high-risk behaviour

One hundred and fifty one subjects (75.5%) reported at least one risk factor for HBV transmission. The pattern of risk factors in the participants (Table 2) revealed that the commonest was sharing of unsterilized sharp instruments for various purposes reported by 141 subjects (70.5 %). The predominant practices involving the use of unsterilized instruments were manicure/pedicure (29.5 %), barbing/shaving (16.5 %) and scarification/tattooing (15.5%). Ninety three participants (46.5%) had MSP, 20 (10.0 %) had a past history of blood transfusion while occupational needle stick injury occurred in 6 (3.0 %) of them. Intravenous drug use was reported by only 1 subject (0.5%).

Table 2. Pattern of HBV-related risk factors/high-risk behaviour in the study population

Variable	N=200 n(%)
MSP[†]	93 (46.5)
Sharing of sharp instrument	
Manufacture/pedecure	59 (29.5)
Scarification/tattooing	31 (15.5)
Barbing/shaving	33 (16.5)
Injection from quacks	13 (6.5)
Traditional uvulectomy	5 (2.5)
Total	141 (70.5)
Past history of blood transfusion	20 (10.0)
Needle stick injury (occupational)	6 (3.0)
IDU[‡]	1 (0.5)

[†]MSP= multiple sex partners, [‡]IDU= intravenous drug use

Socio-demographic predictors of high-risk behaviour in the study population

Analysis of the predictors of the major high-risk behaviour in the study population is shown in Table 3. Sharing of unsterilized sharps was significantly associated with male sex (79.5% vs. 62.7%, $\chi^2=4.97$, $p=0.03$) and low educational status (81.1% vs. 64.3%, $\chi^2=6.32$, $p=0.01$). Male subjects (70.3% vs. 35.0%, $\chi^2=22.52$, $p<0.0001$) and those with high educational status (54.0% vs. 33.8%, $\chi^2=7.64$, $p=0.006$) were significantly more likely to have MSP.

Table 3. Socio-demographic predictors of the major high-risk behaviour

Variable	Sharing of sharps	
	Yes n(%)	Yes n(%)
Age (years)		
< 40	112 (73.2)	69 (47.9)
≥40	29 (61.7)	24 (51.1)
χ^2	2.29	0.14
p-value	0.13	0.71
Sex		
Male	62 (79.5)	52 (70.3)
Female	79 (62.7)	41 (35.0)
χ^2	4.97	22.52
p-value	0.03	<0.0001
Marital status		
Married	70 (66.0)	48 (45.2)
Single/Divorced/Sep/Wid	71 (75.5)	45 (47.9)
χ^2		2.16
p-value	0.14	0.71
Educational status		
Low	60 (81.1)	25 (33.8)
High	81 (64.3)	68 (49.1)
χ^2	6.32	7.64
p-value	0.01	0.006

Residence				
Urban	82 (68.9)	37 (48.1)		
Rural	59 (72.8)	56 (49.1)		
χ^2		0.35		0.02
p-value	0.55	0.88		

Discussion

This study showed that 75.5% of our HBV-infected patients were involved in at least one risk factor for HBV transmission. Use of unsterilized sharp instruments for various purposes (70.5%), and having MSP (46.5%) were the predominant high-risk behaviour. Past history of blood transfusion (10.0 %) and occupational needle stick injury (3.0 %) were less common risk factors while IDU was seldom reported.

Our findings are to a large extent in agreement with other studies that reported high rates of risky behaviour and practices among HBV-infected patients, 64.1% by Ion-Nedelcu et al¹¹ in Romania and 71% by Obi and colleagues¹² in Enugu, South-east Nigeria. Furthermore, sharing of sharp instruments for different purposes¹³⁻¹⁷ and history of MSP^{13,14} have been identified as key HBV-related risky practices among chronic HBV carriers in similar areas of high HBV endemicity. In terms of proportion of individual risk factors, use of sharp instruments for tattooing (78%) and shaving (77.8%) as well as unsafe sexual practices (50%) and alcohol consumption (32.9%) were reported in two different HBV-infected Egyptian populations.^{14,15} In Bangladesh, sharing of sharp instruments for shaving was reported in 72.4% of their HBV-infected subjects.¹³ Nwokediuko et al¹⁶ found that HBV-infected patients in Enugu, South-east Nigeria were involved in use of sharps for scarification/tribal marks (31.6%), injection from quacks (50.0%) and sharing of other sharps (31.3%) while a history of MSP was reported in 38.7% of them. The proportion of other less common HBV-related risk factors reported in Enugu is also largely comparable with our findings; past history of Jaundice 19.0%, blood transfusion 9.1%, occupational injury 5.3% and IDU 4.4%.¹⁶ Although our study and that in Enugu¹⁶ both reported low rates of IDU, the difference between the rate of IDU in Enugu (4.4%) and that in our study (0.5%) may be partly explained by the fact that their study population was predominantly male (79.2%) unlike ours that had a female majority (61%).

Contrarily, Eke and colleagues¹⁸ found that sharing of sharp instruments and history of MSP were not significant HBV-related risk factors among their HBV-infected subjects in Nnewi, South-east Nigeria. However, this difference is likely due to the

fact that their study population involved only pregnant women attending antenatal visits unlike our study that involved men and non-pregnant women. In the Nigerian society, having multiple partners is considered a taboo for married women. Moreover, such a group is likely to have received intensive health education on unhealthy sexual and other practices which are re-enforced during each ante-natal visit.

The high rate of high-risk behaviour for HBV transmission among HBV-infected patients reported in this study suggests that these practices may be making significant contributions to the burden of disease in our environment beside the traditional horizontal and perinatal mechanisms of transmission reported from epidemiological studies. Our findings also suggest some lack of behaviour change after HBV status disclosure among this group of patients and also reflect gaps in health education regarding HBV prevention and control. Lack of behaviour change after viral hepatitis status disclosure has been previously observed in a high-risk group in Maryland, United States⁸ and this remains a formidable public health challenge. This is even more worrisome in the light of the observation that only 1% of our study population received HBV vaccination which is not surprising as the introduction of HBV vaccination in the Nigerian immunization schedule is relatively recent. Incidentally, HBV and other blood-borne viruses especially human immunodeficiency virus (HIV) and hepatitis C virus (HCV) share similar routes of transmission which suggests that these high-risk activities predispose the patients to such co-infections with undesirable consequences of worsening morbidity and mortality for any existing HBV-related liver disease in them.¹⁹

Our study also identified significant socio-demographic predictors of the major high-risk practices. Male sex favoured the two major high-risk behaviour; people of low education status were more likely to share sharps while MSP was significantly associated with a high level of education. Similarly, male sex has been strongly linked with MSP while high socio-economic status has been associated with MSP in other studies on health-related risky practices.^{20,21} Unlike what we found, educational status did not have any significant influence on scarification practices in Oshogbo, South-west Nigeria.²²

Our study had some limitations. Depending on self-reported accounts for sensitive issues such as risky sexual behaviour and IDU may lead to under-estimation of their true rates since most of these

activities are not culturally acceptable in our environment especially for women who constituted majority of the study population. Also, those who practice protected sex despite having MSP were not categorised separately from those who did not.

In conclusion, there is a high rate of risky practices for HBV transmission among HBV-infected patients. Our observations call for urgent steps to be taken regarding intensive health education of affected patients and the general population and also re-emphasize the need for HBV immunization especially for uninfected populations at high risk. In addition, the association of certain socio-demographic parameters with high-risk behaviour provides important socio-cultural clues for more targeted prevention and control strategies. There is also need for larger population-based studies that would possibly identify more socio-cultural predictors of HBV-related high-risk behaviour in our environment.

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