

RISK FACTORS AND SEROPREVALENCE OF HEPATITIS B SURFACE ANTIGENAEMIA(HBsAg) AMONG PATIENTS IN GBOKO,NORTH CENTRAL NIGERIA

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BACKGROUND

•Hepatitis B is an infectious liver disease caused by hepatitis B virus (HBV).
 •It has been described as a major public health importance occurring endemically in all areas of the world and is more prevalent in developing countries (Johnson *et al.*, 1986 and Alao *et al.*, 2009).
 •Hepatitis B virus infection has continued to be a global public health problem despite the large scale effort to eliminate this chronic viral disease via education, screening and vaccination (Willey *et al.*, 2008).
 •It is currently estimated that 400 million people worldwide have both acute and long-term infectious and over a million die annually of HBV related chronic hepatic disorders and neoplastic liver disease (Torresi *et al.*, 2002).
 •Recent studies on HBsAg in Jos (Ukaeje *et al.*, 2005) and Gombe (Mustapha and Jibrin, 2004) among patients with Human Immunodeficiency Virus, showed a prevalence of 25.9% and 26.5% respectively this high values could be attributed to the fact that HIV and HBV share similar modes of transmission and risk factors.

•This study was undertaken to assess the status of the disease in relation to risk factors in Gboko metropolis'

METHODS

The study area

•The study was carried out among patients attending both government and private hospitals in Gboko metropolis, Benue state.
 •Gboko, North Central Nigeria lies in coordinates 7° 19' 30" and 9° 0' 18' E/7.32500°N and 9.00500°E.

Permission for the study

•This study received permission from the Primary Health Care Department of the state ministry of Health, Gboko Local Government Area. Additional permission was obtained from the directors of all the hospitals that participated in the study.

•Consent of the patients was sought before distribution of structured questionnaire and collection of blood samples

Sample size determination

The method of Fisher (1935) was used to determine the sample Size at 0.05 significant level

Study population A total of five hundred and ninety six patients (596) of different age, sex and occupation were randomly selected.

Specimen collection

•The method of sample collection was by venepuncture (Cheesebrough, 2006), 3.0ml of blood was collected aseptically into labelled EDTA bottles; serum was isolated by centrifugation at 200g for 5minutes.

•Hepatitis B surface antigen (HBsAg) test was carried out using WONDFO[®] HBsAg test strips (manufactured by Guangzhou Wondfo Biotech Co. Ltd, People's Republic of China.

•The interpretation of the test results was performed according to the manufacturer's specification.

Statistical Analysis

•Epi Info version 7.0 for data analysis.

•Chi square (χ^2) test was used to determine if significant association exist between infection and some demographic factors.

•Pearson correlation analysis was employed to determine relationship between infection and some epidemiological/risk factors.

RESULTS

The prevalence rates of HBsAg in the study area is shown in Table 1. Out of 596 blood samples examined, 268 (44.9%) were positive for HBsAg. HBsAg differed significantly between the hospitals ($\chi^2=93.538$, $p<0.01$). There was no significant difference in infection between the male and female subjects examined ($\chi^2=3.428$, $P>0.05$). Significant difference in infection was observed among the different occupational groups ($\chi^2=178.23$, $p<0.01$). With regard to educational status, seroprevalence of HBsAg was significantly higher ($\chi^2=188.94$, $P<0.01$) among patients with no formal education (95.9%). Based on marital status,HBV infection rate was highest among the divorced (85.7%) followed closely by widowed (76.5%) and separated (73.7%) while singles and married had low infection rates of 48.8% and 33.9% respectively. Chi square analysis showed significant difference in infection in the marital status of the subjects ($\chi^2 = 35.025$, $P < 0.05$).The relationship between HBsAg antigenaemia is shown in table 2. There is significant relationship between HBsAg infection and the risk factors such as: multiple sexual partners, scarification, blood transfusion , tooth extraction, surgery and cathetization ($r=0.564$).

Table 1: Prevalence of HBV in relation to sex, marital, educational and occupational status

Sex	No. Examined	No. Infected (%)	χ^2	p-value
Male	304	152 (49.3)		
Female	292	116 (40.1)	26.04	0.05
Marital status				
Single	293	143 (48.8)		
Married	253	86 (33.9)		
Widowed	17	13 (76.5)	35.025	0.05
Separated	19	14 (73.7)		
Divorced	14	12 (85.7)		
Total	596	268 (44.9)		
Educational Status				
No formal education	170	163 (95.9)		
Nursery	45	10 (22.2)	188.94	0.01
Primary/secondary	170	91 (53.5)		
Tertiary	211	4 (1.9)		
Total	596	268 (44.9)		
Occupation				
Farming	137	125 (91.2)		
Civil servant	190	6 (3.2)		
Trading/Business	63	47 (74.6)	178.00	0.01
Artisan	47	35 (74.5)		
Others	159	55 (34.6)		
Total	596	268 (44.9)		

Table 2: Relationship between HBsAg infection and the risk factors

Risk factors	No. Examined	No. Infected (%)	r-value	p-value
Use of unsterilized syringe				
Yes	39	19 (48.7)		
No	557	249 (44.7)	0.370	0.05
Multiple sex partners				
Yes	130	120 (92.3)	0.726	0.05
No	466	148 (31.7)		
Scarification				
Yes	168	11 (6.5)	0.581	0.05
No	428	257 (60.4)		
Tattooing				
Yes	180	88 (48.9)	0.382	0.05
No	417	180 (43.2)		
Sharing of razor blades				
Yes	139	79 (56.9)	0.384	0.05
No	457	189 (41.4)		
Sharing of cups				
Yes	350	170 (48.6)	0.374	0.05
No	246	88 (35.8)		
Sharing of towel				
Yes	242	92 (38.0)	0.237	0.05
No	354	176 (49.7)		
Blood transfusion				
Yes	123	80 (65.0)	0.670	0.05
No	473	188 (39.7)		
Hospital admission				
Yes	456	200 (43.9)	0.317	0.05
No	140	68 (48.6)		
Tooth extraction				
Yes	187	70 (37.4)	0.375	0.05
No	409	198 (48.4)		
Surgery				
Yes	98	66 (67.3)	0.700	0.05
No	498	202 (41.3)		
Cathetization				
Yes	89	36 (40.3)	0.564	0.05
No	507	232 (45.8)		

CONCLUSIONS

•The result of this study brings to limelight the high prevalence of Hepatitis B virus infection in Gboko metropolis.
 •In our study, the risk factors of HBV infection include scarification, multiple sexual partners, sharing of razor blades, use of unsterilized syringe and blood transfusion.
 •The study also revealed that level of education, marital status and occupation greatly influences the prevalence of HBV infection.
 •The high prevalence of HBV infection in this study therefore underscores the importance of emulating global best practices towards curbing the spread of the disease.
 •There is need for routine screening of hospital patients and blood donors in Gboko metropolis, Benue state with the view to identify those with chronic infection who serves as reservoir for person-to- person transmission.
 •Infected patients may benefit from treatment, intervention and vaccination that prevent the transmission to infants and other family members as well as surveillance for hepatocellular carcinoma.

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CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest whatsoever.

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