Seroprevalence of Hbsag Antigenaemia among Patients in Abeokuta, South Western Nigeria

Okonko[1], Soleye FA[2], Alli JA[3], Ojezele MO[4],

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Udeze AO[5], Nwanze JC[6], Adewale OG[7], Iheanyi Omezuruike[8]

Abstract-Objective: **This study aimed to determine the prevalence of HBsAg antigenaemia among patients in Abeokuta, Nigeria.*Methods:* Two hundred blood donors volunteered attendees of University Health Services Clinic at the University of Agriculture, Abeokuta, Ogun State, South Western Nigeria were recruited for this study. Samples of blood were collected, stored and processed using standard laboratory procedures. Additional information was obtained using a proforma specially designed for this purpose. All subjects were screened for HBsAg using a third generation enzyme linked immunosorbent assay method. *Results:* The results showed that the male:female ratio was 1:1. The age of subjects ranged from 15 to 60 years (mean age = 34.7 years). A total of 8 (4.0%) subjects were positive for HBsAg. Higher rate of HBsAg infection was observed in females 8.8% (n=6) than in their male counterparts, 3.1% (n=2). However, the seroprevalence of HBsAg was gender-dependent (P<0.05). HBsAg infections were only found in ages 15 to 29 years of age and none in ages 30 years and above. However, seroprevalence of HBsAg was also age-dependent (P<0.03). Although, males and females differ significantly in HBsAg seropositivity more infections were found in patients from single marital status, formal educational status, and student occupational group (p < 0.05). The major routes of HBV transmission in this population were tribal marks/circumcision/tattoo/scarification and history of blood/blood products transfusions.*Conclusion and application of findings:* The study has revealed the presence of HBsAg in sexually active group (ages 15 to 29 years of age) among patients in Abeokuta Southwestern Nigeria and the 4.1% infection rate of HBsAg can be considered as moderately high, thus emphasizes the importance of routine screening of blood for these viruses in order to prevent their transmission among general population. The need for intensive health education to encourage abstinence among sexually active group is emphasized.**

Key words-Blood, HBsAg, Sexually active group, Nigeria

About[1]- Department of B.Sc. (UNAAB); M.Sc., F.D. (Ibadan); Ph.D. (in view)Doctoral Candidate University of Ibadan, Ibadan, Nigeria E-Mail: mac2finney@yahoo.com; GSM: +234-80-3538-0891.
About[2]- Medical Laboratory Unit, Department of Health Services, University of Agriculture, Abeokuta, Ogun State, Nigeria;
About[3]-Department of Medical Microbiology and Parasitology, University College Hospital, Ibadan, Nigeria;
About[4]- Department of Nursing Science, Lead City University, Ibadan, Oyo State, Nigeria
About[5]-Department of Microbiology, University of Ilorin, Ilorin, Kwara State, Nigeria
About[6]-Department of Pharmacology and Therapeutics, Igbinedion University, Okada, Edo State, Nigeria;
About[7]-Department of Biochemistry, Olabisi Onabanjo University, Ikene, OgunState,andNigeriaCorrespondingauthor'semail:mac2finney@yahoo.com; Tel.: +234 803 538 0891
About[8]-Iheanyi.okonko@yahoo.com

I. INTRODUCTION

Hepatitis B virus (HBV) has been described as major public health, occurring endemically, in all areas of the world (Maddrey et al., 2000). HBV account for a substantial portion of liver diseases worldwide and infected individuals can remain asymptomatic for decades. However, more than 80% of them become chronic carriers which result in an increased risk of liver cirrhosis, liver cancer and liver failure 20 - 30 years later (Volf et al., 2008). However, HCC might be prevented by early detection and therapy (Xuan et al., 2007). Serological markers for HBV are screened in blood banks and antennal clinics routinely. These tests are obligatory for transfusion safety and may give an idea about the seropositivity rates of a specific region (Afsar *et al*., 2010). The evaluation of the data of the prevalence of the HBsAg among patients gives an idea for the epidemiology of these infections in the community (Bhattacharya *et al*., 2007; Afsar *et al*., 2010). HBV are blood borne pathogens that can be transmitted through blood transfusion and could pose a huge problem in areas where mechanisms of ensuring blood safety are suspect (Umolu *et al*., 2005). HBV also shares similar routes of transmission with HIV (Willey et al., 2008), namely through blood and blood products, intravenous drug abuse, unsafe injections and sexual activity, shared needle, other body fluids such as semen, virginal fluid and breast milk; intravenous drug abuse, from mother to child, needle stick injury, ear piercing, tattooing and other tribal ceremonies (scarification), barbers razors etc. (Nacos et al., 2000;Otegbayo et al., 2003; Umolu *et al*., 2005; Agbede et al., 2007; Cavalliero et al., 2008; Chen et al., 2009; Pennap et al., 2010). The viral hepatitides: HBV and HCV infections are known to occur in the general population, and due to their mode of transmission through blood and blood products, it has made the provision of safe blood difficult, and the screening of blood absolutely necessary (Olokoba *et al*., 2009). Infection may also spread by formites, sharing of tooth brush, abrasion, and sexual contact (hetero- or homosexual) with infected persons (Ugwuja and Ugwu, 2010). Detection of hepatitis B surface antigen (HBsAg) in blood is diagnostic for infection with HBV and in the blood banks screening for HBsAg is carried out routinely to detect HBV infection (Bhattacharya *et al*., 2007). HBV infection with its associated sequelae is a disease of major public health importance worldwide. Globally, it is estimated that about

320 – 350 million individuals are chronic carriers of HBV and about 1.5 million people die annually from HBV-related causes (Alao *et al*., 2009). About one half of acute HBV infections in adults are symptomatic. About 1% of cases result in acute liver failure and death (CDC, 2008). HBV is found in highest concentrations in the blood, and lower concentrations in saliva, semen, vaginal secretions, and wound exudates. HBV can remain viable for >7 days on environmental surfaces at room temperature (CDC, 2008). The average incubation period is 90 days from time of exposure to onset of symptoms, but may vary from 6 weeks to 6 months (Mast et al., 2005; CDC, 2006; ACOG, 2007; CDC, 2008). Sexual transmission accounts for most adult HBV infections in the United States (CDC, 2006). Approximately 25% of the regular sexual contacts of infected individuals will themselves become seropositive (ACOG, 2007). About 10-20% of women seropositive for HBsAg transmit the virus to their neonates in the absence of immunoprophylaxis (CDC, 2008). In women who are seropositive for both HBsAg and HBeAg vertical transmission is approximately 90% (ACOG, 2007). In Africa, hepatitis B virus infection is the most common cause of liver disease which is the third most common cause of death in medical wards with 15-60% seropositivity for HBsAg in normal population (Bojuwoye, 1997; Ugwuja and Ugwu, 2010). Nigeria is a holoendemic area for HBV with carrier rate of 15-37% (Bojuwoye, 1997) and an estimated 12% of the total population being chronic carriers of HBsAg (Alao *et al*., 2009; Ugwuja and Ugwu, 2010). According to a recent study (Mustapha et al., 2007) HBV prevalence of 67% was found among hepatocellular carcinoma patients in north eastern Nigeria (Ugwuja and Ugwu, 2010). HBV infection occurs frequently in Nigeria (Alao *et al*., 2009). Studies from difference parts of Nigeria have reported varying prevalence rates among selected groups (Imoru et al., 2003; Ejele and Ojule, 2004; Alao *et al*., 2009). Most people infected by these viruses have no symptoms and do not know that they carry the virus, but all who are infected can transmit the virus to others (Nelson *et al*., 2000). This is further compounded in cases of donors, in that after testing positive to the viruses, counselling is withheld as it is thought that it may frustrate donors and lower the blood pool. The effect of this action is that, those uncounselled seropositive donors are innocently infecting the society (Umolu *et al*., 2005). Indeed, HIV, HBV and HCV are devastating disease agents that share common modes of transmission, HIV positive individuals are also at risk of co-infection with HBV and HCV infections (Olaniyan, 2010).

The prevalence of HBV infection, according to the geographical area, may be high (8%), intermediate (2%-7%) or low (<2%) (Maddrey, 2000). In Abeokuta, Ogun State, Nigeria, there is dearth of literature on prevalence of HBsAg antigenaemia and associated risk factors to the best of our knowledge. The objectives of this study therefore were to determine the prevalence of HBsAg antigenaemia in blood of patients attending one of the most utilized health facilities in Abeokuta, the capital of Ogun State; and to study the association of some of the patients' variables with the prevalence of HBsAg in order to generate baseline information

II. Material and Methods

1) *Study area:*

This study was carried out among patients attending the Department of Health Services, University of Agriculture, Abeokuta, South-western, Nigeria.

The University of Agriculture, Abeokuta with the acronym UNAAB is one of the three Universities of Agriculture in Nigeria, the other being in Makurdi (Benue State) and Umudike (Abia State). It was established in January 1988. The University started at its mini-campus in Isale-Igbein right in the heart of Abeokuta, the Capital of Ogun State located in the forest zone of Southwestern Nigeria, which borders Lagos State to the South, Oyo and Osun states to the North, Ondo State to the east and the republic of Benin to the west. The University moved in December 1997 to its permanent site, a 10,000-hectare Campus which is located next to the Ogun-Oshun River Basin Development Authority on the Abeokuta-Ibadan road in the North Eastern end of the city, 15 km from Abeokuta City Centre.

2) *Study population*:

A total of two hundred blood donors (169 males and 31 females) of different ages and socioeconomic status attending special treatment clinic at University College Hospital, Ibadan, were enrolled in this study. The study was conducted from April to July, 2010 by recruiting consecutive consenting patients presenting at STC, UCH, Ibadan, Oyo State, Southwestern Nigeria until a total of 200 participants was attained. Other relevant information of all participants was obtained using a proforma specially designed for this purpose. The study was approved by the ethical review committee of the hospital. All work was performed according to the International Guidelines for Human Experimentation in Clinical Research. The study was conducted between April 2010 and July 2010. Following informed consent, the participating students; apparently healthy without jaundice were interviewed to obtain information on their socio-demographic data such as age, sex, history of blood or blood products transfusion, jaundice, injection from unqualified medical personnel and parents' living accommodation, educational level, and occupation etc.

3) *Screening for HBsAg antigenaemia*:

Venous blood (3.0 ml) was obtained from participants aseptically into plain bottles and allowed to clot and retract after which serum was isolated by centrifugation at 2000g for five minutes. Serum HBsAg were determined by using a third generation enzyme linked immunosorbent assay method.

4) *Data analysis*:

The data was subjected to statistical analysis (the $\chi 2$-test, with the level of significance set at $p < 0.05$) using

statistical package for social sciences (SPSS) to determine any significant relationship between infection rate, age and gender.

III. Results

A total of 200 blood samples from asymptomatic subjects were collected between March, 2010 and July, 2010; of which 8 representing 4.0% were positive for HBsAg antigenaemia (Table 1). The ages of the subjects ranged 15-60 years (mean = 15 ± 2.3 years). Table 1 shows the prevalence of asymptomatic subjects in relation to the risk factors. The age-specific infection rate showed that only subjects in ages 15 – 29 years were positive for HBsAg antigenaemia (5.0%) as shown in Table 1. None of the subjects in ages 30 years and above were positive for HBsAg antigenaemia. Statistical analysis by chi-square however showed significant difference in the distribution of infections with respect to age ($P<0.05$). There is significant association ($P<0.05$) between the age groups of the patients and HBsAg seropositivity (Table 1).The gender-specific infection rate showed that females had higher infection rate of 6 (5.8%) for HBsAg seropositivity than their male counterparts 2(2.0%) as shown in Table 1. Statistically, there was significant difference in the distribution of HBsAg seropositivity and gender ($P<0.05$). Thus, there is significant association ($P<0.05$) between gender of the patients and the HBsAg antigenaemia.Table 1 shows also prevalence in concordance with marital and educational and occupations. It shows that singles had higher prevalence of HBsAg infection ($P<0.05$). Hepatitis B surface antigen (HBsAg) was detected among students comprising 8(4.1%). Non formal educated subjects had less prevalence of HBV infection. This rate was highest among students as compared to other occupations (non-students). The rate of HBsAg infection was also highest in students ($P<0.05$). The major route of HBV transmission in this population were tribal marks/scarification/circumcision (8.0%) and blood transfusion (7.3%) as shown in Table 1. None of the subjects had HBV vaccination and informal education. No HBsAg was detected in subjects with married status and non-students' occupation (Table 1). The risk of infection in singles was significantly higher than in married cases.

Table 1: Risk factors for asymptomatic HBsAg antibodies among patients of Abeokuta, Southwestern Nigeria

Risk factors	No. Tested (%)	No. Positive for HBsAg (%)
Age Group (years)		
15- 29	159 (79.5)	08 (05.0)
30 and above	041 (20.5)	00 (00.0)
Sex		
Males	98 (49.0)	02 (02.0)
Females	104 (52.0)	06 (05.8)
Marital status		
Single	145 (72.5)	08 (05.5)
Married	55 (27.5)	00 (00.0)
Education		
Formal	200 (100.0)	08 (04.0)
Non formal	000 (000.0)	00 (00.0)
Occupation		
Students	193 (96.5)	08 (04.1)
Non Students (non-academic and academic staff)	007 (03.5)	00 (00.0)
History of blood transfusion		
Yes	55 (27.5)	04 (07.3)
No	145 (72.5)	04 (02.8)
Tattoo/incision/tribal marks		
Yes	25 (12.5)	02 (08.0)
No	175 (87.5)	06 (03.4)
History of HBV vaccination		
Yes	000 (00.0)	00 (00.0)
No	200 (100.0)	08 (04.0)
Total	**200(100.0)**	**08 (04.0)**

IV. Discussion

In this study, two hundred consenting patients were recruited and examined for presence of markers of HBV infections. From this study, the age range of blood donors was 15 to 60 years with a mean of 22.7 years. The prevalence of HBV varies between 2% in developed countries where the prevalence is low to about 8% in developing countries where infection is endemic with sex, age and socio-economic status as important risk factors for infection (Odusanya et al., 2005; Alikor and Erhabor, 2007). Over the period under study, the seroprevalence rate of this viral infection among the subjects was 4.0% for HBsAg. This is contrary to previous results reported in different parts of Nigeria (Ejele and Ojule, 2004; Kagu *et al*., 2005; Muktar *et al*., 2005; Egah et al., 2007; Lawal *et al*., 2009; Fasola *et al*., 2009; Alao et al., 2009). Prevalence rates of HBsAg among different subjects in Nigeria differ significantly at inter-states level and with age. From this study, the prevalence of hepatitis B virus (HBV) infection among patients of Abeokuta, South Western Nigeria is 4.0%. This value is lower than 7.6% prevalent rate reported in Nnewi, Nigeria (Chukwuka et al., 2004) and 7.0% among Taiwan adolescents (Ni et al., 2001). HBV prevalence of 4.0% is also lower than 12.4% reported by Alikor and Erhabor (2007) in children attending tertiary health institution in Niger Delta of Nigeria. In contrast it was less than the 21.3% recorded in Ibadan (Otegbayo et al., 2003); 23.9 and 15.1% in two studies in Jos (Uneke et al., 2005; Egah et al., 2007); and 17.1% among sex workers in Nasarawa state (Nneka, 2007). There was also a report of 18.2 and 7.3% among pregnant women in Zaria (Luka et al., 2008) and Kano (Dawaki and Kawo, 2006) respectively.

This figure 4.0% reported for HBsAg in this study is also lower than the 20.0% found by Alao *et al*. (2009) in Otukpo, an urban area of Benue State; the 18.6% reported by Buseri *et al*. (2009) in Osogbo, Nigeria; the 14.5% overall HBsAg seroprevalence reported by Lawal *et al*. (2009) in Ibadan; the 13.6% reported by Opaneye et al. (2005) among truck drivers in Sagamu, Ogun State, Nigeria; the 13.5% reported by Opaleye *et al*. (2010) in Osogbo, Osun State, Nigeria; the 13.2% found by Fasola *et al* (2009) in Ibadan, South-western, Nigeria; the 13.2% reported for HBsAg by Pennap et al. (2010) in Keffi, Nassarawa State, Nigeria; the 11.0% reported by Sule et al. (2010) in Anyigba, Kogi State; the 10.6% by Esumeh *et al* (2003) in South-south, Nigeria; the 9.5% reported by Mabayoje et al. (2010) in Osogbo, Osun State, Nigeria; the 9.7%; the 5.4% reported by Umolu *et al*. (2005) in Benin City, Nigeria; the 9.3% reported by Ezegbudo et al. (2004) in Awka, Anambra State; and the 4.6% reported by Obi et al. (2006) among pregnant women in Nigeria. It is also higher than the 2.4% found Olokoba *et al*. (2009) in Yola, Nigeria; the 1.57% found by Ejele and Ojule (2004) in Port Harcourt; 1.2% found by Kagu *et al* (2005) in North-eastern, Nigeria; the 1.1% found by Ejele *et al* (2005) in the Niger Delta region of Nigeria; and the 0.0% seroprevalence rate reported by Sule et al. (2007) in another study in Anyigba, Kogi State. However, our figure reported for HBsAg in this study is comparable with the 4.2% found by Muktar *et al*. (2005) in Zaria, Northern Nigeria and the 4.1% reported by Ugwuja and Ugwu (2010) in Abakaliki, South Eastern Nigeria. Our figure 4.0% reported for HBsAg is also comparable to what was reported elsewhere outside Nigeria. This figure 4.0% is lower than the 10.0% found by Elfaki *et al* (2008) in Sudanese blood donors; the 9.7% reported by Gholamreza et al. (2007) in North Eastern part of Iran; the 8.8% and 8.7% reported for HBsAg by Matee (2006) at MNH in Dar es Salaam; and the 8.3% by Muktar *et al* (2005) in Tanzanian donors. It is comparable to the 4.0% reported by Abdalla *et al* (2005) in Kenya and higher than the 2.2% found by Bhatti el al (2007) in Pakistan; the 1.96% reported by Chandra et al. (2009) in India; and the 0.64% seroprevalence of HBV (HBsAg) reported in Kathmandu, Nepal (Shrestha *et al*., 2009). In the U.S., HBsAg positivity was reported in 5.8% of the Asians, 1.0% in non-Hispanic blacks, 0.6% of non-Hispanic whites and 0.1% of Hispanics (Euler et al., 2003). HBsAg was found in 1.7% of pregnant women in Brazil (Bertolini et al., 2006). In Africa, HBsAg was positive in 5.6% of pregnant women of Sudan (Elsheikh et al., 2007). In another study, the seroprevalence of HBsAg among the pregnant women in the countries of the Persian Gulf territory revealed a rate 7.1% in Oman, 1.0% in Qatar and 1.5% in UAE (Al Awaidy et al., 2006). In France, HBsAg was positive in 0.29% of the pregnant women of French origin, 7.15% of Southeast Asian origin, and 6.52% for Sub Saharan African origin (Denis et al., 2004). In a study conducted in six regions of Italy, HBsAg was positive in 1.1% of pregnant women born in Italy, but it was 5.9% among immigrants (Stroffolini et al., 2003). Other studies revealed an HBsAg seroprevalence rate of 3.87% for Greece (Panagopoulos et al., 2004). HBsAg was positive in 3.2%-4.33% of pregnant women in Ankara, Turkey (Yucel et al., 2001); in 3.5% in Mersin (Borekci and Otag, 2004) from southern Turkey; in 12.3% in Diyarbakir, Turkey (Turhanoglu and Arikan, 2001) from Southeastern Anatolia, Turkey.In this study, an infection rate of 4.1% (n=8) was detected for HBsAg infection among students. The findings of this study which showed that the prevalence of HBsAg in this group of students is lower or somewhat similar to those carried out in similar populations in previous studies in Nigeria (Mabayoje et al., 2005). This differs greatly from the findings of this present study in which HBsAg was only detected in young adults aged 15-29 years. The implication of high prevalence of asymptomatic HBV infection among these adolescents is that they may become chronic carriers of the virus, thus acting as reservoirs for subsequent transmission. Also the age of acquiring infection is the major determinant of the incidence and prevalence rates (Ezegbudo et al., 2004). Again serological evidence of previous HBV infections varies depending on age and socioeconomic class (Alikor and Erhabor, 2007). This study reported the prevalence rates of 4.1% for that of HBsAg in the student population and in young adults aged 15-29 years. This is justified by reports from earlier researchers that among sexually transmitted and blood borne infections, high risk individuals have a higher probability of getting infected with HBV due to its low

infectious dose (Chang, 2007; Uneke et al., 2005) and this age group encompasses individuals at the age of greatest sexual activities thus supporting the role of sexual transmission of the virus (Dawaki and Kawo 2006). In all epidemiological studies, age has always proved to be the most important factor. The age of acquiring infection is the major determinant of the incidence and prevalence rates. In this study, the differences in prevalence of HBsAg in various age groups indicate that this factor plays an important role in the prevalence rates. This is because of the high sexual activity within these age brackets (15-29 years of age). This collaborates with previous studies by various authors. Ezegbudo et al. (2004) also reported that significant infection rates for HIV, HBV and HIV/HBV co-infection were associated with age groups (16-20 years and 21-30 years), marital status and occupation of the subjects and inversely associated with increase in educational status. This is somewhat similar to the findings of our study. In line with the assertions of Mabayoje et al. (2010), this strongly suggests that the viral burden amongst this population of students is similar and that probably similar factors (demographic) are responsible for maintaining this level of viral load. Further studies would be needed to elucidate the reasons why this is the case. Also it would be necessary to reemphasize the methods of prevention of transmission of these viruses, and to ensure their implementation in order to reduce the viral levels and therefore avoid the long term sequalae (Mabayoje et al., 2010). The statistically significant difference in HBsAg seroprevalence between males and females in the present study suggests that they were not equally exposed to either HBV or HCV in disagreement with earlier findings (Agbede et al., 2007; Lawal et al., 2009; Fasola et al., 2009; Sule et al., 2010; Opaleye et al., 2010; Mabayoje et al., 2010) but however collaborates with the findings of other authors elsewhere (WHO, 1996; Odusanya et al., 2005). There was no obvious explanation for the difference in gender as a risk factor for this viral infection although Bwogi et al. (2009) reported a lower prevalence of HBV in men than in female and suggested the interplay of circumcision as protective. In line with Pennap et al. (2010), this was not the case in this study even though it was in an area that male circumcision is mandatory. However, the male volunteers were few than females. The centre for disease control reported that at least 38% of women infected are through heterosexual contact with HIV positive partner (CDC, 2002). Since HBV has similar routes of transmission and risk factors as HIV, increased prevalence of HIV will translate to increase in HBV prevalence (Ezegbudo et al., 2004). Many of these females may have been involved in illicit and unprotected sex with men, who entice them with money.

From the findings of this study, the major route of HBV transmission in this population were tribal marks/scarification/circumcision (8.0%) and blood transfusion (7.3%). This observation is consistent with previous studies. Considering the risk factors associated with HBV infection, tribal marks/circumcision/scarification (8.0%), and transfusion of blood/blood products (7.3%) were the major routes of HBV transmission in this population. This finding is in agreement with several epidemiological studies (Maddawa et al., 2002; Otegbayo et al., 2003; Agbede et al., 2007; Sahajian et al., 2007) which have consistently demonstrated that unsafe injection from unqualified medical personnel using HBV contaminated needle and syringe, transfusion of blood and blood products and socio-cultural practices such as tribal marks, circumcision and scarification were important routes of HBV transmission. Unlike reports by Pennap et al. (2010), this study was able to demonstrate the contribution of traditional practices like body/facial marks as a statistically significant risk factor in the transmission of these viruses. In our environment, patronage of chemist/medicine shops manned by unqualified medical personnel is common and re-use of HBV contaminated needles and syringes may have accounted for the higher transmission rate through this route. In relation to marital status, carriage rates for HBV were highest among the single group. This is consistent with a report from Jos, Plateau State, Nigeria (Sirisena et al., 2002) and Awka, Anambra State (Ezegbudo et al., 2004). The high prevalence in these groups in comparison with the married may be due to the fact that they are single (unmarried/unattached) and thus free to indulge in more sexual activity. However, no HBsAg was detected in subjects with married status and non-students‘ occupation. Another important factor in the study was the level of education. The prevalence of HBV was directly associated with increased educational status. Thus, the more educated (formal educated) subjects had the highest prevalence rates faulting the influence of education and public enlightenment/awareness on the carrier rates of this infection. This deviate from what was reported by Ezegbudo et al. (2004). The main goal of determining those occupational groups at high risk is to take measures to prevent infections in these groups. The prevalence rate was highest among the student than non-students (academic and nonacademic staff). This collaborates the finding that, even though Nigerian students studied were knowledgeable about contraction routes for HIV/AIDS they were not deterred from engaging in unprotected sexual intercourse (Harding et al., 1999; Ezegbudo et al., 2004). This however, mandates for emphasis on education in this group. Furthermore, the risk of infection in singles, students and those with formal education status was significantly higher than in married and nonformal education cases. The major route of spread of HIV in Africa is believed by some workers to be through injections rather than through sexual activities (Gisselquist et al., 2003, 2004). The high prevalence of HBV infection in this population lends a strong support to the theory that an important route of transmission of hepatitis B virus and HCV is through injections, scarifications etc. rather than sexual only.In addition, we observed here that the other variables – marital status, occupation, educational status, history of vaccination also appeared not associated with prevalence of HBsAg among the studied group. However, it has been reported that immunization with hepatitis B immunoglobulin G (HBIG) and vaccine, starting at birth,

reduces the risk of transmission to less than 10% among infants who have HBsAg/HBeAg positive mothers (Tosun et al., 2002). HBIG has high levels of antibody to HBsAg; it is immediately effective, and seems to be protective for several months (Lee et al., 2006). Although there seems to be a decline in the practice of female genital cutting, as a result of the nationwide public enlightenment, there exist some socio-cultural practices such as tattooing, scarification and male circumcision which can expose individuals to HBV infection (Opaneye et al., 2005). Transfusion of blood/blood products is a very significant route of HBV transmission in the present study and calls for the strengthening of the national policy on blood transfusion with the view of curtailing transmission through this route (Opaneye et al., 2005). The use of traditional medicines alone or in conjunction with western medicines for various diseases is widespread in Nigeria and this has been previously reported (Opaneye et al., 2005; Osinubi and Amaghionyeodiwe, 2005). Some of these medicines involve body scarifications with razor blades and needles. Unfortunately, many of these instruments have been re-used without adequate sterilization procedures (Opaneye et al., 2005). These practices encourage the spread of blood borne viruses like HBV. Whatever the route of transmission, there is plenty of room for health education and health promotion. Health seeking behaviour is to be encouraged and practices injurious to health should be discouraged.Although much is known about the epidemiology of HBV in Nigeria, limited investigation has been carried out on HBV infection. Studies carried out by various authors have shown that HBV and HCV infections are highly prevalent among Nigerians (Jombo et al., 2006; Mabayoje et al., 2010). Thus the higher prevalence recorded in these earlier studies were not unexpected as it has been shown that HBV are contracted in early childhood. One shortcoming observed in this study is the somewhat smaller sample size; future study with larger sample size might reveal different observations. The differences in prevalence in these studies could be attributed to differences in patient selection. Also, the wide differences in the HBV infection rate among the general population in the different regions within Nigeria, and even outside Nigeria may be due to the differences in geographical locations, age range of patients, sample sizes, the period of time the studies were carried out, and the different socio-cultural practices such as sexual behaviour, marriage practices, circumcision, scarification, tattooing etc which take place in these regions (Olokoba *et al*. 2009). Access to healthcare, immunization practices, and the laboratory test reagents used may also be contributory factors (Olokoba *et al*. 2009). This study also highlights that significant proportion of these patients has no identifiable mode of acquiring HBV. This suggests that they may have contracted the virus from their mother, family members or peer groups. It has been shown that children can acquire HBV during delivery or post-partum through breast feeding or from chronic carrier mothers (Agbede et al., 2007) and through contact among siblings or children of poorer and larger families (Toukan et al., 1990). Also, a history of contact with jaundiced person has been identified as independent risk factor for HBsAg seropositive status. Inability to identify risk factors for viral acquisition among higher proportion of HBsAg seropositive patients in the present study population may be partly attributable to lack of accurate reporting by the participants as majority may not have given accurate information of past contacts. In conclusion, the results of this study have highlighted the fact that HBsAg infection is common in Abeokuta, an urban area of Ogun State. These viruses remain the greatest public health problem as of today. The high rate of infection noticed in students and single patients may not be unconnected with lack of awareness, since most of the patients in this part of the world are actually those from low socio-economic class where the campaign against these dreaded diseases are limited. And it has earlier been reported that sex remains a major transmitter of both viruses in this part of the world (Umolu *et al*., 2005). Although blood transfusion is not thought as a significant mode of transmission, blood transfusion where mechanisms of ensuring blood surety are suspected, HBV is prevalent in the community, and where many transfusions are conducted (sometimes needlessly), the problem can be high. Asymptomatic HBV infection among young adults and most sexually active age groups (15-29 years of age) without proper identifiable risk factors or mode of acquisition calls for general surveillance, mass immunization, and public health education to curtail the spread of the virus and its sequalae (Ugwuja and Ugwu, 2010). This study showed that the prevalence of HBsAg is generally comparable to results obtained from similar studies carried out elsewhere. From this it can also be concluded that among this population, the viral burden is similar because there are probably similar factors operating demographically, assisting in the maintenance of this viral load. In accordance with the assertions of Ezegbudo et al. (2004), it is appropriate to recommend creation of HBV clinics in all government hospitals/health centers to serve for enlightenment of our communities as well as enhanced and intensive screening centers for these infections. Mass immunization program for HBV for the entire population is also very necessary, since it is cost-effective with respect to medical cost alone. It is very important, especially for health providers and policy makers, to recognize the risk factors of HBV infection and its co-infection with HCV in this area and design effective preventive programs.

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