

RESEARCH PAPER

THE INCIDENCE OF HEPATITIS B VIRUS INFECTION AMONG PATIENTS AT THE SPECIALIST TEACHING HOSPITAL, IRRUA, EDO STATE, NIGERIA

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ABSTRACT

This cross sectional retrospective study was designed to review the medical records of patients admitted at the Specialist Teaching Hospital, Irrua, Edo State, Nigeria, between 1st June, 2010 and 1st June, 2013, to ascertain the incidence pattern of Hepatitis B infection among the patients. A total of 4536 patient's medical records were reviewed and the data obtained were analyzed using the computer statistical package for social sciences (SPSS Version 16). The results showed that out of the 4536 patients admitted during the period under review, only 34 (0.7%) of the patients had hepatitis B virus infection as against 4502 patients (99.3%) without the infection. Also, among those with HBV infection, 21 of them (61.8%) were males, while 13 (38.2) were females; with majority of them (32.4%; n=34) within the age group of 36-45. Most of the infected patients were traders (23.5%) and/or educated up to the secondary school level only (38.2%), while a few of them (8.8%) were unemployed and/or had only primary level of education (26.5%). These findings undoubtedly affirm the claim that HBV infection is endemic in populations across Sub-Saharan Africa; including Nigeria and with 'tints' of age, gender, and educational level variations.

Key words: Carriers, Hepatitis B, Patients, ISTH Irrua

INTRODUCTION

The infection rate of Hepatitis B virus (HBV) has over the years, remained a cause for concern as there are documented evidence on the staggering number of the world's population exposed to the infection (Jules and Dienstag, 2008). In fact, HBV has been tagged the 'second most important known human carcinogen' after tobacco (Lavanchy, 2005; Previsani and Lavanchy, 2002) and it accounted for the deaths of 786,000 people in 2010 (Lozano *et al.*, 2010). It has also been estimated that about one-third of the world population have serological evidence of past or present infection of HBV and 350 million people are chronically infected (EASL 2003; Fattovich 2003). Comparatively however, the prevalence of HBV infection is particularly high in South-East Asia and sub-saharan Africa, where more than 8% of the population are HBsAg chronic carriers (Ganem and Prince, 2004).

On the other hand, there are abundant scientific data suggesting that HBV infection is an important occupational hazard among health care workers (Diekema *et al.*, 2007; Sofola *et al.*, 2008; Sarwar *et al.*, 2008) and several factors are aggravating its incidence among populations. These factors include unsafe sexual practices (Gitlin, 1997; Lauer and Walker, 2001) and use of therapeutic injections (Hutin *et al.*, 1999); tattooing (Haley and Fischer, 2001); blood transfusion (Francisci *et al.*, 1993); and mother to child transmission (Gibb *et al.*, 2000). Maddrey (2000) asserts however, that perinatal transmission or transmission during early childhood is responsible for the high rate of



chronic infection in Asia and Africa, while sexual or parenteral exposure accounts for most cases in industrialized countries.

Unfortunately, Nigeria is among the group of countries with endemic infection rates of HBV and as at 2010, a total of 18 million people were infected (Mbaawuaga et al, 2010; Oyewusi et al., 2015). Available documented data show also that the prevalence of hepatitis B surface antigen (HBsAg) among apparently healthy Nigerians is relatively the same across the country; though higher rates have been recorded among patients with AIDS in the North eastern states of Nigeria, where the prevalence is up to 70% (Uneke et al, 2005). Interestingly, HBsAg prevalence among patients at different hospitals in Nigeria is comparatively high and in endemic proportions at Benin (41%), Maiduguri (49%), Lagos (52%), Ile-Ife (62%), Kano (70.3%) and Ibadan (84%) (Oyewusi *et al.*, 2015).

Being mindful of the various data obtained from other locations in Nigeria, we set out therefore, to assess the incidence pattern of Hepatitis B virus infection among patients admitted at the Specialist Teaching Hospital, Irrua, Edo State, Nigeria, between 1st June, 2010 and 1st June, 2013.

MATERIALS AND METHODS

Study Area: Irrua Specialist Teaching Hospital (ISTH) is located at Irrua along Benin- Auchi express way. It is a tertiary health institution that occupies an area of about 436sq km. The host town –Irrua, is the administrative headquarters of Esan Central Local Government Area of Edo State, Nigeria. It shares boundaries with Ugbegun, Ekpoma, Uromi, Ewu and Opoji towns. The Hospital has 8 clinical wards, 270 beds, 7 operating theatres, a casualty unit and an out-patient department, and with a staff strength of about 750 workers comprising various health professionals, including doctors, nurses, laboratory scientists, radiographers and pharmacists among others. These professional cadre of staff are supported by administrative and security personnel.

Study Design/Population: This is a cross sectional retrospective study designed to review the medical records of patients admitted at the Specialist Teaching Hospital, Irrua, Edo State, Nigeria, and ascertain the incidence pattern of Hepatitis B infection among the 4536 patients admitted between 1st June, 2010 and 1st June, 2013.

Ethical Consideration: A written consent was obtained from the ethical committee of ISTH, Irrua, Edo State, Nigeria and from the chief matron of the male and female medical wards of the hospital.

Data Collection and Analysis: The medical records of 4536 patients were reviewed. Relevant information such as age, sex, religion, occupation, marital status and HBV status among others, was obtained from patients records using a well structured questionnaire with closed ended questions. The data obtained were then analyzed using the computer statistical package for social sciences (SPSS Version 16).

RESULTS

The results show that a total of 4536 patients were admitted during the period under review. Out of the total number of patients admitted (4536), 2484 (54.8%) of them were males, while 2052 (45.2%) of them were females (Figure 1). However, only 34 (0.7%) of the patients had hepatitis B virus infection as against 4502 (99.3%) without the infection (Figure 2). Among those with HBV infection, 21 of them (61.8%) were males, while 13 (38.2%) were females (Figure 3); with majority of them married (70.6%; Figure 4) and/or within the age group of 36-45 (32.4%; Figure 5).

Although none of the patients with HBV infection were of the African traditional religion (0%), 73.5% of them however, were Christians, while 26.5% were Muslims (Figure 6). In addition, most of the patients with HBV were traders (23.5%) and/or educated up to the secondary school level only (38.2%) (Figure 7 and 8), while a few of them (8.8%) were unemployed and/or had only primary level of education (26.5%) (Figure 7 and 8).



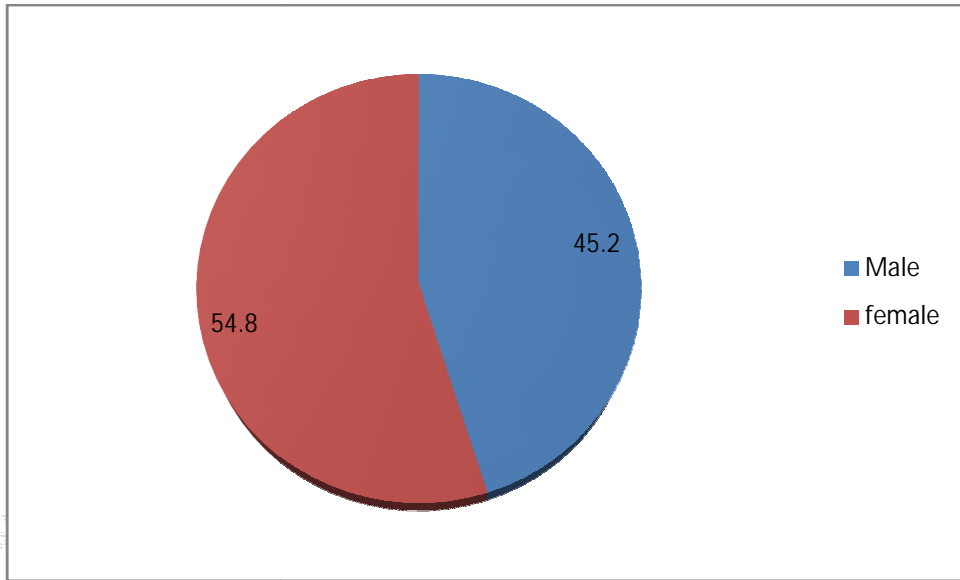


Figure 1: Sex distribution of patients admitted within the period under review

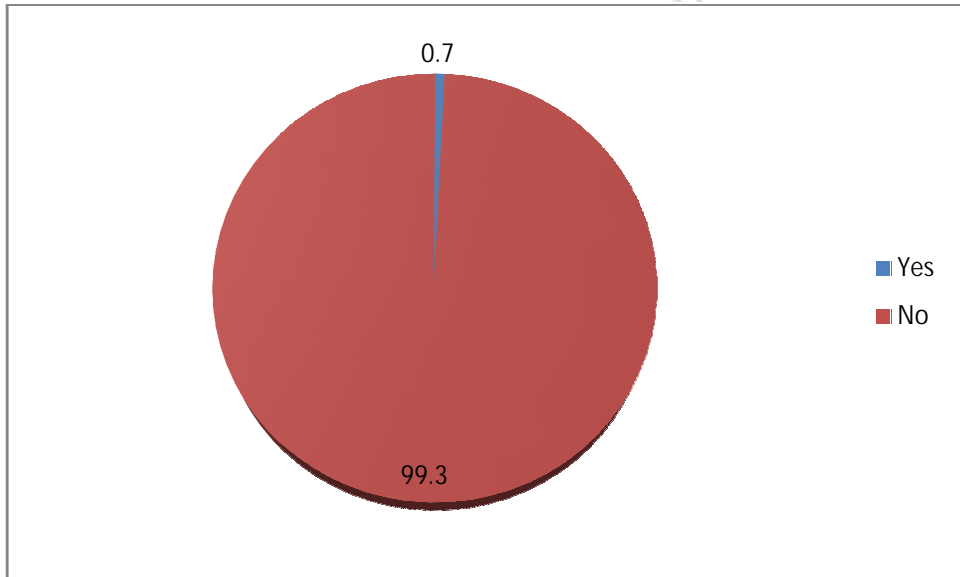


Figure 2: Total number of patients admitted with hepatitis B infection (Yes) and without the infection (No)

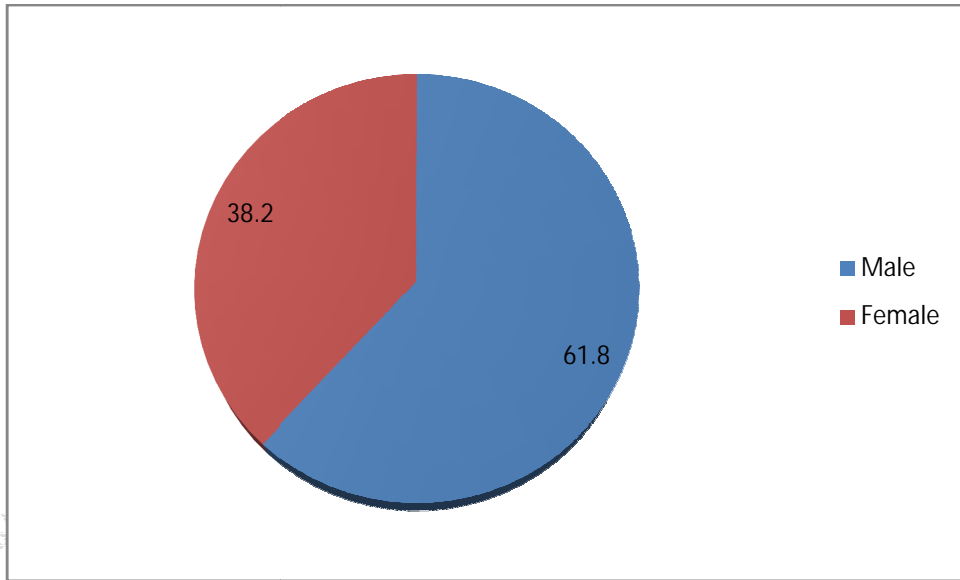


Figure 3: Sex distribution of the patients with HBV infection

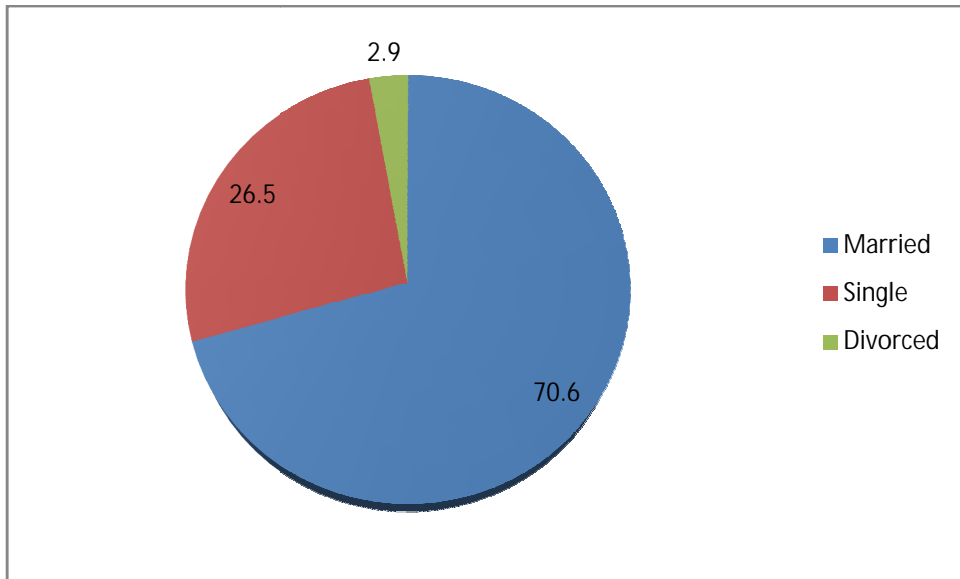


Figure 4: Marital Status the Patients with HBV infection.

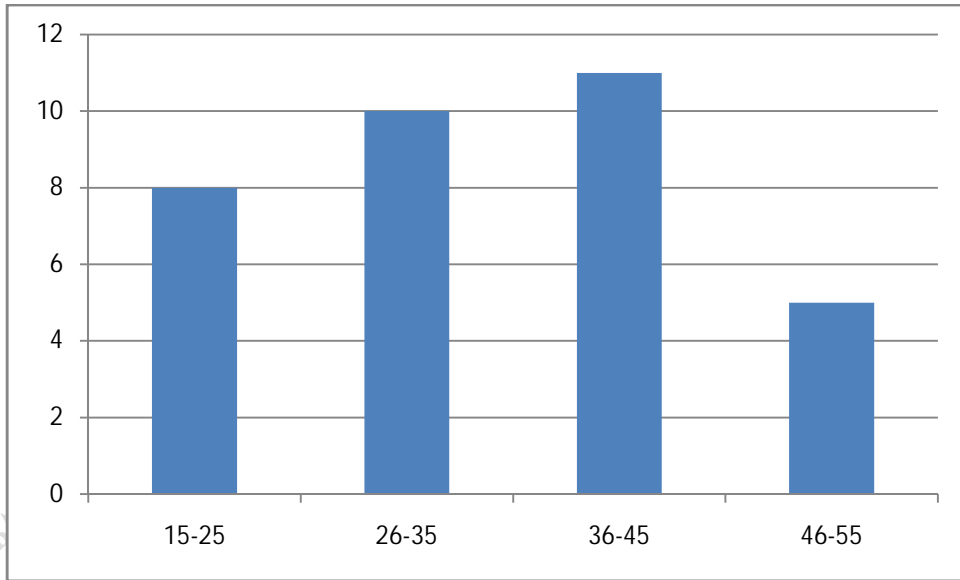


Figure 5: Age Distribution of the Patients with HBV infection

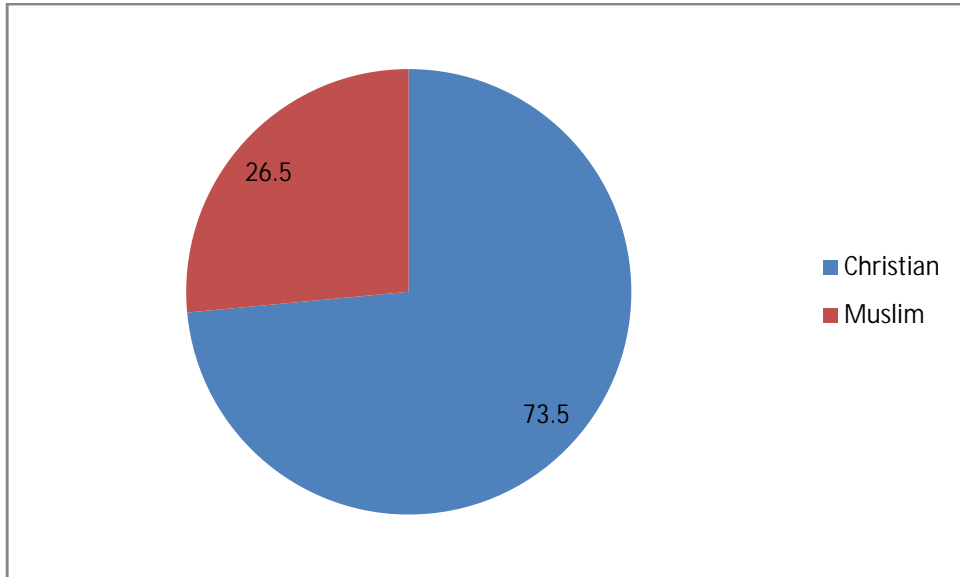


Figure 6: Religious affiliation of the Patients with HBV infection.



Figure 7: Occupation of the Patients with HBV infection

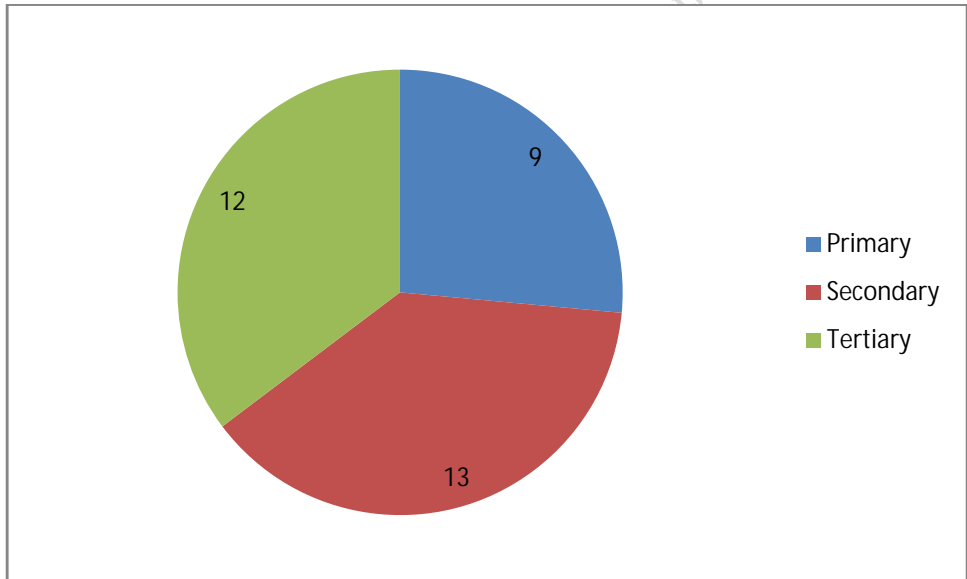


Figure 8: Educational Status of the Patients with HBV infection

DISCUSSION:

The result of this study undoubtedly affirm the fact that HBV infection is indeed, endemic in populations across Nigeria and that majority of HBV carriers reside in developing countries of sub-Saharan Africa where the lifetime risk of HBV infection is estimated to be greater than 60%, and carriage rates are in excess of 8% (Ganem and Prince, 2004). Even the report from a study conducted in Italy among immigrants from the less developed countries



in Africa, Asia and China, did reveal an 11.7% prevalence rate of hepatitis B virus in the populations (Scotto et al., 2010); further accentuating the endemic status of HBV in these regions of the world.

As our study can be tagged 'a single center study, it becomes important to state that the 34 (0.7%) patients admitted with HBV as against those admitted without the infection (4502; 99.3%) (Figure 2), can not represent the prevalence rate of HBV across the communities serviced by ISTH Irrua, as there would likely be unreported cases of HBV infection within the period under review. Nevertheless, a comparatively higher sero-prevalence range of 8 to 40% had been reported for Nigeria by Porter et al. (1994), Odaibo et al. (2003) and Scully and Samaranayake (1992). Mustapha et al. (2002), Uneke et al. (2005) and Ugwuja (2010) had also reported a 10-17% carrier rate of hepatitis B surface antigen (HBsAg) among apparently healthy adults in Nigeria, while in Jos, Nigeria, specifically; Uneke et al. (2005) reported a 14.3% prevalence of HBsAg among apparently healthy blood donors. Similarly, vertical transmission rate of HBV in a Nigerian population of HBsAg-positive pregnant women has been found to be 51.6% (Eke et al., 2011); though horizontal transmission is widely recognized as the major means of HBV transmission in areas of high endemicity like Nigeria (Kire, 1996).

Although the incidence rate observed in the study is arguably low, the figures quoted above are comparatively higher than the 1 and 5% reported in European and American studies respectively (Porter et al., 1994; Odaibo et al., 2003; MacLachlan et al. 2011). The comparatively higher infection rates in Afro-Asian populations has been attributed among others, to the lack of/or incomplete prophylactic vaccination and risky sexual behaviors. Others have also adduced the lack of education and awareness campaigns by government and mass media in less developed countries as contributory factors (Porter et al., 1994; Odaibo et al., 2003), while the shared transmission route of HBV and HIV infection has as well been implicated in the higher HBsAg positivity among HIV positive individuals (Burnett et al., 2005; Negero et al., 2011). In fact, workers at Nnewi, Nigeria, did observe that the co-infection rate of HIV/HBV was 4.2% (Eke et al., 2011).

Our findings also had a 'tint' of gender as more males (21; 61.8%) than females (13; 38.2%) were infected. Of course, gender-wise prevalence of Hepatitis B virus infection has been highlighted (Wasfi and Sadek, 2011; Khan et al., 2010). Even Naz et al. (2002) had reported a high prevalence of HBV in males (68.3%) than females (31.7%). Five years later, Manzoor et al. (1997) reported a high prevalence of 64% in males than 36% females. In subsequent studies, Moosa et al. (2009), Awan et al. (2010) and Nwokediuko (2010) reported a high prevalence in males than females (59.1%, 58.3%), (40.9%, 41.7%) and (79.2%; 20.8%) respectively. However, there are claims that the role of gender in the disparity of HBeAg burden is not fully understood; though female gender has been considered to be an independent predictor of HBeAg clearance following HBV therapy (Peng et al., 2011). Some other studies that focused on spontaneous HBeAg seroconversion in the absence of HBV therapy did find however, that males are more likely to be associated with HBeAg clearance than the females (Chu et al., 1993; Yang et al., 2013).

Finally, the observation that majority of those infected with HBV were within the age range of 36-45, reflects the reported variations in the link between age and HBV infection. In fact, Castolo et al. (2001) had earlier reported that the prevalence of HBV infection is higher in patients up to the age of 40 years, while very young and old individuals are less frequently infected by HBV. Alam et al. (2007) similarly reported that there was a significantly higher infection rate of HBV among persons within the age range of 21-40 years followed by 41-60 years age. It is our opinion therefore, that mechanisms be put in place by relevant authorities towards enhancing efforts designed to prevent and manage the incidence of Hepatitis B virus infection among populations in rural communities like Irrua and its environs in Edo State, Nigeria.

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AUTHOR'S CONTRIBUTIONS

All the authors participated fully in this study.

