Hepatitis B Surface Antigen In Human Immuno Deficiency Virus Positive Patients In Bida, North Central Nigeria.

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Citation

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Abstract

A prospective cross-sectional and analytical study was carried out to establish the prevalence of hepatitis B surface antigen in HIV infected population in Bida –North Central Nigeria.A total of 250 HIV seropositive patients comprising of 118 (47.2%) males and 132 (52.8%) females paticipated in this study.The age range of participants was 18 - 65 years. Rapid Chromatogenic Enzyme Immuno Assay (EIA) kit was used for the detection of Hepatitis B surface antigen in the serum samples. Our result shows that thirty three (13.2%) of the patients are Hepatitis B surface antigen seropositive. Co-infection of hepatitis were more in female 23(17.6%) than male 10(8.4%) subjects. Statistical analysis showed significant difference ($p<.05$). Age group interval of 21-30 years had the highest prevalence of Hepatitis B surface antigen seropositivity. 18(36.5%) followed by age group interval of 31-40 years 7(18.9%), 41-50 years interval 4(20.7%) and <20 years interval 3 (13.3%). No significant difference was observed in association between age and prevalence of Hepatitis B surface antigen ($p>0.05$). Routine screening of patients with HIV infection for Hepatitis B surface should be encouraged for early diagnosis.The high prevalence is a reflection of the endemicity of hepatitis B viral infection in Bida, North central Nigeria.HBV, Co-infection, HIV,Nigeria.

INTRODUCTION

Human immuno deficency virus (HIV) and Hepatitis B viruses (HBV and HCV) are the three most comon chronic viral infection documented worldwide (Soriano et al.,2006). HIV reportedly accounted for 38.6million infections worldwide at the end of 2005 (Report on the global AIDS epidemic,2006). HBV has been reported to be responsible for 400 million chronic infection (Alter,2006). Moreover among the HIV infected patients, 2-4 million are estimated to have chronic HBV co-infection (Bonacini et al.,2004). In patients already infected with HIV and either hepatitis B or C, the prognosis is made much worse with additional infection by other hepatotropic viruses (Bonacini et al.,2004). Hepatitis B is a serious public health problem worldwide and one of the most common infectious disease globally (McQuillan et al., 1989).

The viruses have similar route of transmission, namely through blood and blood products, sharing of needles to inject drugs and sexual activity, making co-infection with these viruses a common event (McNair et al., 1992). Many HIV positive individual have also been exposed to hepatitis virus(HBV). Studies sugested that as many as 70% - 90% HIV positive people have evidence of past or current HBV infection (Lipiroth et al ,2007) . Co-infection with HBV increases the risk for hepatotoxicity of HAART and likelihood of onset of an AIDS-defining illness, compared with infection HIV-1 alone (Greub 2006). HBV co- infection in HIV positive individuals is of utmost importance because of the underlying hepatic complications , which have been shown to decrease the life expectancy in HIV infected patients (Chung 2006). Nigeria has been grouped among countries highly endemic for viral hepatitis (Odemuyiwa et al .,2001).

This study was therefore designed to estimate the prevalence of HBV seropositivity in patients living with HIV/AIDS in Bida –Niger State, North Central Nigeria.

MATERIALS AND METHODS

A prospective Cross sectional and analytical study was carried out at the Federal Medical Centre Bida. Only confirmed HIV positive serum samples were included in this study.Two hundred and fifty (250) samples were recalled randomly from a pool of confirmed HIV positive samples

Stored at -24ºC until analysis. The samples were collected between January 2009-July 2010 from HIV seropositive patients who attended HAART clinic for follow –up and other health needs. Rapid chromatogenic Ezyme Immuno Assay (EIA) kits was used for the detection of Hepatitis B surface antigen (HBsAg) in the serum following the manufacturers instruction (Acumen Diagnostics Inc.USA.) Hapatitis B positive samples were confirmed with a second serum based EIA rapid test (PMC Medical Pvt. Ltd India.). The EIA rapid test kit used had sensitivity of 99% and 99.0% specificity respectively and a positive predictive value of 99.9%.

. Data were captured and analyzed on Epi info version 3.5.1 August 13th, 2008 at P=0.05.

RESULTS

Table 1 shows the age and sex related distribution of study participants. Of the 250 participants, 118 (47.2%) were males and 132 (52.8%) females. The age interval most represented was 21 -30 years with 100 (40%) participants, followed by the interval of 31 – 40 years with 73 (29.2%) participants, then the interval of 41 – 50 years with 38 (15.2%). The interval of less than 20 years had 28 (11.2%) participants, while 9 (3.6%) participants were found in the interval of 51 – 60 years. Only 2 (0.8%) were seen to be above 60 years.

Table 2 shows that 33 (13.2%) was positive for Hepatitis B Surface antigen.The prevalence of Hepatitis B surface antigen was higher among the females 23(17.6%) than males 10(8.4%).Statistical analysis showed significant difference (p>0.05)

Age related prevalence of Hepatitis B surface antigen in HIV infected patients was assessed and results showed that subjects of age group 21-30 years had the highest prevalence 18(36.5%).This was followed by age group 31-40years 7(18.9%) , 41-50years 4(20.7%) and <20years 3(13.3%) respectively. No significant difference was observed in association between age and prevalence of Hepatitis B Surface antigen (p<0.05) (Table 3)

Figure 1

Table 1. Age and Sex related distribution of study participants

Age (years)	Gender		
	male	Female	Total
< 20	10 (8.5%)	18 (13.6%)	28 (11.2%)
21-30	47 (39.8%)	53 (40.2%)	100 (40%)
31-40	32 (27.1%)	41 (31.1%)	73 (29.2%)
41-50	21 (17.8%)	17 (12.9%)	38 (15.2%)
51-60	6 (5.1%)	3 (2.2%)	9 (3.6%)
>60	2 (1.7%)	0 (0%)	2 (0.8%)
Total	118 (47.2%)	132 (52.8%)	250 (100%)

Figure 2

Table 2. Sex related prevalence of HBV antibodies in the HIV infected patients

SEX	NO. EXAMINED	NO. INFECTED WITH HBV	PERCENTAGE INFECTED WITH HBV
MALE	*118*	10	8.4%
FEMALE	*132*	23	17.6%
TOTAL	*250*	33	13.2%

Figure 3

Table 3: Age related prevalence of HBV antibodies in HIV infected patients

AGE	NO. EXAMINED	NO. INFECTED WITH HBV	PERCENTAGE INFECTED WITH HBV
<20	*28*	3	13.3%
21-30	*100*	18	36.5%
31-40	*73*	7	18.9%
41-50	*38*	4	20.7%
51-60	*9*	1	20.0%
>60	*2*	0	0
TOTAL	*250*	33	13.2%

DISCUSSION

The aim of this study was to estimate the prevalence of HIV and HBV co-infections in the study population with the understanding that Chronic viral hepatitis is a leading cause of liver related death among patients with HIV/AIDS worldwide (Seeley et al 2004) .Co-infection prevalences above 10% have generally been considered a threat to

HIV/AIDS patients (Waber et al 2006). Our results have revealed that HIV/HBV co-infection prevalence was as high as 13.2%. in Bida.

The HIV/HBV co-infection rate in this study was found to be lower than the 25.9% reported by Uneke et al in Jos (Plateau State) and 27.8% reported by Forbi, et al. in Keffi (Nasarawa State) both located in the same geopolitical region with Bida. However, our result was observed to be slightly higher than the 11.9% obtained by Jesse et al. in Ibadan, south western Nigeria and much higher than 6% reported in Kano by Taura et al.and 9% reported by Shannegam et al in India. Co-infection of hepatitis were more in female 23(17.6%) than male 10(8.4%) subjects. Statistical analysis showed significant difference ($p<0.05$).The high female prevalence of Hepatitis B surface antigen in this study is in agreement with the findings of Jesse et al in Ibadan.This study therefore revealed the endemicity of HBV Infection and increased infection in HIV infected individuals in Bida North central Nigeria. Therefore, routine screening for hepatitis B surface antigen among people living with HIV is advocated

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