HEPATITIS B AND C CO-INFECTIONS IN HIV/AIDS PATIENTS ATTENDING ARV CENTER ABUTH, ZARIA, NIGERIA

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Abstract

Background

Co-infections of HIV/AIDS with HBV and HCV are emerging as an added burden to the already chaotic protocols of managing HIV/AIDS mono-infection.

Objectives

To determine the prevalence of Hepatitis B and C co infections among HIV/AIDS patients in Zaria.

Methods

A cross sectional study by which serum samples of all double ELISA confirmed HIV infected patients referred to the clinic were additionally screened for hepatitis B and C viruses using rapid test ELISA kits.

Results

One hundred and thirty seven (17.5%) were HBsAg or anti-HCV positive, 81(10.3%) were HBsAg positive, 41(5.3%) were anti-HCV antibodies positive and 15(1.9%) were positive for the two viruses. Ages of patients ranged from 17 to 58 years with a mean of 34+-5 SD. Eighty-three were females while 51 were males. Forty-two (30.6%) patients had jaundice out of which 23(2.9%) had abnormal liver function tests.

Conclusions

There was a high prevalence of hepatitis B and C co infections in patients with HIV/AIDS in Zaria.

Recommendations

This calls for the institution of screening measures to detect the presence of hepatitis B and C viruses in HIV infected patients to avert the consequences of their effects.

KEY Words: Co-infections, HBV, HCV; HIV, ABUTH

Introduction

Co- infection of hepatitis B and C viruses in HIV-infected patients' are more common than earlier anticipated[1,2].

Infections with the Human Immuno-deficiency Virus (HIV) have continued to spread

all over the world with Africa bearing the greatest brunt of the pandemic[3,4].

Globally, the Joint United Nations Programme on AIDS (UNAIDS) estimates that as at the end of 2003 there were a total of 40 million people living with HIV (37 million were adults while 2.5 million were children less than 15 years). People newly infected with HIV were 5 million while the cumulative death for the year 2003 was 3 million people[5].

In Nigeria, since the first description of the disease in a sexually active 13-year-old girl in 1986[6], the disease has continued to rise to alarming proportions with the adult population prevalence rates rising from 1.8% in 1991, 4.5% in 1996 to 5.8% in 2001 and 5.0% in 2003[7].

Worldwide, it is estimated that there are approximately 350 million chronic hepatitis B virus carriers with prevalence rates ranging from as low as 0% in some developed countries to as high as 15% in some developing countries[8,9].

In Nigeria, hepatitis B virus infection is endemic in the general population with about 12% of the total population being chronic hepatitis B carriers[10,11]. Several studies from different parts of the country had confirmed the endemicity of the infection in Nigeria[12,13,14] .

Hepatitis C virus is estimated to have infected approximately 170 million carriers globally by the year 2000, with the general population prevalence rates ranging from 1-2% to as high as 30% in Egypt[15]. In Nigeria, literature on the prevalence rates of Hepatitis C virus infection is scanty but a study in a neighbouring Teaching hospital in Jos found a prevalence rate of 6% in blood donors[16].

Co-infection of HIV with HBV has considerable regional variations with some studies reporting as high as 24% HBV serological markers in HIV infected patients[17].

This study was aimed at determining the prevalence of hepatitis B and C virus co-infection in patients being managed for HIV/AIDS in ABUTH antiretroviral treatment center with a view to generating data that will assist in drawing up modalities for the effective management of these patients.

Methods

The study was carried out at the Anti Retro viral (ARV) treatment clinic of the Department of Hematology, Ahmadu Bello University Teaching Hospital, Zaria, over a three- year period from March 2003 to February 2005.

Subjects for the study were drawn from the pool of all the patients that were recruited to benefit from the Federal government antiretroviral treatment scheme.

All subjects had to satisfy the recruitment criteria for the treatment programme, which includes age of 12 years and above, reactive serum/plasma for HIV-1 or HIV-2 and having been confirmed for HIV-1/HIV-2.

All subjects were screened for hepatitis B and C virus infections. Additionally some subjects who presented during evaluation with jaundice and hepatomegaly had liver functions tests performed.

Five milliliters of venous blood was collected into a plain bottle and allowed to separate after 1 hour at room temperature. Determination of the Hepatitis B and C sero- status of the patients was carried out within 1 hour of the serum separation. Liver function tests were carried out within 6 hours of the collection of blood.

For the detection of the hepatitis B sero- status, a modified enzyme linked immunosorbent assay (ELISA) rapid test manufactured by BIOTEC Laboratories of the United Kingdom (UK) was utilized.

For the detection of the hepatitis C sero status, rapid test kit manufactured by BIOTEC Laboratories of the UK was used.

Both tests were immunochromatographic tests designed for the qualitative determination of hepatitis B surface antigen and anti-HCV antibodies.

Both tests had sensitivity of 99.5% and specificity of 99.7% based on the information of the manufacturers.

Written consent was obtained from all patients for the study and also for all treatments in the center.

Results

The ages of the patients ranged from 17 to 58 years with a mean of 34 +/- 5 years.

There were 54 males and 83 females (Table 1). Out of the 785 double ELISA confirmed HIV patients referred from various entry points, 137(17.5%) were positive for either of the two viruses. Sixty-seven (8.5%) were HBsAg positive, 70(8.9%) were positive for anti-HCV antibodies and 15(1.9%) were positive for both viruses (Table 2).

Twenty-three (2.9%) out of 42 patients who presented with jaundice had abnormal liver function tests.

Table 1: Distribution of HBV and HCV co- infected HIV patients

	SEX				
Type of virus	M	%	F	%	TOTAL
HBV only	19	(23.5)	62	(76.5)	81 (100)
HCV only	33	(80.5)	8	(19.5)	41 (100)
HBV/HCV	2	(13.3)	13	(86.7)	15 (100)
TOTAL	54		83		137

Table 2: Age Distribution of HBV/HCV Co-infected HIV patients

Age –group	HBsAg(-)	HBsAg(+)	HCV(-)	HCV(+)	Total
15-19	87	5	22	10	124
20-24	39	12	98	10	159
25-29	213	32	61	26	332
30-34	49	9	28	12	98
35-39	13	7	4	6	30
40 +	16	2	18	6	42
Total	417	67	67	70	785

Key
HBsAg (-) = HBsAg Negative
HBsAg (+) = HBsAg Positive
HCV (-) =HCV Negative
HCV (+) = HCV Positive

Discussion

Results of this study suggest that co- infections with HBV and HCV in HIV infected patients are common.

The highest combined co- infections occurred in the age- group 25-29 years, signifying infections with the viruses occurring early in adult life. This group is sexually active and could have been exposed as a result of sexual indiscretions.

The high prevalence of HBV co- infection in this cohort of patients was not unexpected as this was the findings in various local populations. Earlier studies of hepatitis B virus infections in the general population in our facility had found prevalence rates comparable to these findings[13,18]. In the same vein this finding has also confirmed earlier studies of the endemicity of hepatitis C virus in developing countries[19].

Majority of liver- related pathologies ranging from simple hepatitis to liver cancers are caused by hepatitis B and C viral infections[20]. HIV, HBV and HCV share common modes of transmission so that patients infected with one type of virus need to have the others checked[21].

Co- infections of HIV with HBV and HCV results in considerable modification of the natural history of these two diseases with the consequence that liver damages and end stage liver pathologies are hastened[22]. Interestingly, the use of some of the antiretroviral drugs(lamivudine), primarily used in the management of advanced HIV disease also acts in the treatment of hepatitis B virus infection by

suppressing replication through inhibition of the reverse transcriptase of both viruses[23].

With the introduction of the highly active antiretroviral treatment (HAART) and the resultant control of HIV infection, focus is being shifted to the control of co- infections with other viruses. Earlier studies had observed that clinical progression of HIV infection to AIDS was more rapid in co- infected cohorts[24]. Other studies that compared the two groups (HIV- mono infected and co- infected) found a 1.7% relative risk of developing AIDS case-defining illnesses or death in co-infected patients[25].

The elevation observed in liver enzymes of those patients with jaundice was not unexpected as this occurs as a consequence of the liver damage occasioned by infections with the hepatitis viruses.

The high prevalence of hepatitis B and C viruses' co- infection in patients with HIV/AIDS and the consequence of the effects of the viruses on the course of the infection, calls for the institution of screening measures to detect the presence of both viruses in all patients and to start appropriate treatment.

In conclusion, co-infections with HBV and HCV viruses in patients with HIV/AIDS are high and add to the clinical and therapeutic burden on both the patient and the clinician that calls for community strategies to control these infections.

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