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Prevalence of Hepatitis C Virus Among HIV Seropositive Patients Attending Federal Medical Centre, Bida, Niger State, Nigeria

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ABSTRACT: This prospective cross-sectional and analytical study was carried out to establish the prevalence of hepatitis C among HIV infected population in Bida –North Central Nigeria, and to determine these co-infections. Total of 250 HIV seropositive patients comprising of 116 (46.4%) males and 134 (53.6%) females participated in this study. The age range of participants was 18 - 65 years. Our results revealed that 19(7.6%) patients had HIV/HCV, while 231(92.4%) show negative. And sex distribution of the infection shows that male 8(6.8%) were positive while 11(8.2%) was positive for female. Though there was significant decline in CD4 count of the patients which was particularly associated with HCV viral co-infections considered in this study, a large scale population based study need to establish this fact. Therefore, screening for hepatitis C should become routine medical laboratory practice in order to optimize the benefits of HAART among people living with HIV.

Key words- Human Immunodeficiency Virus (HIV), & Hepatitis C Virus (HCV); Blood serology.

Introduction

Hepatitis C virus (HCV) is a single stranded RNA virus in the flaviviridae family. Hepatitis c virus infection is a major world wide public health problem. The world health organization (WHO) estimate that 3% of the world population are chronically infected with HCV, most of these cases occur in Africa, which reported to have the highest HCV prevalence rate (strict land *et al*,2008,Simmonds *et al*,2005,kohar *et al*,2010). The average time of seroconversion after exposure to HCV is 8 to 9weeks. Acutely infected individuals may develop clinically, apparent hepatitis with loss of appetite, nausea, vomiting, fever, abdominal pain and jaundice. 60-70% of patients with acute HCV infection are symptomatic.

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It is estimated that 170 million people world wide are infected with hepatitis c virus (HCV) WHO,1999). Originally identified in 1989 as the major cause of non-A and non-B hepatitis (choo *et al*,1989),Although only a small proportion of acute HCV infection are symptomatic ,it progresses to chronic infection in approximately 80% of cases and is an important cause of chronic liver disease world wide (Alter *et al*,1999)Hegan *et al*,2000). Appromately 15-20% of persons who acquire HCV infection progress to potentially serious cirrhosis and end stage liver disease (Liang *et al*, 2000).

Based on genetic difference between hepatitis c isolate, the hepatitis c virus species is classified into six genotype (1-6) with several subtypes within each genotype ,and the subtypes are further broken down into quasispecies based on their genetic diversity(Rauch *et al*,2009).Hepatitis c virus is transmitted most effectively through parenteral exposures to infected blood. Prior to the virus discovery, transfusion of blood or blood products was a major mode of transmission (Vera *et al*, 2005). Since testing of blood supplies began a new cases of transfusion-transmitted hepatitis c virus has been virtually eliminated. Several transmission of hepatitis c appears to be efficient as most sexual risk behavior have been shown to be associated with HCV infection (Hegan *et al*, 2000, sulkowski *et al*, 2005). Nosocomial transmission of HCV is possible if infection control measures are inadequate such as the use of multidose vials,dialysis,and colonoscopy(CDC,1998),Currently, the major modes of HCV transmission world wide is injection drugs users(sulkwoski *et al*,2005,CDC,1998). Occupational exposure to HCV account for approximately 4% of new infections, and approximately 20% of cases of hepatitis C appear to be due to sexual contact, inconstrast to hepatitis B, approximately 5% of the sexual partners of those infected with hepatitis C contract hepatitis C.

The purpose of this research work is to contribute to the epidemiological profile of HCV among HIV infected patients attending institute of human virology laboratory at federal medical centre Bida, by estimating the HCV prevalence and describing the risk behaviors.

Materials and Method

Study Area.

The study was carried out among people with human immunodeficiency virus (HIV) attending Institute of Human Virology at Federal Medical Centre Bida laboratory.

Sample Collection.

Five millitre of blood was drawn with minimum stasis into 5ml of EDTA anticoagulant bottle via antecubital vein puncture using a disposable vacutainer syringe and needle and each was mixed gently, thoroughly to prevent it from lysis and was processed and analysed for hepatitis c virus (HCV) and the data generated was analysed using a statistic software EPI-INFO window version 8.0 for a study power of 95% confidence limit at a probability level of 5% significant.

Results

Two hundred and fifty HIV seropositive patients were recruited for the work and were screened for HCV and the results show a prevalence rate of 7.6% (n=19) were positive for HCV, while the sex distribution shows male 6.8 % (n=8) were positive and female 8.2 % (n=11) were positive as shown in (Tables 1&2). The age and sex distribution of participants in this study are also shown in Tables 3 and 4.

Table 1: The prevalence of HCV in HIV positive patients

Serological test	Positive	Negative	Total
HCV	19 (7.6%)	231 (92.4%)	250
HIV	250 (100%)	0 (0.0%)	250

Table 2: Sex Distribution of HCV in HIV positive patients

Sex	Positive	Negative	Total
Male	8 (6.9%)	108 (93.0%)	116
Female	11 (8.2%)	123 (91.8%)	134
Total	19 (7.6%)	231 (92.4%)	250

Table 3: Age and Sex distribution of participants in this study

Age bracket	Male	Female	Total
<20	5 (33.3%)	10 (66.7%)	15
20 – 25	22 (36.7%)	38 (63.3%)	60
26 – 30	31 (60.8%)	20 (39.2%)	51
30 – 35	11 (34.4%)	21 (50.0%)	31
36 – 40	21 (50.0%)	21 (50.0%)	42
41 – 45	16 (57.1%)	12 (42.9%)	28
46 – 50	5 (50.0%)	5 (50.0%)	10
51 – 55	4 (80.0%)	1 (20.0%)	5
56 – 60	2 (40.0%)	3 (60.0%)	5
>60	2 (100.0%)	0 (0.0%)	2

Table 4: Distribution of patients with HCV and HIV co-infection

Age bracket	Male	Female	Total
<20	1 (67.0%)	14 (93.3%)	15
20 – 25	1 (2.1%)	46 (97.9%)	47
26 – 30	2 (3.9%)	49 (96.1%)	51
30 – 35	2 (6.3%)	30 (93.8%)	32
36 – 40	1 (2.4%)	41 (97.6%)	42
41 – 45	3 (10.7%)	25 (89.3%)	28
46 – 50	0 (0.0%)	5 (100.0%)	10
51 – 55	0 (0.0%)	10 (100.0%)	5
56 – 60	0 (0.0%)	5 (100.0%)	5
>60	0 (0.0%)	2 (100.0%)	2

Discussion

Many HIV-positive individuals have also been exposed to hepatitis C virus. Of the 250 seropositive patients, HCV shows a prevalence rate of 19 (7.6%) which is not in agreement with the work of Gregory *et al*, 2002, which shows a prevalence rate of 1.6% in the united state ;Also this not in agreements with the work of forbid *et al*, 2007, which shows a prevalence rate of 11.0% in Keffi North Central Nigeria as it is significantly higher, also this is not in agreement with the work of Sirisena *et al*, which also shows a prevalence rate of 9.7% from urban population in north central Nigeria. But this study shows a significantly lower value compared to that of Uneka et, al which used similar method of HCV detection but our study is significantly higher than that of Savaranan *et al*, 2007, which shows a prevalence rate of 2.25 of HCV in india, this variation in the prevalence rate of HCV in HIV patient confirmed the statement of Tien *et al*. 2005.

The sex distribution of HCV in HIV positive patient shown in table two revealed that the percentage of female infected with HCV shows a prevalence rate of 11 (8.2%) which is some how higher than that of male 8(6.8%) and this is likely because female are expose more earlier than male, this differences may be due to gender inequality, which is consistent with majority of treatment centres particularly in the first decade of ART and this is in agreement with Bruga *et al*, 2007. And this also suggest generally that HCV co infection has been shown to hasten time to AIDs and death.(Grueb *et al*, 2000) and also affects the CD4 Count of the patients, and It also complicate the treatment of HIV by increasing the hepatotoxicity (harm to the liver).

The age distribution of HCV co infection shows that the detection of the infection rate of HCV in HIV positive patients was higher among the age group 40-45years (10.75), 30-35years (6.35%) and 26-30years (3.9%) respectively. This suggest that the sexual route could also be the common mode of transmission for both HCV & HIV as this age group are sexually active as shown in fig1.

In conclusion, the detection of HCV in sera of HIV positive client provide a rationale for possible inclusion of routine screening for HCV among HIV positive clients and possible have a policy for effective management of HCV in effort to improve on HIV management.

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