Scientific Research and Essay Vol.4 (2), pp. 065-068, February 2009
Available online at http://www.academicjournals.org/SRE
ISSN 1992-2248 © 2009 Academic Journals

*Full Length Research Paper*

# Seroprevalance of HIV infection among patients attending STD clinic at National Hospital Abuja, Nigeria

**Muhammad T.[1], Ene A. C.[2]*, Atanda G. O.[3], Nwankwo E. A.[4] and Baba M. M.[5]**

[1]Department of Microbiology, National Hospital Abuja, Nigeria.
[2]Nigerian Institute of Medical Research, Maiduguri Out Station, P.M.B 1293, Maiduguri, Nigeria.
[3]Federal College of Veterinary and Medical Laboratory Technology Vom, Nigeria.
[4]Department of Medicine, University of Maiduguri, P.M.B 1069, Maiduguri, Nigeria.
[5]Department of Medical Laboratory Sciences, University of Maiduguri, P.M.B 1069, Maiduguri, Nigeria.

Accepted 12 January, 2009

**The sero-prevalence of Human Immunodeficiency Virus (HIV) infection in patients attending STD clinic at National Hospital Abuja, Nigeria was determined from two hundred sera collected from patients. The result showed that 31 (16.5%) were HIV positive as antibodies to HIV was found in their sera. The age distribution revealed that the highest prevalence of HIV antibodies was found in the age group of 21 - 30 years (7%), followed by the age group of 10 - 20 years (4%). The lowest prevalence of HIV antibodies was found in the age group of 41 - 50 years (1.5%). Generally, unique association of sexually transmitted disease and HIV was found among the STD patients. It can be concluded that the seroprevalence of HIV among STD patients particularly the young, is very high. The youths should continuously be educated world wide about HIV pandemic and methods of prevention.**

**Key words:** STDs, HIV, Prevalence, Abuja, Nigeria.

## INTRODUCTION

The Acquired Immunodeficiency syndrome (AIDS) is a global pandemic causing the greatest public health concern. Its etiological agent, the Human Immuno-deficiency Virus (HIV) is one of the commonest lethal infectious agent worldwide (Ugochukwu, 2003). HIV can be contracted through sexual contact, exposure to blood of an infected person; including sharing of contaminated needles, syringes and by certain blood products or other body fluids. HIV/AIDS has been the leading cause of death among young adults in Nigeria and the world in general and has a devastating impact on people in the developing countries (Kelly, 1998; Ene et al., 2007). The clinical presentation of the disease include pneumonia, fever, chronic diarrhea, weight loss, lymphadenopathy, cough, an itchy maculopapular generalized skin rash, blue discolouration, anemia and hairy leukoplakia. The liver enzymes' levels of HIV/AIDS patients are usually elevated (Ogunro et al., 2005; Ene et al., 2006).

*Corresponding author. E-mail: Chineduene@yahoo.com. Tel: 234 08023548868, 234 08038544994.

Sub-Saharan Africa has more than its own share of people infected with HIV virus and the total number continues to increase because of Africa poor resource availability and awareness regarding the disease (Kelvin, 2005; Ene et al., 2006). The prevalence of HIV infection has been on the increase since the description of the four cases in Sanfrancisco USA in 1981. It is estimated that there are more than 40 million people living with HIV/AIDS (PLWHA) worldwide of which the majority are in the sub-Saharan Africa (Grant and Decock, 1998; Ene et al., 2007). The prevalence rate of the infection in Nigeria is estimated to be 5.8% as at 2002 probably still on the decrease (UNAIDS, 2002). The current prevalent rate of HIV/AIDS in Nigeria as at 2008 is 3.6% Hanson, (2008).

HIV infection is associated with high morbidity and mortality and there is no curable treatment. Accumulative evidence suggest that concurrent infections with other STDS increase the risk of transmission, so there will be greater prevalence of HIV infections in STD clinic attendees (Piot and logo, 1989; Greenblatt et al.,1988). Since early in the HIV epidemic, the role of other sexually transmitted diseases (STDs) as risk factors for HIV trans-

**Table 1.** HIV infection among different age groups and sex distribution.

| Age groups(years) | Number of samples | Number HIV negative samples | Number of HIV positive samples | Number of HIV positive samples in males | Number of HIV positive samples in females |
|---|---|---|---|---|---|
| 10 - 20 | 42 | 34 | 8 | 2 | 6 |
| 21 - 30 | 88 | 74 | 14 | 8 | 6 |
| 31 - 40 | 45 | 39 | 6 | 1 | 5 |
| 41 - 50 | 25 | 22 | 3 | 0 | 3 |
| Total | 200 | 169(84.5%) | 31(15.5%) | 11(5.5%) | 20(10%) |

mission has been a question with important implications for the control of the spread of HIV infection. If other STDs are important cofactors in HIV transmission, then control of these diseases, particularly in areas with high prevalence of both STD and HIV, would be a simple and relatively inexpensive public health measure to slow the HIV epidemic.

Other STDs may facilitate HIV transmission by increasing the infectivity of persons co-infected with HIV by recruiting HIV infected lymphocytes or macrophages to the genital region or increasing the levels of HIV virions present in genital secretions (Moss et al., 1995). This increase in viral burden could be due to increased HIV replication brought about by immune activation in response to infection with other STDs. Increased viral load may also occur by direct interaction between HIV and another viral STD. Studies *in vitro* (Mosca et al., 1987) and *in vivo* (Heng et al., 1994) of HIV-1 infection have shown that co-infection with herpes viruses can lead to increased HIV replication via a synergistic activation of the viral promoter regions in the two viruses.

Much of the early research examining the role of STDs on HIV transmission was done in Central Africa on commer-cial sex workers and among people attending STD clinics. Overall, these studies provide strong evi-dence that HIV transmission is enhanced by ulcerative STDs (Plummer et al., 1991) and by non-ulcerative STDs such as gonorrhea and Chlamydia (Laga et al., 1993).

In view of the sparse literatures available on the sero-prevalence of HIV in STD clinic attendees at Abuja, we decided to study the sero-prevalence of HIV infection in STD clinic attendees at National Hospital Abuja Nigeria.

## MATERIALS AND METHODS

The HIV study population groups covered during this survey were patients with STDs. A total of 200 blood samples were collected from the patients. The sample size was based on the recommended WHO guideline which takes into consideration estimates of HIV prevalence in the population surveyed, the precision or relative error considered acceptable and the level of confidence desired.

All the patients presented with abnormal vaginal discharge with positive risk assessment, Lower abdominal pain in women, urethral discharge in males, genital ulcer in male and females, inguino-were included while females with normal or physiological vaginal scrotal swelling in males during the period of samples collection discharges were excluded.

5 ml of blood was collected from each of the STD patient by vein puncture at the STD clinic. The coding of the specimen including information on the study group, age, sex and hospital number was recorded. Hand gloves were used and aseptic technique was adopted during sample collection. Sample collection lasted for 60 days. All the blood specimens collected were allowed to stand for about 2 h to allow the blood to clot after which they were centrifuged. The serum was separated and transferred to clean sterile plain containers. The sera were all stored at -20°C until ready for use. The stored sera were all screened for HIV using rapid capillus method (Des Jarlis, 1984). The HIV was confirmed by the method of Determine (National Committee For Clinical Lab. Standards, 1993).

## RESULTS

Out of the 200 patients attending STDs clinic at the National Hospital Abuja that were studied, 31 patients representing (15.5%) of the study population were HIV positive, as antibodies to HIV infection was found in their sera. The age distribution showed that the highest prevalence of antibodies to HIV was found in the age group of 21 - 30years old, representing 7% of the study population, while the lowest prevalence was found in the age group of 41 - 50 years old, representing (1.5%) of the study population.

The result revealed that more females 20(10%) tested positive to HIV than males 11(5.5%) (Table 1). The female patients with abnormal vaginal discharges had a higher prevalence of antibodies to HIV 9(45%) than those with genital ulcers 6(30%) (Table 2). Male patients with genital ulcers have a higher prevalence of HIV antibodies 5(45.5%) than male patients with urethral discharge 4(36.4%), those with scrotal swellings 1(0.5%) and those with groin swellings 1(0.5%) (Table 3). Male patients with scrotal swellings and those with groin swellings had the same prevalence of 1(0.5%) each (Table 3).

## DISCUSSION

The demography of the STD patients enrolled for this survey showed that out of the 200 patients attending STD clinic at the National Hospital Abuja, 31 patients representing (15.5%) of the study population were HIV positive. Although the National figure stood at (5.8%) HIV

**Table 2.** Clinical diagnosis of female HIV positve patients enrolled for the study.

| Age group in (years) | Number of samples that were HIV positive | Number with genital ulcer | Number with urethral discharge | Number with lower abdominal pain | Number with swellings on the groin | Number with abnormal vaginal discharges |
|---|---|---|---|---|---|---|
| 10 - 20 | 5 | 1 | 0 | 2 | 0 | 2 |
| 21 - 30 | 10 | 2 | 0 | 2 | 0 | 6 |
| 31 - 40 | 3 | 2 | 0 | 0 | 0 | 1 |
| 41 - 50 | 2 | 1 | 0 | 1 | 0 | 0 |
| Total | 20 | 6(30.0%) | 0 | 5(25.0%) | 0 | 9(45.0%) |

**Table 3.** Clinical diagnosis of male HIV positive patients enrolled for the study.

| Age group (years) | Number of HIV positive samples | Number with genital ulcer | Number with urethral discharge | Number with scrotal swelling | Number with groin swelling |
|---|---|---|---|---|---|
| 10 - 20 | 3 | 1 | 1 | 1 | 0 |
| 21 - 30 | 4 | 1 | 2 | 0 | 1 |
| 31 - 40 | 3 | 2 | 1 | 0 | 0 |
| 41 - 50 | 1 | 1 | 0 | 0 | 0 |
| Total | 11 | 5(45.45%) | 4(36.36%) | 1(9.09%) | 1(9.09%) |

seropositivity prevalence, the age group distribution showed the highest prevalence of antibodies to HIV between was found in the age group of 21 - 30 years old, representing 7% of the study population. This finding is similar to that obtained by Ene et al. (2006) and Nnamah (1998).They reported that the prevalence of HIV infection in Nigeria is higher in the youths particularly in the age group of 17 - 40 years old. This trend is found in other parts of the world. This age group represents the segment of the population that is sexually active and is exposed to STDs and other risk factors. The lowest prevalence of HIV infection was found in the age group of 41 - 50 years old representing 1.5%. This group are the aged and less sexually active (Ene et al., 2006).

In the clinical manifestations, female patients with genital ulcer and abnormal vaginal discharges had a HIV prevalence of 30.0 and 45.0% respectively, which are high compared with other clinical manifestations. The HIV prevalence was equally found to be high in male patients with genital ulcer (45.5%) and urethral discharge (36.4%) compared with the other clinical manifestations. This can be explained by the fact that STD infections could have an immunosuppressive effect and make someone more susceptible to HIV infection. STD infection equally causes a recruitment of target cells to HIV, lymphocytes and macrophages into the genital mucosa making them acessible to HIV infection (Kivat et al., 1990). These infected cells can then cross back into the blood stream and disseminate the infection.

The results further revealed that more female patients (10%) were found to be HIV positive than male patients (5.5%) which tested HIV positive. This is similar to the work of William et al. (1989) which reported that inflamematory diseases like genital ulcer, cervicitis and use of oral contraceptives increase susceptibility of women to HIV infections because these provide a conducive environment for viral penetration into the appropriate cells.

## Conclusion and Recommendations

This limited survey of the interaction between STD and HIV has revealed that STDs are risk factors for HIV transmission. The evidence is strong and consistent for genital ulcer disease and is generally convincing for non-ulcerative STDs. The most affected STD age group is astonishing, because the age group most affected constitutes the most productive sector of the nation. The public health implication of both infections on families, communities and indeed the whole country will be enormous and cannot be over emphasized.

It is therefore recommended that the federal and state governments, the private sector, non-governmental organizations, United Nations (UN) agencies, multilateral and bilateral donors, WHO, the media and indeed the general public should plan and execute prevention and control strategies in the country and the world in general.

## ACKNOWLEDGEMENT

We wish thank Mr. N.K. Ibecheozor the chief medical laboratory scientist Microbiology/Parasitology department, National hospital Abuja for his assistance throughout the duration of this study.

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