



RESEARCH ARTICLE

SOCIO-DEMOGRAPHIC AND CLINICAL PATTERN OF PRESENTATION OF HIV-1 INFECTED ADULT PATIENTS IN NORTH-EASTERN NIGERIA

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ABSTRACT

**Objective:** To describe the socio-Demographic and clinical pattern of presentation of HIV-1 infected adult patients in North-Eastern Nigeria.

**Methodology:** Patients diagnosed to be HIV-1 positive that presented or referred for care to Infectious diseases clinic, University of Maiduguri Teaching Hospital (UMTH) from March to December 2008 were included in this descriptive case study. Detailed history and clinical examination was performed and risk factors for HIV infection were evaluated.

**Result:** A total of 315 patients were consecutively recruited into the study which included 130(41.3%) males and 180(58.7%) females with male to female ratio of 1:1.4. The mean age( $\pm$ SD) of both sexes was 34.03 $\pm$  11.21(14-81) years. Male patients were older than females, 36.58  $\neq$  had no formal education and were unemployed. Heterosexual contact appeared to be the single most predominant mode of exposure to HIV infection in this study. Weight loss (32%) was the most common presenting feature, followed by unexplained chronic diarrhoea (23.5%), persistent generalized lymphadenopathy (22.9%), and oropharyngeal candidiasis (20.3%). A total of 67 (21.3%) patients had AIDS-indicator conditions on presentation; significantly more males presented with AIDS-indicator condition than females (27.7% vs 16.8%) ( $p < 0.05$ )

**Conclusion:** The finding of higher prevalence of HIV among unemployed youth suggests that productive and economically viable segment of the society is worst hit. The heterosexual nature of the transmission supports interventions aimed at risky sexual behaviours. Weight loss being the most common presenting feature suggests late presentation.

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INTRODUCTION

Human immunodeficiency virus (HIV) was first recognized in 1981 amongst homosexuals in Los Angeles, New York and California.[1] Since then it remains a major public health concern, and the increasing spread continues to strain much of the limited financial, medical and human resources especially in developing countries.[2-4] In Nigeria since its first reported case in 1984,[5] the sero-prevalence of HIV increased from 1.8% in 1991 to 5.8% in 2001, this meant that Nigeria had 3.5 million infected persons in 2001. However, the National sero-prevalence dropped to 5.0% in 2003 and to 4.4% and 4.0% in 2005 and 2007 respectively according to the report of the Federal Ministry of Health in February, 2008. Borno State in North-eastern part of the country with a population of 4.2 million according to this report had a prevalence of 3.6% as of end 2007 [6]. Reacting to the high HIV prevalence, the Nigerian government in 2002 launched a national HIV/AIDS

policy whose overall goal is "to control the spread of HIV in Nigeria, to provide equitable care and support for those infected by HIV and to mitigate its impact to the point where it is no longer of public health, social and economic concern.[7] Despite this effort, there is still little known about the spectrum of HIV-related diseases in the country. This paper documented the socio-demographic and clinical pattern of presentations of patients in HARVARD PEPFAR (Presidential Emergency Plan For AIDS Relief), supported ARV clinic at UMTH between March and December 2008, with a view to highlighting features that may be peculiar to Nigerian HIV/AIDS patients. Identification of such features may help to improve services at the clinic and may also contribute to better understanding of and therefore better control and treatment measures for HIV infection.

Patients and methods

Patients recruited into the study were those presenting for the first time at the infectious diseases clinic at UMTH, based on

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their presentation either with clinical features that were suggestive of immune deficiency, referral as a result of HIV positive results from HIV counselling and testing (HCT) or referred to the HIV clinic because their spouse or child had died from a confirmed or unconfirmed HIV-related illness. At presentation, each patient was counselled; serum sample of each of those that consented was tested for HIV antibodies using an enzyme-linked immunoassay and confirmed by western blot test before recruitment into the study. Patients already on HAART presentation excluded from the study. Patients who tested positive were offered post-test counselling before disclosure of their test result; counselling was undertaken by trained counsellors. Each patient was evaluated by a physician who had special training in the diagnosis and management of HIV or AIDS.

Using a structured, pre-evaluated questionnaire, information was obtained on demographic characteristics, clinical manifestation, medication used, blood transfusion, sexual and drug use behaviour at baseline. The presence of opportunistic infections (OIs), inter-current medical illness, menstrual and gynaecological problems and use of AIDS and non-AIDS related medication were recorded. At entry, participants underwent clinical assessment that included history, general physical and gynaecological examination where indicated. Anthropometric measurements were carried out for all subjects. Blood samples were taken at recruitment from all participants. Samples taken were subjected to laboratory investigations; full blood count, random blood sugar, electrolytes, urea and creatinine, lipid profile, CD4 count and viral load. Additional investigations such as chest X-ray, sputum, urine and stool examinations were done when required to make a diagnosis, depending on the clinical events at presentation. The patients were classified according to the CDC 1993 revised classification system for HIV infection and expanded AIDS surveillance case definition for Adolescent and Adult [8]. The recognition and diagnosis of clinical events, and the clinical staging of disease, was also according to the WHO clinical staging for adults and adolescents (WHO, 2005). Presumptive clinical diagnosis was made for most of the clinical events. More sophisticated such as CT or MRI scans, endoscopy and bronchial ravage could not be done, either because of unavailability or because patients could not afford the cost of such investigations. The patients enrolled in the study were required to sign a written consent form. This study was approved by the hospitals ethics committee.

### Data of Analysis

Data was presented as numbers and percentages and mean  $\pm$  standard deviations (SD). Student t-test was used to test the statistical significances between mean values of continuous variables. Fishers exact and chi square tests were used to test for significance of categorical variables where appropriate, with statistical level of significance set at a p (probability) value equal to less than 0.05.

## RESULTS

A total of 315 patients consecutively recruited into the study between March to December 2008 were studied. There were 130 males and 185 females with a male to female ratio of 1:1.4. The mean age of both sexes was  $34.03 \pm 11.21$  (14-81)

years. Male patients were older than females,  $36.58 \pm 12.78$  (16-65) and  $32.32 \pm 9.6$  (14-81) years respectively ( $p < 0.05$ ). Nearly two third of males (62%) and majority of females were  $\leq 39$  years. Majority of male patients falls within the ages of 30-39, while female patients between 20-29 years constitute the majority among females as seen in Table 1. The educational status of the patients varied from illiterate to the highly educated. Most of the patients had no formal education (31.4%) followed by those who attended secondary school (21.6%), about 6.9% declined to reveal their occupation (Table 2). The unemployed, civil servants, housewives and petty trading constitutes three quarter of cases (Table 2). Marital status of the patients showed that half of the patients (49.8%) were married followed by singles (24.8%) (Table 3). Heterosexual intercourse was the presumed route of HIV exposure and infection in 92.7% of the patients. Other modes of exposure were blood transfusion (2.2%), no identified routes of transmission in 5.1% no reported risk of exposure through men having sex with men or mother-to-child transmission (Table 3.) For those who were symptomatic, weight loss was the most common presenting feature (32.1%), followed by unexplained chronic diarrhoea (23.5%), persistent generalized lymphadenopathy (22.9%), and oropharyngeal candidiasis (20.3%).

A total of 67 (21.3%) patients had AIDS-indicator conditions on presentation. Thirteen and seven patients presented with two and three AIDS indicator conditions each respectively. AIDS-indicator conditions were present in 36 males (27.7%) and 31 females (16.8%); there was significant difference in the proportion of patients with AIDS-indicator conditions between males and females ( $p < 0.05$ ). Weight loss was the most frequent AIDS-indicator condition, constituting 32.1%. This was followed by oesophageal candidiasis (20.3%), pulmonary Tuberculosis (7.9%), and HIV dementia (4.1%); this pattern was the same for both males and females (Table 5). When patients were classified according to the WHO staging system, 31.7% presented in clinical stage I, followed by 21% and 26% in clinical stage I and II respectively (Table 5). A total of 21.3% of patients were in clinical stage IV at presentation. This pattern was the same for both males and females, although significantly more females presented in early clinical stages (stages I and II) than did males (57.3% vs 46.2%) ( $p < 0.05$ ), there was no gender difference in pattern of presentation in stage III, significantly more males presented with AIDS-indicator condition than females (27.7% vs 16.8%) ( $p < 0.05$ ). The patients' CD4 cell count at presentation ranged from 5-1840 cells/ $\mu$ l with a mean of  $238.98 \pm 216.6$ . Mean CD4 cell count at presentation was significantly higher in females  $253.6 \pm 227.2$  than in males  $219.2 \pm 203.67$  ( $p < 0.05$ ). Patients who had AIDS-indicator conditions had a significantly lower mean CD4 cell count  $206.8 \pm 170.0$  (11-663) cells/ $\mu$ l than those without AIDS-indicator conditions  $242.2 \pm 218.1$  (5-1840). Patients' mean viral load at presentation was  $376871.6 \pm 93363434$  (200-8480982 copies/ml). The mean viral load for males  $363657.8 \pm 838362.8$  copies/ml was not significantly different than that for females  $381916.3 \pm 1033699.6$  (200-8480982 copies/ml  $p > 0.05$ ).

## DISCUSSION

HIV/AIDS epidemic occurs mostly in young adults in their productive years, the most productive segment of the society.

**Table 1. Distribution of HIV/AIDS patients by Age and Sex**

Age group	Male	Female	Total
(Years)	No(%)	No(%)	(No%)
10-19	6(4.6)	10(5.4)	16(5.1)
20-29	27(20.8)	72(38.9)	99(31.4)
30-39	47(36.2)	67(36.2)	114(36.2)
40-49	32(24.6)	30(16.2)	62(19.7)
50-59	13(10)	5(2.7)	18(5.7)
60-69	4(3.1)	1(0.5)	5(1.6)
70-79	0(0.00)	0(0.00)	0(0.00)
80-89	1(0.8)	0(0.00)	1(0.3)
Total	130(41.3)	185(58.7)	315(100)
Mean age	36.58±12.78(16-65)	32.23±9.6(14-81)	34.03±11.2(14-81)

**Table 2. Distribution of HIV/AIDS by educational status and occupation**

Educational status	No (%)
None	99(31.4)
Quaranic education	20(6.3)
Primary education	59(18.7)
Secondary education	68(21.6)
Tertiary education	47(14.9)
Unknown	22(6.98)
Occupation	
Unemployed	71(22.5)
Civil servant	61(19.4)
Housewifery	56(17.8)
Petty Trading	33(10.5)
Farming	27(8.6)
Students	19(6.0)
Business	18(5.7)
Driving	10(3.2)
Fishing	7(2.2)
Mesory	6(1.9)
Daily labourer	5(1.6)
Carpentry	1(0.3)
Domestic servant	1(0.3)

**Table 3. Distribution of study participants marital status and risk factor**

Marital status	Total No (%)
Single	78(24.8%)
Married	157(49.8%)
Divorced	39(12.4%)
Widowed	30(9.5%)
Separated	11(3.5%)
Risk factor	
Heterosexual	292(92.7%)
Blood transfusion	7(2.2%)
Unknown	16(5.1%)

**Table 4. Number and percentage of clinical manifestations of the studied participants**

Clinical manifestations	Total No (%)
Weight loss	101(32.1%)
Chronic Diarrhoea	74(23.5%)
Persistent generalized lymphadenopathy	72(22.9%)
Candidiasis	
oropharyngeal	64(20.3%)
vulvovaginal	4(1.26%)
Generalized pruritic dermatitis	41(13.1%)
Tuberculosis	
pulmonary	25(7.9%)
Extrapulmonary	3(0.95%)
Chronic fever	23(7.3%)
Genital ulcers	19(6.3%)
Herpes zoster	13(4.1%)
ADC	13(4.1%)
Severe anaemia	9(2.9%)
Herpes simplex	7(2.2%)
PCP	5(1.6%)
Bacterial pneumonia	5(1.6%)
Cutaneous Kaposi sarcoma	3(0.95%)
Eye disorders	2(0.63%)

Table 5. Distribution of the study participants according to WHO clinical staging

Clinical Staging	Males No(%)	Female No(%)	Total No(%)
WHO I	36(27.7%)	64(34.6%)	100(31.7%)
WHO II	24(18.5%)	42(22.7%)	66(21.0%)
WHO III	34(26.2%)	48(25.9%)	82(26%)
WHO IV	36(27.7%)	31(16.8%)	67(21.3%)

The same pattern was noted in this study, with 72.7% of the study population < 40 years of age. These findings are in agreement with previous reports [9-11]. The observation of a higher HIV prevalence among youth is worrisome for Nigeria since the economically viable section of her population is worst hit. Youths are more sexually active and are more prone to high risk behaviours like; maintenance of multiple sex partners, intravenous drug use and other high risk behaviours that make them vulnerable.

Most of the patients in this study had no formal education and unemployed, it would seem that most intervention programs for young people are school based or not presented in local languages, with no much programs and coping strategies are tailored towards out of school youths. The male: female ratio of 1: 1.9 in this study is consistent with other studies.[10-12] The higher females to male ratio observed in this study and others may be due to high rate of divorce and remarrying, polygamy and socioeconomic reasons among unmarried single females trading sex for financial gain and also the fact that HIV infection spreads faster in females than males. Heterosexual contact appeared to be the predominant mode of exposure to HIV in this study. The exact pattern of HIV transmission in Nigeria has not been studied, but according to the National Action Committee on AIDS (NACA) [7] heterosexual transmission probably accounts for about 80% or more of cases of HIV infection. Mother-to-child transmission (MTCT) and unsafe blood transfusion are two other significant modes of transmission, while re-use of needles, sharp piercing objects, and use of intravenous drugs represent important but relatively less frequent modes of HIV transmission (NACA) [7]. In this study, the absence of cases of infection by MTCT can be explained by the fact that the patients were from an adult HIV clinic population. There is very little data about men having sex with men (MSM) and intravenous drug use (IDU) in Nigeria. There was no reported cases of transmission through MSM or IDU in this study, although there is a strong possibility of under-reporting resulting from patients hiding their sexual orientation or intravenous drug usage.

The high frequency of patients presenting with weight loss in this study might have been long duration of HIV infection due to late presentation to the hospital or and partly due to nutritional deficiencies secondary to malnutrition which is prevalent in the study settings, mal absorption or abnormal utilization. This is further substantiated by the majority of the study population were either unemployed, subsistence farmers or petty traders. Therefore, dietary advice to optimize nutritional intake, correction of nutritional deficiencies and development of good eating habit should form part of preventive measures in patients with HIV/AIDS in Nigeria [13]. Diarrhoeal diseases observed in 23.5% of patients, its causes in HIV patients is diverse as it includes enteric

infections such as microsporidiosis and cryptosporidiosis[14]. Diarrheal disease and HIV enteropathy are associated with steatorrhea and impaired absorption of micronutrients, and it is a reasonable assumption that reduction of diarrhoea disease and gut abnormalities would improve the absorption and metabolism of micronutrients that are involved in erythropoiesis such as vitamin A, vitamin B<sub>12</sub>, folate, and iron [15]. The high frequency of oro-pharyngeal candidiasis in 20.3% of patients reflect late presentation, it was also observed in previous report [16] and co and also by workers in sub-Saharan countries.[17-18] A total of 67 (21.3%) of our patients presented in WHO clinical stage IV, with low level of immunity with mean CD4 count of 206.8 cells/ $\mu$ l. Females, however, for reasons not discernible, tended to present earlier than males and had significantly higher CD4 cell counts at presentation, even though mean viral loads were not significantly different. There was low frequency of neurological manifestations in our patient group similar to previous report [19]. HIV is neurotropic and it is reported that 39%–70% of all patients with AIDS or symptomatic HIV infection develop neurological disorders [20]. A study among Nigerian HIV/AIDS inpatients and those attending an HIV outpatient clinic found a 42.5% frequency of neurological manifestations (which better agrees with other reported estimates)[21].The major limitation of this study was the inability to carry out sophisticated investigations for some clinical events whose diagnosis depended on such investigations also affected the frequency of diagnosis of these conditions.

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