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Clinico-epidemiological patterns of HIV infection in STD patients in Ibadan

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Summary

The HIV-seropositive subjects identified among the STD Clinic patients seen at a Special Treatment Clinic between 1989 and 1990 were studied to determine the epidemiological and clinical trends of HIV infection in these patients, and to demonstrate any association between the STDs and HIV-seropositivity. Thirty-seven out of the 581 patients investigated have been confirmed HIV-seropositive by Western bolt. The prevalence of HIV infection was 6.4%. Anti-HIV-1 antibody prevalence (3.6%) was higher than that of anti-HIV-2 antibody (2.8%). The age-range of the patients investigated was from 2 weeks to 49 years, and the HIV-seropositive cases were in the age-range 15-49 years, with peak incidence of HIV infection in the 21-30 years age-bracket. The male: female ratio of HIV-seropositive subjects was pratically the same (1.01:1). HIV antibody-positive cases consisted of residents from towns in both Northern and Southern Nigeria. Only one of the HIV antibody-positive cases has developed clinical AIDS-progressive weight loss fourteen months after he was found positive for HIV antibody.

Résumé

Les cas de HIV-séropositifs identifiés parmi les patients de la Clinique des Maladies Sexuallement Transmissibles (Clinique — MST) vus dans la Clinique de Traitement entre 1989 et 1990 sont étudiés afin de déterminer les tendances épidémiologiques et cliniques de l'infection HIV chez ces patients et de démontrer le rapport entre les maladies à transmission sexuelle et la séropositivité de HIV. Farmi les 581 cas étudiés 37 sont confirmés HIV-séropositifs. La fréquence de l'infection HIV était 6.4%. La fréquence des Anticorps Anti-HIV-I (soit 3.6%) était plus elevée que celle de Anti-HIV-2 (soit 2.8%). Les âges des patients étudiés varient de 2 semaines à 49 ans. Pour les cas de HIV-séropositifs les âges varient de 15 à 49 ans tandis que les incidences d'infections sont plus fréquentes entre 21 et 30 ans. La proportion arithmétique entre les cas de HIV-séropositifs mâles et femelles est pratiquement la même. (soit 1.01:1) Les cas de HIV-Anticorps-positifs comprennent les habitants des villes du Nord et du Sud du Nigéria. Un seul cas parmi les HIV-Anticorps-positifs a développé l'ammaigrissement clinique progressif du SIDA, 14 mois après la découverte de sa HIV-séropositivité.

Introduction

Human immunodeficiency virus (HIV) infection is now pandemic [1] and the clinical disease acquired immune deficiency sydrome (AIDS) is now occurring in many parts of tropical Africa [2]. Studies show that there are important regional differences in the epidemiology of the infection [3]. For example the major route of transmission in an African population is through heterosexual contact [4] while in Europe and the United States it is homosexual contact [5,6]. In addition to this, in Europe and America, the prevalence of HIV infection

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in heterosexual populations is relatively low but in some African cities it is over 10% [7-10]. Another important observation is the very rapid spread of AIDS in sub-saharan Africa especially in East and Central Africa and some parts of West Africa [2,11]. In order to control the HIV epidemic in Africa, it is necessary to understand the basis for the fundamental regional differences in its epidemiology [1]. This calls for adequate information on the epidemiology of HIV infection in all geographical locations where the infection exists. This work comes as a follow-up to a previous study [12] which reported that HIV infection has been detected in some patients who attended the STD Clinic in Ibadan from 1989 to 1990. More cases of HIV infection have since been diagnosed among the STD clinic attenders within the same period. This study was undertaken to provide some information on the clinical and epidemiological trends of HIV infection in the STD clinic patients in Ibadan. The currently available information on HIV infection among the STD clinic attenders provided the data for the clinico-epidemiological patterns of HIV infection in Ibadan. This is the subject of this report.

Patients and methods

Patients who from 1989 to 1990 attended the Special Treatment Clinic (STC) which is the Sexually Transmitted Diseases (STD) Clinic of the University College Hospital, were examined for evidence of STDs like gonorrhoea, trichomoniasis, non-specific urethritis and cervicitis, lymphogranuloma venereum, chancroid, gardnerella vaginitis and syphilis. Any disease diagnosed clinically was confirmed by laboratory tests except for lymphogranuloma venereum, chancroid, herpes genitalis which were diagnosed on clinical grounds only. Non-specific urethritis (or cervicitis) was diagnosed if urine sediment showed 15 polymorpho- nuclear leucocytes per field (x 400) and Gram-negative diplococci were absent by microscopy and culture [13], and no other pathogen was seen by microscopy or isolated by culture. Blood was collected from each patient for Venereal Disease Research Laboratory (VDRL) test and for screening for HIV infection. The blood samples collected for HIV test were screened for HIV-1 using the recombinant ELISA Kits (Wellcome Laboratories, Beckenham, U.K) and for HIV-2 using ELAVIA-11 kits (Pasteur Diagnosit, Marnes — La-Coguette, France). ELISA positive samples were confirmed using the Western blot technique. The tests for HIV infection were carried out in the Haematology laboratory of University College Hospital, Ibadan. Patients who were HIV-positive were traced and invited to the STC for counselling and clinical examination for evidence of clinical AIDS.

Results

Prevalence of HIV infection

Thirty-seven out of 581 patients investigated were confirmed HIV-seropositive by the Western blot (table 1), giving 6.4% prevalence for HIV infection. HIV-1 antibodies were detected in 21(3.6%) patients while HIV-2 antibodies were detected in 16(2.8%) patients. The number of infections due to HIV-1 retrovirus (21/37) was significantly higher than that due to the HIV-2 retrovirus (16/37), P 0.05.

Table 1: Prevalence of HIV-1 and HIV-2 infections

	No. (%) positive by Western Blot		Total
No tested	HIV — 1	HIV — 2	HIV — 1 + 2
581	21 (3.6)	16 (2.8)	37 (6.4)

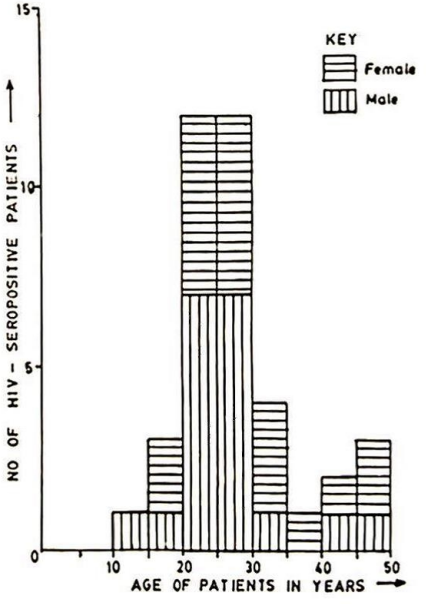

Fig. 1: Sex/Age distribution of HIV-seropositive patients

Table 2: Geographical distribution of HIV-seropositive patients

Place of residence of patients	No (%) tested (N = 581)	No seroposi-tive
Ibadan	451 (78)	35 (6.0)
Other towns in Oyo state	48 (8.3)	0
Ondo and other towns in Ondo state	12 (2.1)	0
Abeokuta	14 (2.4)	1 (.2)
Other towns in Ogun state	7 (1.2)	
Benin and other towns in the then Bendel state	11 (1.9)	0
Lagos	5 (.8)	0
Ilorin and other towns in Kwara state	11 (1.9)	0
Gboko and other towns in Benue state	3 (.5)	0
Maiduguri	1 (.2)	0
Anambra	3 (.5)	0
Aba and other towns in Imo state	15 (2.6)	0
Uyo and other towns in Akwa Ibom state	5 (.8)	0
Kano	2(.34)	1(.2)
Cross River state	1(.17)	0
Total	581(100)	37(6.4)

Demographic characteristics of the patients

Of the 581 patients, 329 (56.6%) were males and 252 (43.4%) were females (table 1). The ages of the patients ranged from 2 weeks to 49 years. Ten patients were children whose ages ranged from 2 weeks to 12 years, while the remaining 571 were adults, 15 — 49 years old. None of the children under 14 years was HIV-seropositive. The peak prevalence of HIV infection was in the 21 — 30 years age-group, which provided 24(or 65%) of the 37 HIV antibody-positive patients (fig.1). Two antibody-positive patients were 15 and 16 years old males and the remaining seropositive patients fell within 20-49 years age- range.

Geographical distribution of the patients

Of the 581 patients investigated (78%) were residents of Ibadan, the remaining were from various parts of Nigeria including towns from the Northern and Southern parts of the country (table 2). Among the 37 HIV antibody-positive patients 35(or 94.5%) were residents of Ibadan while the remaining 2 came to the STD clinic from Abeokuta and Kano (table 2).

Presenting symptoms

Table 3 shows the presenting symptoms and their frequency. The presenting symptoms of all but one of the HIV-seropositive patients included urethral discharge, vaginal discharge, dysuria, genital ulcers and other sysptoms shown on table 4. The most frequent sysptoms were those suggestive of acute urethritis, cervicitis and vaginitis, followed by symptoms of genital ulcer diseases (table 4). The only HIV-seropositive patient who presented without symptoms was the female contact of a man treated for acute gonococcal urethritis.

Only one of the HIV-seropositive patients recalled for counselling and physical examination complained of a symptom of clinical AIDS — progressive loss of weight a few weeks preceeding his being recalled. He had no other features of clinical AIDS.

Prevalence of STDS in the HIV-seropositive patients

The prevalence of all the STDs in the 581 patients was 63.7% with gonococcal infection, nonspecific urethritis/cervicitis, genital ulcer disease and trichomoniasis being responsible for 24%, 18.1%, 12.4% and 6.4% of the infections respectively (table 5). In the HIV-seropositive patients the prevalence of gonococcal infections, nonspecific urethritis and cervicitis, genital ulcer diseases and trichomoniasis were 27%, 18.9%, 16.2% and 10.8% respectively (tables 5).

Table 3: Frequency of presenting symptoms

Presenting symptoms	No (%) tested (N = 581)	No (%) HIV-seropositive by Western blot
Vaginal with or without pruntus value dysuria	144 (19.6)	11 (1.9)
Dysuria only	43 (7.4)	5 (1.7)
Urethral discharge only	47 (8)	4(.6)
Vaginal discharge with lower abdominal pain	60 (10.3)	3 (15)
Genital ulcer with or without inguinal bubo	31 (5.3)	6(1)
Vaginal discharge with positive bleeding	2 (.3)	1 (.17)
Terminal haematuria with dysuria	2 (.3)	1 (.17)
Testicular pain and swelling with dysuria	10 (1.7)	1(.17)
Asymptomatic contacts	62 (10.7)	1(.17)
Infertility, scrotal swelling	5 (.8)	0
Eye discharge and other symptoms	168 (28.9)	0
Total	581(100)	37(6.4)

Table 4: Sexuality transmitted diseases diagnosed in HIV-positive patients

Diagnosis	Male	Female	Total (%)
GC Only	7	4	11(27.6)
GC + TV + GV	—	3	3(8.1)
NSU + NSC	5	2	7(18.0)
Chancroid	3	—	3(8.1)
LGV	2	—	2(5.4)
Herpes genitalis	1	—	1(2.7)
Syphilis	—	—	— (0)
Trichomoniasis	—	4	4(10.8)
Vulva warts	—	2	2(5.4)
Candidiasis	—	1	1(2.7)
Non-specific genital ulcer		1	1(2.7)
No abnormality determined	1	1	2(5.4)
Total	19	18	37(100)

Table 5: STD prevalence in HIV-seropositive and all patients

STD	Provalence in HIV-seropositive patients (%)	Prevalence in all Patients (%)
GC	11/37 (27)	138/581 (24)
NSU & NSC	7/37 (18.9)	105/581 (18.1)
GUD	6/37 (16.2)	72/581 (12.4)
TV	4/37 (10.8)	37/581 (6.4)
All STDs	32/37 (86.6)	402/581 (69.2)

KEY:
GC = Gonococcal infections
NSU = Non-Specific urethritis
GUD = Genital ulcer, diseases (chancroid, syphilis, herpes genitalis and lymphogranuloma venereum).
TV = Trichomoniasis
NSC = Non-specific cervicitis.

Association of STDs with HIV-seropositivity

Table 6 shows the HIV-seropositivity according to the STDs diagnosed in the patients. Chi-square test did not show significant association between HIV-seropositivity and gonococcal infections, nonspecific urethritis/cervicitis, trichomoniasis or genital ulcer diseases; $p>0.05$ (table 6).

Discussion

AIDS is relatively new in Nigeria [14]. None of the blood samples from Nigeria in Ibadan, tested between 1982 and 1985 was HIV-seropositive by the Western blot [15]. In this study HIV infection was detected in 37 out of 581 Nigerians attending the STD Clinic in Ibadan between 1989 and 1990 (table 1). HIV infection has therefore become the latest STD in Nigeria just as in other populations of the world [16].

The prevalence of HIV infection in this population was 6.4% (table 1). This is relatively high considering the fact that the infection is new in the area [14, 15]. The number of HIV infection due to HIV-1 retrovirous (21/37) was significantly higher than that due to HIV-2 retrovirus (16/37), $p<0.05$. HIV-1 therefore appears to be more prevalent in

Table 6: HIV-Seropositivity and STD correlation

STDS	Class	HIV-seropositives no (%)	HIV-negatives no (%)	P value
G.C.	+ve	11(34)	128(29)	.65
	-ve	21(64)	313(71)	
TV	+ve	3(8.1)	34(6.3)	.9
	-ve	34(91.9)	504(93.7)	
NSU & NSC	+ve	6(16.2)	99(26.8)	0.4
	-ve	31(83.8)	271(73.2)	
GUD	+ve	6(16.2)	65(12)	.62
	-ve	31(83.8)	475(88)	
All STDs	+ve	30(81.1)	370(68.8)	0.1
	-ve	7(18.9)	168(31.2)	

KEY:
GC = Gonococcal infections
NSU = Non-Specific urethritis
GUD = Genital ulcer, diseases (chancroid, syphilis, herpes genitalis and lymphogranuloma venereum).
TV = Trichomoniasis
NSC = Non-specific cervicitis.

Ibadan, but more studies need to be done to confirm this. Other studies have suggested that the predominant retovirous in West Africa is HIV-2 [17-19]. Our results suggest that the distribution of HIV-2 in West Africa may not be uniform and that HIV-1 may be more prevalent in some areas.

In this study the age-range of the HIV-seropositive patients was 15-49 years (fig.1). Both the age-range and age frequency distribution of the HIV-seropositive patients tally with those of a typical STD like gonorrhoea [20] with peak prevalence in the most highly sexually active age-groups 20-25 and 26-30 years (fig.1). All these are demographic evidence that in Nigeria HIV infection is transmitted mainly sexually. This is supported by the finding that none of the children under 14 years was seropositve. The practically equal male: female ratio among the HIV positive subjects, 1.01:1.0, is in support of heterosexual transmission [4,21,22] as the main route of spread of HIV infection among Nigerians.

The result that none of the children under 14 years was seropositve for HIV is significant, especially since there were also neonates and infants in the study population. It shows that transplacental transmission of HIV is probably not yet a major mode of spread of the infection in Nigeria.

In this study 35 out of 451 samples from residents in Ibadan were seropositive for HIV infection (table 2). This shows that there are already foci of HIV infection in Ibadan. The remaining two HIV-seropositive samples belonged to 1 out of 14, and 1 of 2 patients from Abeokuta and Kano respectively (table 2). This suggests that other states in Nigeria, also have foci of HIV infection.

All but one of the HIV-seropositive patients came to seek medical attention for symptoms of STDs (table 3), the most frequent symptoms being those of acute urethritis and cervicitis/vaginitis, followed by those of genital ulcer diseases (tables 4 and 5). This finding reflects the leading role of gonococcal infection, non-specific urethritis/cervicitis, and genital ulcer disease as STDs in Ibadan [12, 23].

Our result that there was no significant association between gonococcal infection and HIV-seropositivity, $p>0.05$. (table 6) agrees with findings from other studies [24,25]. Contrary to other reports, we found no association between non-specific urethritis/cervicitis [26,27], genital ulcer diseases [28-30] and HIV-seropositivity (table 6), $p<0.05$. It is possible that the number of HIV-seropositive cases diagnosed so far in our unit is still relatively small, and that more

conclusive results will be obtained as data accumulate. Work is in progress to collect more data.

Only 1 out of the 27 HIV-seropositive subjects had developed symptom of clinical AIDS- progressive loss of weight twelve months, after he was confirmed HIV-seropositive. This shows that presently in Nigeria, most cases of HIV infection are in the pre-clinical stage of AIDS. Current figures from the Federal Government of Nigeria is 436 cases of AIDS [31]. In a setting like this, it is very likely that the infection is being silently transmitted at a high rate. Waiting for cases of clinical AIDS to present in the clinics would only result in under-estimating the problem. At this stage of the epidemic in Nigeria therefore, HIV screening should be part of the routine investigation for high risk groups.

This work has given some insight into the epidemiology and current status of HIV infection as it affects STD clinic patients in Nigeria. Since these results show that in Nigeria HIV infection is primarily a sexually transmitted disease, there is an urgent need to strengthen STD control in the country.

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