AIDS in Africans living in London

Nigel O'Farrell, Richard Lau, Kathir Yoganathan, Caroline S Bradbeer, George E Griffin, Anton L Pozniak

Abstract

Objectives—To investigate the presentation of HIV infection and AIDS amongst Africans diagnosed with AIDS living in London.

Methods—Identification of all AIDS cases of African origin attending four HIV specialist centres in South London—Guy's, King's, St George's and St Thomas' Hospitals—up to March 1994, by retrospective review of case notes of all HIV positive patients.

Results—Of 86 patients (53 women, 33 men) studied, 59 (69%) were from Uganda. The most frequent AIDS-defining diagnoses were: *Pneumocystis carinii* pneumonia (PCP) 21%, tuberculosis (TB) 20% (extrapulmonary TB 14%, pulmonary TB 6%), cerebral toxoplasmosis 14%, oesophageal candida 13%, cryptococcal meningitis 11%, wasting 6%, herpes simplex infection > 1 month 5%, Kaposi's sarcoma 5%, other 6%. Cytomegalovirus retinitis was diagnosed in one case. Late presentation was common; 70% were diagnosed HIV positive when admitted to hospital. The diagnosis of AIDS was coincident with a first positive HIV test result in 61%. The mean CD4 counts at both HIV and AIDS diagnoses were similar in both men and women: $87 \times 10^6/l$ and $74 \times 10^6/l$ in men and $99 \times 10^6/l$ and $93 \times 10^6/l$ in women respectively. Overall, TB 21 (24%) (extrapulmonary TB 12, pulmonary TB 9) was either the AIDS-defining diagnosis or was detected within three months of this event. Sixty-two per cent of TB cases were diagnosed within twelve months of entry to the UK compared to 34% of all other AIDS cases. The prevalence of STD was very low; genital herpes was the commonest STD: 17% of the women, 9% men; 28% of the men and 11% of the women tested had a positive TPHA test. In cases known to be HIV-positive prior to an AIDS diagnosis, 41% took prophylaxis for PCP and 45% had taken zidovudine (ZDV). Forty two of the study participants had 89 children: 59 of these children had mothers in the study. Overall, 37 (42%) of the children had lost at least one parent at the time of data assessment.

Conclusions—PCP and TB were the most common initial AIDS-defining diagnoses. The majority of TB cases were diagnosed within 12 months of entry to the UK. An AIDS-defining diagnosis was the first

manifestation of HIV-related illness in the majority of patients. Because of late presentation to medical services, access to treatments for HIV infection and prophylaxis against opportunistic infections was limited. Extending the role of clinics and staff into the community might facilitate both earlier presentation and access to services. Future provision of local services will need to be sensitive to the requirements of individuals from different cultures and backgrounds.

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Keywords: AIDS; Africa; tuberculosis; STD; orphans.

Introduction

The spectrum of infectious diseases associated with HIV infection and AIDS varies greatly both between communities in diverse geographical locations and groups with different risk factors for acquiring HIV infection.¹ Analysis of such data may provide clues to both the mode of transmission of HIV infection and relative virulence of pathogens.² In Africa the prevalence of high-grade opportunistic infections such as tuberculosis (TB) and bacterial pneumonias may be an important factor in explaining the clinical differences in AIDS cases when compared with those in the West. In Europe, AIDS amongst Africans was first reported in 1984 in Zaireans living in Belgium.³ A larger study of Africans with AIDS in multiple European centres reported fewer cases of *Pneumocystis carinii* pneumonia (PCP) and greater frequencies of cryptococcal meningitis and tuberculosis (TB) than amongst native Europeans.⁴

Access to good quality services acceptable to people with HIV infection and AIDS is an important component in the care and management of such individuals. In addition to initiating treatment and prophylaxis, specific HIV prevention messages can be targeted at those with HIV infection; condom promotion, reduction in the numbers of sexual partners and early diagnosis of sexually transmitted diseases (STD) may all limit the spread of the epidemic.⁵ In the UK HIV epidemic, the most rapid increase recently has been amongst heterosexuals, the majority of whom either come from overseas or have had contact with foreign partners.⁶ Currently in South London the majority of HIV positive heterosexuals are of sub-Saharan origin.⁷ Few studies investigating the epidemiology of AIDS amongst Africans in

Departments of
Genitourinary
Medicine, Guy's and
St Thomas' Hospitals,
London

N O'Farrell
C S Bradbeer

Departments of
Genitourinary
Medicine and
Communicable
Diseases, St George's
Hospital, London

R Lau
G E Griffin

Academic Department
of Genitourinary
Medicine, King's
College Hospital,
London

K Yoganathan
A L Pozniak

Address correspondence to:
Dr Nigel O'Farrell,
Department of Genitourinary
Medicine, St Thomas'
Hospital, London
SE1 7EW, UK.

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the UK have been undertaken. We therefore collected data on demographic details, HIV and AIDS presentation, occurrence of TB and uptake of standard therapy for HIV infection amongst Africans diagnosed with AIDS whilst living in London.

Patients and methods

All black patients of African origin who were born in Africa and had been diagnosed with AIDS whilst attending the HIV/AIDS units at four South London teaching hospitals (Guy's, King's, St George's and St Thomas') up to March 1994 were identified by reviewing clinic AIDS databases, and entered into the study. The first case was diagnosed in 1987. The case notes were reviewed during March 1994 and the following information obtained and recorded: age, sex, country of origin, number and domicile of children, duration of stay in the UK, place where the first HIV test was performed, date and CD4 count at time of HIV and AIDS diagnosis, history of treatment

with both primary prophylaxis for PCP and zidovudine (ZDV), presence of antibodies to both toxoplasma and syphilis and STD diagnoses (laboratory confirmed) in the UK.

As the UK definition of AIDS was changed in January 1993 to include pulmonary TB, details of other known non-AIDS-related episodes of pulmonary TB were also recorded. Chi square tests were used to detect any association between different groups of categorical variables in men and women.

Results

Demography The study population comprised 53 (62%) women and 33 (38%) men. All subjects received their first HIV and AIDS diagnosis in the UK. The mean ages at AIDS diagnosis were, in women—31.3 (range 23–64) years and in men—32.6 (range 25–50) years. When further classified by age and sex, women aged 20–29 (51%) and men aged 30–39 (49%) were the largest groups (table 1). The countries of origin were; Uganda 59 (69%), Zambia seven (8%), Zimbabwe, Nigeria and Zaire three (3%) each, Ethiopia, Ghana and Ivory Coast two (2%) each and Kenya, Malawi, Burundi, Angola and South Africa one (1%) each. The date of arrival in the UK was known for 77. Forty-eight (62%) had entered the UK in 1988–1990 (table 2); eight (10%) had entered prior to 1986. At the time of data collection 44 patients were known to have died.

HIV diagnosis The majority, 55 (65%), were diagnosed HIV positive between 1990–1992. Nineteen (25%) were identified within six months of entry to the UK; five (6%) had been in the UK for more than six years before HIV infection was diagnosed. Initial CD4 counts at first HIV diagnosis were: all cases, mean $94 \times 10^6/l$ (95% confidence interval {CI} 60–129) and median $50 \times 10^6/l$; in men, mean $87 \times 10^6/l$ (95% CI 49–124) and median $40 \times 10^6/l$; in women, mean $99 \times 10^6/l$ (95% CI 48–150) and median $50 \times 10^6/l$ respectively. The locations of first positive HIV tests ($n = 84$) were: hospital ward 59 (70%), genitourinary medicine clinic 21 (25%), medical outpatients two (2%), antenatal clinic one (1%), general practitioner one (1%), unknown two (2%).

AIDS diagnosis The diagnosis of AIDS was the initial indication of HIV infection in 52/85 (62%)—17 developed AIDS within six months of entering the UK. The majority, 70 (82%) were diagnosed between 1990 and 1993. The respective CD4 counts at the time of AIDS diagnosis were: all cases, mean $86 \times 10^6/l$ (95% CI 53–118) and median $43 \times 10^6/l$; in men, mean $74 \times 10^6/l$ (95% CI 40–107) and median $30 \times 10^6/l$; in women, mean $93 \times 10^6/l$ (95% CI 44–142) and median $50 \times 10^6/l$ (one woman with extrapulmonary TB had an initial CD4 count of $1170 \times 10^6/l$).

Initial AIDS-defining diagnoses The most frequent diagnoses were: PCP 18 (21%), tuberculosis 17 (20%), cerebral toxoplasmosis 12 (14%), oesophageal candida 11 (13%) and cryptococcal meningitis nine (11%) (table 3).

Table 1 Age and sex at AIDS diagnosis

Age (years)	Men <i>n</i> = 33 (%)	Women <i>n</i> = 53 (%)
20–29	12 (36)	27 (51)
30–39	16 (49)	21 (40)
40–49	4 (12)	3 (6)
>50	1 (3)	2 (4)

Table 2 Study population—initial HIV and AIDS diagnosis—A: year of arrival in UK and year of diagnosis. B: number of months in UK before diagnosis. C: CD4 counts

A:			
Year of arrival in UK and year of HIV and AIDS diagnosis	Study population		
	Arrival in UK <i>n</i> = 77 (%)	HIV diagnosis <i>n</i> = 85 (%)	AIDS diagnosis <i>n</i> = 85 (%)
1985 or before	8 (10)		
1986	2 (3)		
1987	4 (5)	3 (4)	2 (2)
1988	8 (10)	5 (6)	3 (4)
1989	19 (25)	7 (8)	5 (6)
1990	21 (27)	15 (18)	13 (15)
1991	6 (8)	15 (18)	14 (16)
1992	5 (5)	25 (29)	22 (26)
1993	3 (4)	12 (14)	21 (25)
1994	1 (1)	3 (4)	5 (6)
unknown	9	1	1
B:			
No of months in UK until HIV/Aids diagnosis	Study population		Patients diagnosed with HIV/AIDS at the same time <i>n</i> = 52
	HIV diagnosis <i>n</i> = 77 (%)	AIDS diagnosis <i>n</i> = 76 (%)	
0–6	19 (25)	19 (25)	17
7–12	11 (14)	7 (9)	7
13–18	6 (8)	6 (8)	5
19–24	9 (12)	5 (7)	4
25–48	22 (29)	26 (34)	14
49–72	5 (6)	8 (11)	3
> 72	5 (6)	5 (7)	2
C:			
Initial CD4 $\times 10^6/l$	Study population		
	HIV diagnosis <i>n</i> = 81 (%)	AIDS diagnosis <i>n</i> = 81 (%)	
< 50	45 (56)	47 (58)	
51–100	13 (16)	14 (17)	
101–200	16 (20)	13 (16)	
201–500	5 (6)	6 (7)	
> 500	2 (2)	1 (1)	
Initial mean CD4 counts $\times 10^6/l$			
All patients	94	86	
Men only	87	74	
Women only	99	93	

Table 3 Initial AIDS-defining diagnoses in men and women

AIDS-defining diagnosis	Men n = 33 (%)	Women n = 52 (%)	Total n = 85 (%)
<i>Pneumocystis carinii</i> pneumonia	6 (18)	12 (23)	18 (21)
Cerebral toxoplasmosis	6 (18)	6 (12)	12 (14)
Tuberculosis	5 (15)	12 (23)	17 (20)
Extra-pulmonary	5 (15)	7 (13)	12 (14)
Pulmonary only		5 (10)	5 (6)
Oesophageal candida	4 (12)	7 (13)	11 (13)
Cryptococcal meningitis	4 (12)	5 (10)	9 (11)
Wasting	4 (12)	1 (2)	5 (6)
Herpes simplex > 1 month	1 (3)	3 (6)	4 (5)
Kaposi's sarcoma	3 (9)	1 (2)	4 (5)
Other:		5 (10)	4 (6)
(CMV retinitis, cryptosporidiosis, cerebral lymphoma, HIV encephalopathy, recurrent bacterial pneumonia—one each— —all in women.			

Kaposi's sarcoma was diagnosed in three (9%) men and one (2%) woman and genital herpes for greater than one month in three women and one man. The mean CD4 count at the time of PCP diagnosis was $76 \times 10^6/l$. In those with known arrival times in the UK, 5/16 (31%) patients with PCP had been in the UK for less than 12 months compared with 8/13 (62%) with TB and 26/76 (34%) of all AIDS cases. Cytomegalovirus (CMV) retinitis was diagnosed in one patient.

Tuberculosis Overall, TB 21 (24%) (extrapulmonary TB 12 {disseminated seven, localised five}, pulmonary TB alone nine) was either the AIDS diagnosis or detected within three months of this event. Pulmonary TB was also diagnosed in three cases with disseminated TB. Of the 17 cases with TB as the AIDS-defining diagnosis, TB was the initial presenting illness of known HIV infection in 16 (pulmonary TB five, extrapulmonary TB 11). Of the cases with pulmonary TB alone, two were diagnosed in 1991–2 and subsequently developed other AIDS-defining conditions and two were identified one month after the diagnosis of AIDS. The mean CD4 counts when pulmonary TB alone was diagnosed was 138 (range 25–350) $\times 10^6/l$; for extrapulmonary TB, the mean CD4 was $85 \times 10^6/l$ (range 20–250) excluding one case with a CD4 count of $1170 \times 10^6/l$, and $183 \times 10^6/l$ including this patient. The mean length of stay in the UK before TB was diagnosed was 22 (range 1–53) months for pulmonary TB alone and 14 (range 2–48) months for extrapulmonary TB.

Uptake of PCP prophylaxis and zidovudine therapy Twenty-nine patients were known to be HIV positive before they presented with an AIDS-defining illness. Of these, 12 (41%) took PCP prophylaxis; two of the remaining 17 were known to have had CD4 counts less than $200 \times 10^6/l$ and had declined prophylaxis. PCP was the initial AIDS-defining diagnosis in two of the 29 cases; one with a breakthrough episode and one with a CD4 count of less than $200 \times 10^6/l$ not on prophylaxis. At the time of AIDS diagnosis 13/29 (45%) had taken ZDV; eight (28%) were currently taking ZDV and five (18%) had stopped therapy because of side effects. Two patients had CD4 counts greater than $250 \times 10^6/l$ and had not been offered PCP prophylaxis or ZDV.

Table 4 STD tests and STD diagnosed in the UK in men and women

STD tests	Men n = 33 (%)	Women n = 53 (%)
Not tested	21 (64)	21 (40)
Tested—no STD	7 (21)	13 (25)
Infection identified:		
Genital herpes	3 (11)	9 (17)
Vaginal candidiasis		7 (13)
Trichomoniasis		1 (2)

Table 5 Children of African parents with AIDS

Africans with AIDS and with children n = 42	Domicile of children of Africans with AIDS		Total n = 89
	In UK n = 54	In Africa n = 35	
Male parent			
Alive n = 5	6	16	22
Dead n = 4	4	4	8
Female parent			
Alive n = 18	22	8	30
Dead n = 15	22	7	29

STD tests Full screening for STD was performed during routine attendances at the clinic in 32 (51%) of the women and 12 (23%) of the men ($P = 0.03$). Genital herpes was identified in nine (17%) of the women and three (9%) of the men. Vaginal candidiasis was diagnosed in seven (13%) of the women (table 4). Results of serological tests for syphilis (STS) were available for 62 (25 men, 37 women) patients. Of these samples the TPHA test alone was positive in seven (28%) men and four (11%) women; two (one man, one woman) samples were positive by both TPHA and RPR/VDRL tests.

Toxoplasma antibodies Toxoplasma antibodies were detected in 18/48 (38%).

Children Forty two of the study population, including one couple, of whom 19 were known to be deceased, had children (table 5). Only one couple with children were ascertained amongst the study population. The majority of the children, 59/89 (66%) had a mother in the study and 30/89 (34%) had a father in the study. Children with a father in the study tended to be in Africa (20/30 (67%)) whereas children with a mother in the study population were likely to reside in the UK (44/54 (82%)). Overall 37 (42%) of the children were known to have lost at least one parent to AIDS at the time of data assessment.

Discussion

The high proportion of Ugandans in the study population is probably due to a number of factors: the magnitude of the AIDS pandemic in Uganda, the political situation in an ex-British colony which has resulted in many individuals seeking political asylum in the UK⁸ and the fact that many Ugandans have settled in South London. More women than men were identified, an observation also noted previously in Uganda,⁹ but which in our case probably reflects selection bias amongst those seeking asylum because of premature mortality in males perhaps due to the civil war in Uganda or complications of AIDS. In Uganda the pre-

ponderance of HIV in women may reflect the higher transmission rate of HIV from men to women rather than vice versa.

It is probable that most of our patients acquired HIV infection overseas; 82% entered the UK subsequent to 1987 and the majority presented with evidence of significant immune impairment. The prevalence of newly acquired STD, an important risk factor for HIV transmission, was low both in this study and in a similar HIV positive African immigrant population with higher initial CD4 counts presenting to a local STD clinic.⁷

Late presentation in this study population with AIDS was common. A diagnosis of AIDS was the first indication of HIV infection in 52 (61%) and there was little difference between the mean CD4 counts at presentation of HIV and AIDS in both men and women. PCP (21%) was the most frequent AIDS-defining illness, less than the 39% prevalence reported elsewhere in the Thames region 1989–1992¹⁰ but similar to that both in Africans elsewhere in Europe⁴ and injecting drug users in Southern Europe and Ireland.¹ Our finding of a mean CD4 count of $76 \times 10^6/l$ at first presentation of PCP is consistent with a multi-centre European study in which two-thirds of patients with PCP and a known CD4 count presented with counts of less than $100 \times 10^6/l$.¹¹ In Africa PCP has been considered to be a rare infection;¹² in Uganda no cases were identified amongst AIDS patients with possible PCP.¹³ In the Ivory Coast PCP was diagnosed in 12% of HIV-1 associated deaths in a post mortem study.¹⁴ In Southern Africa PCP is undoubtedly prevalent. PCP was reported in 22% of HIV positive black patients with symptoms of pulmonary disease and diffuse chest radiographic changes in Zimbabwe¹⁵ and in 40% of the 166 AIDS cases diagnosed in South Africa up to 1988.¹⁶ However, in the latter group, 82% were white and 75% homosexual/bisexual. *P. carinii* is probably distributed worldwide and the geographic variations observed may reflect either exposure to divergent antigenic strains,¹⁷ differences in the environmental load of organisms or earlier death from TB and bacterial pneumonia.

Elsewhere in South-East England¹⁸ a steady increase in HIV positive TB cases has been noted. Whilst our numbers were too few to detect a similar pattern, TB was the commonest HIV-related opportunistic infection and probably reflects the very high incidence of TB in Uganda.¹⁹ Extra-pulmonary TB was more common than pulmonary TB and as in Africa²⁰ most of the extrapulmonary TB cases in our study were diagnosed at lower CD4 counts than pulmonary cases. In the Ivory Coast a post mortem study in HIV positive subjects found a predominance of extra-pulmonary and disseminated tuberculosis which were mostly undiagnosed before death and associated with diarrhoea and severe wasting.²¹ Disseminated TB may be difficult to diagnose as the disease tends to present in an atypical manner. Procedures such as biopsy and aspiration of lymph glands, liver and bone

marrow should be considered early in the course of illness in HIV infected patients with suspected extrapulmonary TB.²² The place of anti-TB chemoprophylaxis in subjects with both positive and negative tuberculin skin tests at high risk of developing TB merits careful consideration; the risk of TB in HIV positive individuals with cutaneous anergy is less clear²³ and may vary between populations.

The pattern of other AIDS-defining diagnoses had features in common both with Africa and Europe.²⁴ Cryptococcal meningitis was more frequent in our study when compared with Europe whilst the proportion with cerebral toxoplasmosis was similar; CMV retinitis and colitis was much less common than amongst homosexual men in London but this difference could be related to increased survival in the latter group.²⁵ Antibodies to CMV have been detected in 100% of blood donors in Entebbe, Uganda²⁶ and it may be that as with PCP, antigenic variation accounts for these differences. It has been suggested that AIDS-related deaths in Africa occur at higher CD4 counts than that usually associated with clinically apparent CMV infection. However, the CD4 counts at AIDS presentation in our study were similar to that in heterosexuals in Europe.²⁴ We did not measure survival times but very poor prognoses have been reported in Africa following an AIDS diagnosis;²⁷ in Tanzania survival after one week was 64% and 8% at the end of three months. In the USA shorter survival times in blacks compared to whites may reflect poor socioeconomic factors and limited access to health care.²⁸

Data collection was not complete for all subjects in the study. Many patients presented when ill with AIDS and were not tested for STD. The prevalence of syphilis (28%) in men was probably overestimated because of preferential recording of positive results in the case notes. However, this relatively high prevalence reinforces the need for routine STS screening in patients admitted directly to hospital.

Provision of primary prophylaxis for PCP before an AIDS diagnosis was low and probably reflects the late presentation of our cases. Similarly the uptake of ZDV was low but comparable to that in heterosexuals in Europe overall.²⁴ In Baltimore, USA, Moore *et al*²⁹ reported that blacks were significantly less likely than whites to have received antiretroviral therapy or PCP prophylaxis when first referred to a specialist HIV clinic, probably because of limited access to a usual source of medical care.

Although both formal and informal family support networks are well developed for people with AIDS in Uganda,^{30 31} no studies have evaluated community backup services for immigrants with AIDS in the UK. In Uganda the extended family or clan system provides support but such help may not be available in the UK. The late presentation of adults in this study indicates that a significant proportion of children will, unfortunately, be orphaned with both limited prior warning and opportunity to

develop a care plan for their placement. The apparent reluctance to access statutory agencies may reflect patients' anxieties and uncertainties over their refugee status and indicates a need to improve community liaison and education. Further development of services will need improved insight into cultural aspects of individuals' own risk assessment of AIDS if an increase in the uptake of effective medical interventions is to be achieved.

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