HIV and chlamydia infections among prostitutes in Yaoundé, Cameroon

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Abstract

Eleven selected prostitute leaders were recruited who subsequently recruited 157 of their peers, bringing the total to 168. Sera was collected and tested for antibodies to HIV-1 and HIV-2 using a commercial enzyme-linked immunoabsorbent assay (ELISA); positive cases were confirmed by Western Blot (Dupont). A direct immunofluorescent method was performed on smears from the endocervical junction. Twelve of 168 (7.1%) of the women tested were found to be HIV-1 positive; none were found positive for HIV-2. Sixty six of 168 (38.3%) were found to be *Chlamydia trachomatis* (CT) positive; three cases (1.8%) were found to be positive for both HIV-1 and CT. Prostitutes are a high risk group in Yaoundé for HIV and chlamydia infections. The results in this study may not reflect the seriousness of the situation given the selected population used. Similar studies still need to be carried out. Prostitutes need to be educated about AIDS, other STDs and the use of condoms to protect their clients and themselves.

Introduction

AIDS in Africa appears to be principally heterosexually transmitted.²⁻⁴ Prostitutes, because of their multiple sexual partners and the high frequency of sexual intercourse, are a major reservoir of human immunodeficiency virus (HIV) infection and other sexually transmitted diseases (STDs).⁸ The urogenital infection caused by *Chlamydia trachomatis* (CT) is among the most important of the STDs, but is often asymptomatic.

The aim of this study was to determine the prevalence of HIV and chlamydial infections among

a group of prostitutes in Yaoundé, and the association of these two infections.

Subjects

Eleven selected prostitute leaders were recruited from different parts of the city of Yaoundé, the political capital of Cameroon. They subsequently recruited 157 of their peers, also prostitutes by profession, typical of the general prostitute population of Yaoundé. A total of 168 Cameroonian prostitutes participated in the study (see table 1 for demographic data). The women participating were educated about AIDS and motivated to use condoms and spermicidal foams before intercourse. Only 13% were natives of the Yaoundé area, the majority of the women being from other parts of the country. They had come to Yaoundé for work, school or family purposes (87%).

Although 90% knew they could be infected by HIV through sexual contacts, only 12 were using condoms frequently. Clients were mostly Cameroonian (78%) and were met in bars, cafes, or the street and were charged 15-30 US dollars per night.

Methods

HIV-1, HIV-2 antibody screening

Sera was collected and tested for antibodies to HIV using a commercial enzyme-linked immunoabsorbent assay (ELISA, Enzygnost Behring for HIV-1,

Table 1 Demographic data

Mean age in years (range) 22.9 (17-38)		
Mean number of children (range) 2.2 (0-6)		
Marital status		
Single	134	79.8%
Engaged	1	0.6%
Married	3	1.8%
Free Women (cohabitation)	8	4.8%
Divorced	21	12.5%
Widowed	1	0.6%
Origin		
From Yaoundé area	22	13.1%
From other areas of Cameroon	146	86.9%
Travelling		
Burkina Faso, Côte d'Ivoire	1	
Never travelled out of Cameroon	167	

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Table 2 Results

Age (yr)	No reporting	HIV-1(+)	HIV-2(+)	CT (+)	HIV-1/CT (+)
15-19	12	—	—	6	—
20-24	62	6	—	25	1
25-29	67	5	—	25	1
30-34	21	1	—	7	1
35-39	6	—	—	3	—
Total	168	12 (7.14%)	0	66 (39.3%)	3 (1.8%)

Elavia 2, Pasteur for HIV-2). A sample was considered positive for HIV if it was reactive twice on ELISA and was confirmed by Western Blot (one or more bands from each of the three major gene products gag, pol, env for HIV-1).

Chlamydia trachomatis

A direct immunofluorescent method (Biomerieux Kit) was performed on smears from the endocervical junction.¹ Ten or more chlamydia elementary bodies per smear and the presence of epithelial cells were necessary for a positive diagnosis.

Results

Twelve of 168 (7%) of the women tested were found to be HIV-1 positive; none were found positive for HIV-2. Sixty six of 168 (39%) were found CT positive; three cases were positive for both HIV-1 and CT (table 2). The fact that they were found positive did not change their sexual habits.

Discussion

Prostitutes in Yaoundé are a high risk group for HIV infection. The observed prevalence of 7% positive for HIV-1 is thought to be high compared with the general population (0.3 to 1.1%)¹² and blood donors (0.43%).¹² Among African prostitutes from various countries the HIV prevalence rate has been found to be higher: 27% in Kinshasa,⁵ 29% in Dar Es Salam,⁷ 56% in Malawi,⁷ 68% in Uganda,⁷ 85% in Nairobi,⁷ 88% in Rwanda,⁷ 14.6% in Burkina Faso,⁶ and 33.4% in Côte-d'Ivoire.¹⁰

These variations in HIV seroprevalence among African prostitutes may be explained by the virus having been introduced in different areas at different times, but may also reflect different patterns practised by prostitutes (part-time versus full-time).⁷ The

relatively low prevalence among prostitutes in Yaoundé compared with some African cities suggests that HIV has been introduced recently in Cameroon. (One history of one woman participating in the study is suggestive of the influence of travel to other regions: "A" was found to be positive for HIV and died during the course of the study. She had travelled outside of Cameroon and had stayed for three years in Burkina Faso and Côte-d'Ivoire, both areas of high prevalence, where she was probably infected.)

When the duration of prostitution is related to positive results (table 3), it is seen that all those found to be HIV positive were prostitutes practising their profession for more than one year. Thus the higher the exposure the higher the risk and rate of infection and hence an increase in the prevalence rate.

None of the 12 HIV-1 infected prostitutes were using an efficient method of protection (table 4), probably due to ignorance about the infection, or lack of information, or lack of an adequate system of educating the public about AIDS, and also because condoms were very expensive and not readily available, which is not the situation today. Therefore prostitutes need to be targeted with education that will teach them to protect themselves and their clients through the use of condoms. Such education should also be directed to their clients, especially as we know that in Africa the use of condoms is presently not well accepted by men.⁹ (All of the 12 infected women in this study had had vaginal intercourse, while one had also had anal intercourse and two oral sex (table 5).

Prostitutes are also a high risk group in Yaoundé as far as chlamydia infection is concerned. Sixty six of 168 (39%) were found to be positive (table 3). Sende

Table 3 Duration in prostitution compared to positivity

Duration	No reporting	HIV-1(+)	Chlamydia positive
< 6 months	10	—	2
6-11 months	14	—	4
1-5 years	118	7	50
> 5 years	26	5	10

Table 4 Protection used compared to positivity

Practise	No reporting	HIV-1(+)	CT (+)
Condoms	12	—	—
Spermicides	8	—	1
Reducing partners	4	—	1
Other*	93	2	29
None	51	10	35

*Self administered medications, monthly vaginal smears, vaginal douche before/after sex.

Table 5 Sexual practices compared with positivity

Sexual practise	No reporting	HIV-1(+)	CT (+)
Vaginal intercourse	168	12	66
Anal intercourse	5	1	—
Fellatio	26	2	3

*et al*¹¹ found a *Chlamydia trachomatis* prevalence of 8.6% among pregnant women in Yaoundé using a direct immunofluorescent method (Microtrak). In Côte d'Ivoire the prevalence was 64.7% among prostitutes.¹⁰ In this study three cases of infection with both HIV and *C trachomatis* were found.

C trachomatis infection produces a very intense mononuclear cell infiltration of the cervix: the resulting friability and higher number of potentially susceptible cells locally might predispose to HIV transmission.⁷ Therefore chlamydia might also be a co-factor in HIV transmission, similar to the role of syphilis and chancroid. This relationship will require further study.

Twenty nine of 66 CT positive prostitutes were using "other" protective methods (table 4) by way of self-administered antibiotics (penicillin and chloramphenicol). The self-administered antibiotics are known to be less effective against *C trachomatis* (the treatment of choice being tetracyclines).

Conclusion

Prostitutes are a high risk group in Yaoundé for HIV and chlamydial infections. The results in this study may not reflect the seriousness of the situation given the selected population used. In Cameroon, therefore, similar studies should be carried out in different parts of the country. It does appear from the study results that HIV infection has been introduced fairly recently into Cameroon.

Three cases of infection with both HIV and chlamydia were found in this study. It is suggested that chlamydia may be a co-factor to HIV infection,

playing a role similar to syphilis and chancroid. This relationship requires further confirmatory studies, however, before it is established. Prostitutes need to be educated about HIV infection and AIDS, about other STDs and how they can use condoms to protect both themselves and their clients.

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