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Prostitutes: a High Risk Group for HIV Infection?

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Introduction

Prostitutes have traditionally been considered as an important reservoir of sexually transmitted diseases (STD), and various forms of control of prostitution and prostitutes have been used in the past as part of STD control programmes, usually with little success [1]. Because of their high number of sex partners, and a relatively fair proportion of intravenous drug abusers (IVDA) among prostitutes in Europe and North America, prostitutes are at higher risk for STDs, including infection with human immunodeficiency virus (HIV). However, there are many types of prostitution, and the role of prostitutes in the spread of HIV infection and STDs is far from uniform throughout the world. Prostitutes are defined here as women who exchange sex for money or goods (such as drugs). The problem of male prostitutes will not be discussed, since even less data are available on them than on female prostitutes.

We will review the occurrence of HIV infections in prostitutes, the current evidence for prostitutes as a reservoir of STDs, and discuss policy implications.

Sexually Transmitted Diseases and HIV Infection in Prostitutes

In various surveys prostitutes had consistently higher prevalence rates for STDs than the general population. As shown in Table 1, up to 29.1% of prostitutes tested had gonorrhoea, and 2.5% to 41.1% had positive serological tests for syphilis [2-10].

In contrast, only some prostitute populations have high seroprevalence rates for HIV antibody, whereas others are apparently not more infected than the general population – though sample sizes have been too small to allow meaningful comparisons. Table 2 shows HIV seroprevalence rates in female prostitutes who are not intravenous drug users in different parts of the world [2, 9, 11-28].

Both tables illustrate the substantial geographical variation in the prevalence rates of sexually acquired infections. However, it is not always clear how comparable the populations are in terms of exposure (number of sex partners, sexual practices, duration of prostitution, condom use, infection rates in clients). In general, women working in Africa have the highest infection rates for STDs, but may also be most exposed because of

1. infection rates in the general population, and consequently in the clients of prostitutes, may be high [29-31];
2. the daily number of clients may be higher than in Europe [10, 32, 33];
3. a lower frequency of condom use [9, 33, 34]
4. a higher incidence of genital ulcers which may enhance the efficiency of HIV transmission [23, 30, 35.]

Tab. 1. Prevalence of sexually transmitted diseases in female prostitutes.

Place	Year	Number tested	% with infection	
			Gonorrhoea	Syphilis
The Netherlands (2)	1988	324	NA	10
Athens, Greece (3)	1974	293	NA	15
Atlanta, Georgia (4)	1981	321	17	3
Fresno County, Cal. (5)	1979	451	22	6
Toronto (6)	1988	44	45	NA
Philippines (7)	1969	702	15	NA
Taipei, Taiwan (8)	1978	515	8	NA
Kinshasa, Zaire (9)	1988	637	33	25
Nairobi, Kenya (10)	1985	192	39	41

NA = information not available

Tab. 2. Prevalence of HIV infection among female prostitutes who do not use intravenous drugs.

Place	Year	Number tested	% with infection
Amsterdam (11)	1986	94	0
(2)	1988	82	1
Antwerp (12)	1988	48	2
Nuremberg (13)	1986	398	0
Paris (14)	1985	56	0
Athens (15)	1985	350	3
	1987	282	0
Miami (16)	1988	287	8
Nevada (17)	1986	535	0
New York City			
Streetwalkers (18)	1988	112	6
Call girls (19)	1988	72	0
eight cities in USA (16)	1988	640	5
Kinshasa, Zaire (20)	1986	377	27
(9)	1988	637	40
Equateur, Zaire (21)	1988	283	11
Nairobi, Kenya (22)	1981	116	4
	1985	286	61
(23)	1988	363	85
Accra, Ghana (24)	1986	98	1
Meiganga, Cameroon (25)	1985	221	8
Butare, Rwanda (26)	1985	33	88
Abidjan, Ivory Coast (27)	1986	101	20
Santo Domingo, Dominican Republic (28)	1987	68	10

In the United States of America the prevalence rates of HIV infection among prostitutes strikingly parallel the incidence rates of AIDS in the different states, though the prevalence is still low in prostitutes without a history of intravenous drug abuse [16, 36]. European prostitutes also have very low HIV infection rates, unless they are using intravenous drugs.

Risk Factors for HIV Infection in Prostitutes

The single most important risk factor for HIV infection in prostitutes in Europe is intravenous drug use, not sexual exposure, and the overwhelming majority of HIV infected prostitutes are drug addicts [2, 37]. Among female prostitutes with a history of intravenous drug use, HIV seroprevalence rates are as high as in other drug users in the area. A second route of introduction of HIV infection in female prostitutes is unprotected intercourse with their steady or occasional private partners, who may belong to a group at higher risk for HIV infection, in particular IVDA [2, 37, 38].
In the multicentre study in the U.S.A., a recent infection with syphilis was also significantly associated with HIV antibody (odds ratio 3.7), suggesting that genital ulcer disease may render women more susceptible to acquisition of HIV [16]. In the same survey, HIV infection was unrelated to anal sex or other sex practices, and to oral contraception.
As yet there is no evidence that sex with clients has played an important role in infecting female prostitutes in Europe, in contrast to the situation in Africa, where the major risk factors for HIV infection in prostitutes were the number of clients, duration of prostitution and a history of other STDs, particularly genital ulceration [9, 20, 22, 32]. Thus, basically the same risk factors for HIV infection in the general heterosexual population are found in female prostitutes in various parts of the world.
The high incidences of both genital ulcers and HIV infection in some male heterosexual populations in Africa are probably at least partly responsible for the high HIV infection rate among prostitutes in that continent. In addition, in those parts of Africa where HIV has been spreading among heterosexuals since the late seventies or early eighties, HIV infected heterosexual men as a group may be more infectious than heterosexuals in Europe who were hit later by the epidemic [30, 39].

Prostitutes as a Source of HIV Infection

There is no evidence at the present that female prostitutes are playing an important role in the heterosexual spread of HIV infection in Europe or North America, though the potential clearly exists, particularly in populations with high proportions of HIV infected IVDAs. Studies dealing specifically with HIV infection in prostituants (clients of prostitutes) are rare, and difficult to organize. In one such study in New York City, out of 340 male clients of prostitutes, 6 were positive for HIV antibody, including 3 men who had no identifiable risk factors for HIV infection [40]. Approximately one fourth of heterosexual men with AIDS without other identifiable risk factors in the U.S.A. reported a history of sex with prostitutes [41]. However, among men attending an STD clinic in New York City, heterosexual men who had had sex with prostitutes were not more often infected with HIV than controls [42]. In the absence of controlled data on sexual activity with prostitutes by heterosexual men in the general population, it seems premature to consider female prostituts as an important source of HIV infection in North America and Europe. However, because of the fairly recent introduction of HIV infection in heterosexual populations in Europe, it may be too early to see a measurable spread of HIV out of prostitutes.
The situation seems different in Africa, where there is growing evidence that, at least in some populations, prostitutes and "free women" play a central role in the spread of HIV. Trhoughout Africa, prostitutes have consistently had the highest prevalence rates of HIV antibody. In Nairobi, HIV infection appeared first among prostitutes, and subsequently in men with STDs who were their clients [22, 32]. Several case control studies both in African men and in European expatriates identified sex with prostitutes as a highly significant risk factor for HIV infection [30, 35, 43, 44, 45]. Finally, the risk for HIV infection increases with increasing frequency of prostitute contact [26, 45]. The frequent presence of genital ulcerations, particularly chancroid, in African prostitutes may contribute to a higher infectiousness [46].

AIDS Prevention in Prostitutes

There is no concensus about the approach to AIDS control in prostitutes, though specific programmes are being organized in an increasing number of countries. One extreme measure is mandatory screening of prostitutes for HIV antibody, in order to keep their license to practice, as is the case in Greece and Nevada. Such a programme may be counterproductive, since it may push those most at risk, such as IVDAs, underground. Furthermore, it reaches registered prostitutes only.
A more appropriate type of preventive activity puts emphasis on health education specifically designed for and targeted at prostitutes, and preferably also at their clients. The two corner stones of AIDS prevention targeted at prostitutes in Europe are prevention of HIV transmission by intravenous drug use, and condom use. Condoms should be used consistently, including with boyfriends and husbands. It is important that safe sex education becomes an integral part of prevention programmes aimed at IVDA since an important proportion of drug addicts at least occasionally practices prostitution, besides being privately sexually active. Regular monitoring of the level of HIV infection and continuous assessment of risk factors are needed to adapt prevention efforts to a changing epidemiological situation.

In Africa, prostitutes should be a priority target group in AIDS prevention. The most logical approach is a combined STD/AIDS control programme. There is some preliminary evidence that condom use by prostitutes in Africa is achievable using simple methods [37] and that it provides some protection against acquisition of HIV infection [9, 33, 47] and of genital ulcer disease in women [48]. However, larger demonstration projects are urgently needed to assess optimal methods for promoting condom use in prostitutes, as well as to design interventions aimed at reducing the incidence of genital ulcer disease, either by mass treatment, screening or early diagnosis and treatment in the regular health services or in special clinics.
Above all, it should be realized that any programme that does not involve full cooperation from the prostitutes themselves, will fail. Existing social networks can be used, and education by peers may be more effective than by outsiders, as suggested by pilot programmes in several parts of the world. Thus, prostitutes can be trained as AIDS educators for both their colleagues and clients [34, 49].
Finally, history has shown that blaming prostitutes for the AIDS epidemic or to rely on repressive measures, do not work as preventive measures, and are even counterproductive.

Summary
Female prostitutes are at increased risk for sexually transmitted diseases and HIV infection. However, the prevalence rate of HIV infection among prostitutes varies geographically, with the highest rates occurring in Africa and in areas with large numbers of HIV infected intravenous drug users (IVDU). In Europe the most important risk factors for HIV infection in prostitutes are intravenous drug use and unprotected intercourse with non-paying partners. Whereas in Europe, there is as yet no evidence that female prostitutes are a source of HIV infection for the heteroseuxal population, they are playing a major role in the spread of HIV in Africa. Education about safe sex practices should be included in prevention programmes aimed at IVDUs. HIV infection should be monitored in prostitutes, and health education on AIDS prevention should be offered to prostitutes and their clients.

Résumé
Les prostituées: un groupe à haut risque pour l'infection VIH?
Les prostituées courent un risque élevé de contracter les maladies transmises par voie sexuelle et l'infection VIH. La fréquence de l'infection VIH chez les prostituées varie toutefois selon les régions. Les taux les plus élevés ont été enregistrés en Afrique et dans les régions où vivent de nombreux toxicomanes i.v. En Europe, les plus grands risques d'infection VIH, chez les prostituées, sont la toxicomanie i.v. et les relations sexuelles sans protection avec des partenaires non payants. Si, en Europe, rien ne permet encore de prouver que les prostituées sont une source d'infection VIH pour la population hétérosexuelle, elles jouent par contre un rôle important dans la propagation de l'infection VIH en Afrique. L'information concernant les pratiques sexuelles sûres doit faire partie intégrante des programmes de prévention destinés aux toxicomanes i.v. Les prostituées devraient faire l'objet d'une surveillance quant à l'infection VIH, et l'information sur la prévention du SIDA devrait être dispensée aux prostituées et à leurs clients.

Zusammenfassung
Prostituierte: eine Risikogruppe für die HIV-Infektion?
Bei weiblichen Prostituierten besteht ein erhöhtes Risiko für sexuell übertragbare Krankheiten und HIV-Infektion. Die Prävalenzrate von HIV bei Prostituierten in den verschiedenen geographischen Regionen ist sehr unterschiedlich, die höchste Rate findet sich in Afrika und in Regionen mit einer grossen Anzahl von HIV-infizierten i.v.-Drogenabhängigen. In Europa ist der grösste Risikofaktor für eine HIV-Infektion unter Prostituierten, der i.v.-Drogengebrauch und ungeschützter Geschlechtsverkehr mit nichtzahlenden Partnern. Während in Europa bis jetzt keine Anhaltspunkte bestehen, dass Prostituierte eine Quelle für HIV-Infektionen für die heterosexuelle Bevölkerung bilden, spielen diese eine entscheidende Rolle bei der Ausbreitung von HIV in Afrika. Aufklärung über sichere Sexpraktiken sollte deshalb in die Präventionsprogramme für i.v.-Drogenabhängige aufgenommen werden. Die HIV-Infektion der Prostituierten sollte monitoriert werden und Gesundheitsaufklärung und AIDS-Prävention sollten an Prostituierte und deren Kunden weitergegeben werden.

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