3. SEXUAL HABITS AND SOCIAL FACTORS IN LOCAL GHANAIAN PROSTITUTES WHICH COULD AFFECT THE SPREAD OF HUMAN IMMUNODEFICIENCY VIRUS (HIV)

By

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Summary

One hundred and sixteen prostitutes working locally in Accra/Tema were interviewed as to their sexual habits. A major finding was that only one used condoms regularly. The average number of clients was 3–4 per week in the higher socio-economic status group and 16 per week in the lower socio-economic class. Less than 1% were positive for HIV infection in February 1986 and 0% of 247 blood donors were positive. These findings indicated that the HIV infection rate was still very low and a preventive education campaign could be effective in reducing the spread of the disease into Ghana.

Introduction

In 1981 the first cases of a fatal disease which has been termed AIDS (Acquired Immunodeficiency Syndrome) were reported in the U.S.A.[1] The patients were nearly all homosexuals. Since then the numbers of infected individuals in the U.S. had risen exponentially, so that by June 1986, 25,000 patients had contracted AIDS and it was estimated that between one and two million people were carriers[2]. The human immunodeficiency virus was first isolated by Barre-Sinoussi *et al* in France[3] and Gallo in the U.S.A.[4] and found to be the causative agent for AIDS. Increasing numbers of AIDS patients have become infected in other parts of the world, most notably Central and East Africa, and Europe[5]. In America and Europe the initial epidemic occurred in homosexuals, but the disease has now spread unto the heterosexual population, via bisexuals, intravenous drug addicts who share hypodermic needles[6] and transfused blood products from infected donors[7]. In Africa the disease was always seen as spread mainly by heterosexual contact[8, 9]. It occurs in the sexually active age group. As in the homosexual population of the U.S., those most at risk have been shown to be those who have many sexual partners[10]. In Nairobi, a survey of female prostitutes done in 1985 showed that 66% of those of lower socio-economic status and 31% of those of higher socio-economic status were positive for HIV antibodies[11].

This study was conducted among female prostitutes in the Accra–Tema area in February, 1986 to find out whether HIV infection was present in this at risk group and also to investigate their sexual practices as related to the possibility of the spread of infection.

Materials and Methods

During February 1986 various night clubs and brothels in Accra and Tema were visited and 136 female prostitutes were investigated. Informed consent was obtained from each. Ninety-eight prostitutes of higher socio-economic status and 18 of lower socio-economic status were interviewed. They were classified according to their place of work and usual practices. Briefly, those who worked from night clubs, charged more and spent the night with one client were classified as the higher socio-economic group. Those who charged less, but had several clients per evening were classified as being of the lower socio-economic group. Blood samples were taken from these 116 and also an additional 20 night club prostitutes who were not interviewed, and the sera stored at –70°C These were tested for HIV antibodies using the indirect immunofluorescent antibody

technique (IFAT) as described by Hayami *et al*[12].

Results

Of the ninety-eight female night club prostitutes who were interviewed, 46 solicited from Accra clubs and 52 from Tema. Ninety-five were Ghanaians and 3 were of Russian origin. Their ages ranged from 17 years to 42 years (average 25.9 years). Seventy-five (76.5%) had been resident in the Accra or Tema area for more than 5 years, and only 10 (10.2%) had moved to the area during the past year. These had previously lived in other regions of Ghana, e.g. Volta Region, Upper Region, Central and Ashanti Region (Table 1). Fifteen had spent a period of residence or extended holidays abroad in the past 5 years. Thirteen had visited other African countries; 6 had been to Nigeria, 3 to Togo, 2 to Ivory Coast and 2 to Burkina Faso. Three had visited Europe; 2 went to Britain and one to Switzerland. None had visited America, East or Central Africa, which are areas with a higher incidence of HIV infection. A total of 50 prostitutes admitted to having non Ghanaian customers in the last 5 years, mostly visitors to Ghana and/or seamen. Tema is a major Ghanaian port. Twenty said they had had customers originating from South-east Asia. Eighteen had clients from other African countries, 16 of these from West Africa and one from North Africa. Ten had clients from European countries, two from North America and one from Australasia.

They were asked about the type of sexual practices they carried out and these are detailed in Table 2. The use of condoms was very limited. Only one woman admitted to an infection with veneral disease and one to anal intercourse. Forty-one of the women admitted having 1 to 2 clients/week, forty-five 3 or 4/week, and twelve between 5 and 10. The usual practice was to spend the whole night with the client. For this the fee varied from 300 to 1,000 cedis. We also considered social factors involved. Forty-two of the women of higher socio-economic status were asked their reasons for working as prostitutes and their answers are outlined in Table 3. Seventy-three (74.5%) had children to support. Fifty (51.0%) had one or two but some had as many as 5. Most (80.6%) had received some schooling. Twenty-seven had finished primary school, 41 middle school, 10 secondary school and one Muslim school. Nineteen (19.4%) had not attended school at all.

TABLE 1: *Periods of Residence of 98 Prostitutes in Accra/Tema*

Time & Period	Accra	Tema
10 Years	29	26
5–10 Years	2	8
1–5 Years	7	6
1 Year	8	2
Total	46	52

TABLE 2: *Sexual Practices of 98 Night Club Prostitutes in Accra/Tema*

	Yes	No	Sometimes
Vaginal	98	0	0
Orogenital ..	0	86	12
Anal	0	97	1
Use of Condoms	1	58	39

TABLE 3: *Reason given for Prostitution by 42 of 98 Night Club Prostitutes*

To support the family	21
To acquire capital	7
To pay for education	5
Marital sexual dissatisfaction ..	5
Entertainment	3
Total	42

All except one of the 18 low class prostitutes had children to support, the average number being 5.5 children. The average age was higher than that of the night club prostitutes at 39.3 years (ranged 27–50 years). They had not received as much education as the night club group; 9 (50%) had not attended school, 5 (27%) had completed primary schooling, and 4 (22%) had completed middle school. None had received secondary education. Sixteen (89%) were heads of families, 15 being divorced or separated and one widowed. The other 2 were married. They charged less than the night club prostitutes, about 80 cedis per client, but each had several clients per evening. On average these women admitted to 16 clients per week. All gave financial reasons for working as prostitutes, and some cited the fact that they had no trade. 50% never used condoms and 50% used them only occasionally.

Of the 136 sera tested for HIV, only one was positive (0.73%). She worked from an Accra night club, has not travelled outside Ghana and had not had any sexual contact with a non Ghanaian. She was healthy at the time of interview.

Discussion

Before 1986 no clinical case of AIDS had been seen in Accra, whereas the disease had been reported in increasing numbers from Central Africa in particular Zaire, and East Africa, mainly Kenya and Uganda. It had also been seen in Zambia[9] and Zimbabwe (F. K. Nkrumah personal communication).

HIV infection antedates the development of AIDS by 2–5 years and approximately 30% of positive individuals will become ill after this time[13]. However they may spread the disease unknowingly from the time of infection. In Kenya an increasing rate of positivity amongst lower class female prostitutes from Nairobi has occurred between 1981 and 1985 from 4% to 66%, together with an incidence of lymphadenopathy of 54% in 1985[11]. Since prostitutes represent one of the most promiscuous sections of society they would be likely to be infected early during the epidemic spread of HIV. It is of note that in Nairobi, the lower class prostitutes had a higher positivity rate. This could be related to a higher number of sexual contacts. They had an average of 963 clients per year as compared to 124 per year for the higher class prostitutes. These figures were comparable to the numbers of contacts per year of the 2 groups of Ghanaian women.

In the United States homosexual males represent a very promiscuous group and this may be one of the reasons why the disease spread rapidly amongst them. In Nairobi in 1985 18% of men with genital ulcers attending a clinic for sexually transmitted diseases were seropositive for HIV[10]. These most likely represent a group of men with more than average number of sexual contacts. This figure compared with 1.5% seropositivity in the general population at that time.

Our study shows that in the Accra/Tema area the rate of HIV infection amongst prostitutes working locally was 0.7%. In November 1985 sera from 247 blood donors in Accra were tested and all were negative [14]. We concluded that the local infection rate was still very low and that efforts should be directed towards public education to inform people about the prevention of transmission of this fatal disease via sexual contacts, either heterosexual or homosexual. Those people with the least number of sexual contacts are least at risk. Transmission is also reduced by the use of condoms during sexual intercourse[15, 16]. It is disturbing that only one of the prostitutes used condoms regularly and 67 of 116 never used them. They were advised accordingly, but compliance depends mainly on their male customers who may not be aware of or who ignore the risk. More than half of the women had had sexual contacts with non Ghanaians, many of them visitors to Ghana. This indicates how a sexually transmitted disease can spread from one country to another. Very few of these contacts came from high risk areas of the world and this could possibly explain the low incidence rate in the women. However the one who was positive said she had no contact with a non Ghanaian, and so must have acquired infection in Ghana, possibly from a Ghanaian who had travelled abroad to a high risk area. In homosexuals the passive partner in anal intercourse is more likely to become infected [17]. Only one of our subjects performed anal intercourse. The study in Nairobi showed that the prostitutes there performed vaginal intercourse with occasional active orogenital sex, showing that infection also spreads via vaginal intercourse.

It is also of interest to note that many of the women interviewed supported their families by prostitution, particularly the lower socio-economic group who tended to be older, to be the sole means of support for their children and to have little or no education. With no capital available for trading, some were forced by necessity to engage in prostitution. If they became infected with HIV, it would be very difficult to convince them to give up prostitution, since they have many dependents. The social factors involved could perhaps be investigated further as prostitutes constitute a major reservoir of HIV infection once it is introduced into the society. The public should be made aware of this fact.

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4. ACETYLATOR PHENOTYPE AND SULPHA METHAZINE KINETICS

By

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Summary

The effect of the acetylation polymorphism on plasma concentrations of sulphamethazine has been studied in rapid and slow acetylators after a single oral dose. Slow acetylators were exposed to higher plasma concentrations than rapid acetylators. The drug $t_{\frac{1}{2}}$ and the area under the plasma concentration time curve were also greater in slow acetylators. The implications of the interphenotype difference in sulphamethazine kinetics are discussed in terms of the relative potential for drug accumulation after administration of multiple doses.

Introduction

Individual differences in drug responsiveness and toxicity are determined by a variety of factors controlling rates of absorption distribution and elimination. These factors may be environmental and/or genetic in origin. For most drugs the complex interplay of a multiplicity of factors gives rise to a continuous variation such that plots of drug response against the frequency of response will show a typical Gaussian (normal) distribution. In some instances a single factor, typically one that is genetically determined, may play a major role in controlling the pharmaco kinetics of a drug. Where large individual differences exist in respect of this factor, a discontinuous or discrete type of variation is found which may be bi-or tri-modal.

One well recognised example of such a factor is the activity of the liver enzyme N-acetyl transferase which shows marked