

Sexually transmitted diseases in tropical Africa*

A review of the present situation

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SUMMARY At present very little information is available on the prevalence and pattern of sexually transmitted diseases (STDs) in many countries of tropical Africa. The available evidence does, however, suggest that these diseases are highly prevalent and that a considerable reservoir of infection exists among the female population. Gonorrhoea is probably the most commonly recognised STD in tropical Africa, frequently causing epididymitis and urethral stricture in men and salpingitis and pelvic inflammatory disease in women. The prevalence of infectious syphilis is still high, particularly the late manifestations of the disease. The prevalence of the other STDs is also high. Thus, the problem is clearly very serious and the need for improving facilities for diagnosis and treatment urgent; some attempt also must be made to initiate control measures.

Introduction

There are at present no reliable statistics on the true prevalence of sexually transmitted diseases (STDs) in the developing countries of tropical Africa. In developed countries where reliable statistics are available STDs constitute a major medical and social problem. This is particularly so in the case of gonorrhoea, syphilis, and non-specific genital infections.¹ The same pattern can therefore be predicted for the developing countries of tropical Africa, where facilities for the correct diagnosis and treatment of these diseases are unfortunately inadequate. The general impression of many practising physicians is that the STDs, particularly gonorrhoea, may have reached endemic proportions in the urban areas of many countries of tropical Africa, with increasing spread to the rural areas.

Gonorrhoea

Gonorrhoea is probably the commonest STD in tropical Africa and the most easily recognised. The true prevalence is unknown but it is estimated to be very high. The prevalence rates available for rural and urban tropical areas are alarmingly high for

gonorrhoea and its complications such as urethral stricture, epididymitis, pelvic inflammatory disease, and infertility, together with gonococcal ophthalmia neonatorum (table I). Indeed gonorrhoea is so common among some tribes that it is regarded as a sign of adolescence or sexual potency. For example, in Nigeria the prevalence of gonorrhoea among asymptomatic women is about 5% and among prostitutes and female hospital patients between 15% and 20% (table II).² Similarly, in Uganda and Kenya prevalence rates of about 20% were noted among the female population.^{3 4}

When the prevalence rates of some African countries are compared with those of the developed countries, it is obvious that STDs in Africa constitute a major public health problem.⁵ For example, the rate for gonorrhoea per 100 000 population in Kampala (Uganda) is 10 000 and in Nairobi (Kenya) it is 7000; the corresponding figures for Greater London (Britain) and Atlanta (USA) are 310 and 2510 respectively.

SECONDARY COMPLICATIONS

The commonest complications in men are urethral stricture and epididymitis. It is estimated that between 1% and 3% of men with five or more episodes of gonococcal infection develop bilateral epididymitis depending on the treatment given.⁶ In certain parts of Africa up to 80% of the practice of a urologist is taken up with urethral strictures and the management of reproductive failure resulting from STDs. For example, in a sample population in Teso,

*Paper presented at the spring meeting of the Medical Society for the Study of Venereal Diseases, Bournemouth, 16-18 May 1980

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Accepted for publication 23 August 1980

TABLE I *Prevalence of gonorrhoea in Africa and Asia (selected populations)*⁴⁰

Author	Year	Country	Population studied	Prevalence %	
				Women	Men
Arya and others ⁴	1973	Uganda	Teso district	18.3	8.9
Hopcroft and others ³	1973	Kenya	FPC	17.5	
Osoba and Onifade ⁴⁹	1973	Nigeria	ANC	3.0	
Finlayson and others ⁵²	1974	S Africa	GYN & ANC	5.3	
Weissenberger and others ⁵³	1977	Rhodesia	GYN, ANC, & FPC	9.7	
Hall and Whitcomb ⁵⁴	1978	S Africa	FPC	10.2	
Jha and others ⁵⁵	1978	India	GYN & ANC	10.2	
Meheus and others ⁵¹	1978	Swaziland	MCH & FPC	2.9	

FPC = Family planning clinic; ANC = Antenatal clinic; GYN = Gynaecology clinic; MCH = Maternal and child health clinic

TABLE II *Incidence of sexually transmitted diseases among different groups of Nigerian women previously investigated*^{49 50}

Groups of women	No investigated	% With gonorrhoea	% With trichomoniasis	% With candidosis
Pregnant	208	3.37	20.6	33.17
Users of IUCDs	282	4.61	26.6	16.67
With vaginal discharge	228	17.0	19.0	23.0
Asymptomatic (illiterate)	130	5.0	15.0	12.0
Infertile	151	1.32	20.5	26.6
Total	999			

IUCD = Intrauterine contraceptive device

a district in Uganda with a high prevalence of gonorrhoea, Arya and Taber⁷ found evidence of acute or chronic epididymitis in 27.9% of men, which was bilateral in 6%. Among men over 30 years about 44% of those with bilateral epididymitis were childless, a proportion significantly greater than 19% for those without epididymitis.

Among women, salpingitis and pelvic inflammatory disease (PID) are the commonest complications of gonorrhoea and frequently result in tubal occlusion and infertility. In Uganda, it has been reported that between 22% and 30% of gynaecological admissions were for acute PID.⁸ The evidence available suggests that in tropical Africa there is a strong association between gonorrhoea and reproductive failure in both sexes.

Grech *et al.*,⁸ in a study of 86 patients with PID in Uganda, found that about one-third harboured the gonococcus while 25% were infertile compared with 15% in a matched hospital control group. They also noted that pregnancy wastage, which occurred in about 28.6% of all pregnancies, was exceedingly high. In another series in Uganda, 15-20% of the women, almost one-quarter of whom had not conceived, had some features of salpingitis, and all the available evidence suggested that most of the cases were gonococcal in origin.⁶ In another part of East Africa, where 11.6% of women attending family planning clinics had gonococcal infections, PID accounted for 44% of all admissions to a gynaecological hospital ward; the latter group had

considerably reduced fertility.⁶ It is estimated that between 10% and 15% of women with cervical gonorrhoea develop salpingitis.⁹ In tropical Africa, with very high prevalence rates for gonorrhoea, a large proportion of the female population will at one time or other have PID. Unfortunately, many cases are unrecognised and untreated, not only because of inadequate diagnostic facilities but also because the symptom-complex of abdominal pain and fever, commonly found in PID, can be produced by many tropical conditions such as typhoid, dysentery, and amoebiasis.

SENSITIVITY TO PENICILLIN

Decreased sensitivity of the gonococcus to penicillin appears to have developed in Africa as in other countries. This has been confirmed by the occurrence of treatment failures and devastating chronic lesions due to the gonococcus.¹⁰ Reports on the sensitivity pattern of the gonococcus to penicillin have been recorded from Uganda,⁴ Nigeria,¹¹ Ethiopia,¹² Kenya,¹³ South Africa,¹⁴ and Swaziland.¹⁵ These show that over two-thirds of the gonococcal strains in many tropical areas have diminished sensitivity to penicillin (table III) and a large proportion to other antimicrobial agents, mainly as a result of indiscriminate use of antibiotics at subtherapeutic doses or by self-medication. Thus treatment is becoming increasingly expensive and therefore difficult to obtain in the poorer countries with limited resources. When these figures are compared

TABLE III Penicillin sensitivity of gonococci in some developing countries⁴⁰

Town/Country	Authors	Year	Total No of strains tested	% With minimum inhibitory concentration (units per ml)		
				<0.125	≥0.125	>0.5
Kampala (Uganda)	Arya and Phillips ⁵⁶	1970	173	20.0	80.0	
Nairobi (Kenya)	Verhagen and others ¹³	1971	736	34.9	65.1	34.8
Addis Ababa (Ethiopia)	Plorde and others ¹²	1973	234	50.0	50.0	16.3
Ibadan (Nigeria)	Osoba and others ¹¹	1977	80	17.5	82.5	16.2
Mbabane (Swaziland)	Meheus and others ¹⁵	1979	70			31.0
Bangkok (Thailand)	Panikabutra and Suranamalik ⁵⁷	1973	96	22.9	77.1	17.7
Singapore	Sng and others ⁵⁸	1977	50†	38.0	62.0	6.0
Bombay (India)	Moses and others ⁵⁹	1971	216	32.9	67.1	20.9
Delhi (India)	Bhujwala and others ⁶⁰	1973	93	66.6	33.3	6.4
Liverpool (UK)*	Arya and others ⁶¹	1976	1265‡	68.4	31.5	6.7§
Liverpool (UK)*	Unpublished	1977	1166	85.1	14.9	0.3

* Figures for Liverpool (UK) are included for comparison

† Three β -lactamase strains not included

‡ Includes figures for a part of the year

§ Seventy-seven (6.1%) were β -lactamase-positive

|| Three of the four strains were β -lactamase-positive

with those reported in 1961 by the World Health Organisation¹⁶ it appears that penicillin-insensitive strains are being rapidly and sequentially selected in many parts of tropical Africa, particularly during the last decade.

β -LACTAMASE-PRODUCING STRAINS

Recently, some strains of β -lactamase-producing gonococci were shown to have originated from West Africa. The true prevalence of these strains is unknown, but they are known to be circulating quite freely, at least in West Africa, with a possible reservoir of infection in urban areas of Ghana and the Ivory Coast.¹⁷ They have been isolated in Nigeria, Ghana, South Africa, and the Ivory Coast and have been epidemiologically linked to Togo, Sierra Leone, Mauritius, Morocco, and Sudan. The diagnostic difficulties in identifying these strains and the expense of their treatment pose a great threat of increasing the spread of these strains. The health budgets of some countries can barely provide enough penicillin let alone the more expensive antibiotics for treating infections with these strains.

Thus the present position of gonococcal infections in tropical Africa is clearly very serious and the problems are enormous. There is therefore an urgent need for energetic efforts to improve facilities for diagnosis and proper treatment.

Non-specific urethritis

The true prevalence of non-specific urethritis in tropical Africa is unknown, since facilities for diagnosis are not available in many hospitals. The few published reports suggest that the condition may be as common as gonorrhoea. In a study of 442 men with urethritis in Ibadan, Nigeria, 33% had gonor-

rhoea, 61% non-specific urethritis, 4% trichomonal urethritis, and 2% candidosis.² In another series in Nigeria of 578 patients, 174 (25.9%) had non-specific genital infections.¹⁸ In the Sudan, the commonest STD was NSU, accounting for 35.1% of male cases seen in one clinic.¹⁹ In Swaziland, however, of 109 patients with urethral discharge 87 (80%) had gonorrhoea and seven (6%) non-specific urethritis, while 15 (14%) had objective urethritis.¹⁵

Despite the availability and widespread self-medication with tetracyclines and sulphonamides in these countries, NSU still appears to be common, even though the condition responds to these antibiotics. It is also probable that because the discharge is scanty and the infection relatively mild patients are not motivated to seek medical advice in developing countries, especially in areas where there are no diagnostic facilities.

Syphilis

There are no reliable statistics on the prevalence of venereal syphilis in African countries. The few available are confined to hospital patients and selected population groups. Consequently, the reports are sometimes conflicting and the overall picture is unclear.

There are two schools of thought. The first assumes that since the prevalence of infectious syphilis is increasing in the developed countries the same trend is occurring in tropical Africa.²⁰ This is attributed to changing environmental patterns, principally accelerated urbanisation and general migration.²¹ This belief is strengthened by the fact that as a result of the successful eradication of yaws in the 1950s a large number of people have become susceptible to venereal syphilis because of the

removal of the cross-immunity offered by yaws. Epidemics of infectious syphilis have been reported in some parts of Africa where yaws was formerly endemic.²² Nevertheless, very high rates have been reported in many urban areas in Africa, which not only cause local medico-social problems but also a potential threat of the international spread of venereal syphilis.⁵ Very high rates have been reported from Uganda,²³⁻²⁵ Ethiopia,^{26 27} South Africa,²⁸ Upper Volta,²⁹ Central African Republic,³⁰ and West Africa.³⁹

The other view is that there has been a steady decline in the prevalence of syphilis in Africa over the last two decades. This is based on the diminishing number of patients with syphilis seen in some urban hospitals, falling percentages of positive results to serological tests for syphilis, and the increasing rarity of cardiovascular syphilis and neurosyphilis.²¹ Reports from Zimbabwe,³¹ Kenya,³² and Uganda^{33 34} support this view. It is suggested that the downward trend in the prevalence of syphilis is related to the increased and often indiscriminate use of penicillin and other antibiotics, although the number of reported cases of early syphilis in some urban areas appears to be high. It is in the urban areas, however, that antibiotics are more readily available and are widely abused by self-medication.

In Nigeria, where yaws has been successfully eradicated, between 5% and 6% of blood donors and antenatal patients had positive results to serological tests for syphilis while 3% of 15 000 hospital patients were reactive.^{35 36} In a similar situation in Rwanda, the prevalence of serological syphilis was found to be 1-2% in antenatal patients, 5-6% in soldiers, and 25-26% in prostitutes.³⁷

Whichever of these two hypotheses is accepted as representing the situation in Africa, the prevalence is certainly considerably higher than in Europe and the USA and is totally unacceptable; it therefore demands concern and energetic control measures.

Other sexually transmitted diseases

The so-called "tropical venereal diseases"—chancroid, lymphogranuloma venereum, and granuloma inguinale—are very common in tropical Africa, with a scattered distribution, but many cases go

unrecognised and unreported. Chancroid is common in Nigeria,¹⁸ in Uganda,^{5 38} and in other parts of Africa.^{39 40} In Swaziland, 70% of genital ulcers are due to chancroid.⁴¹ Lymphogranuloma venereum (LGV) has been commonly found among hospital patients in tropical Africa (table IV). In one clinic in Uganda 41 cases of syphilis, three of LGV, one of granuloma inguinale, and 99 of chancroid were seen during a seven-week period.⁴²

Granuloma inguinale is known to be a disease of the low socioeconomic classes with poor standards of hygiene and is usually found in the tropics and subtropics of Asia, Africa, and the Americas.⁴³ However, the disease has received very little mention in the medical literature in Africa, probably because of the difficulties in its diagnosis.

There is very little information about genital herpetic infection in tropical Africa, apart from a few cases described in Nigeria.⁴⁴ However, serological studies carried out in Nigeria showed that about 13% of healthy young women had experienced previous infection with genital herpesvirus.^{45 46} In view of the causal association between infection with *Herpesvirus hominis* type 2 and the later development of carcinoma of the uterine cervix, which is one of the commonest malignant conditions seen in women in Africa,⁴⁷ more attention should be paid to this disease in tropical Africa⁴⁸ and indeed to all the other genital ulcerative diseases.

Because of poor standards of hygiene trichomoniasis, candidosis, pediculosis, scabies, and genital warts are very common conditions in tropical Africa, particularly among the lower socioeconomic classes. Reports on the prevalence of trichomoniasis have ranged between 15% and 35% of women tested, while that of candidosis between 12% and 60% in Nigeria, Sudan, and Swaziland (table II).^{19 36 49-51}

To improve the present undesirable and unacceptable level of STDs in tropical Africa, the following suggestions are proposed:

- (1) A change of attitude of health administrators in developing countries of tropical Africa to recognise that STDs and their complications are a serious problem and require energetic control measures;
- (2) Improvement of the budgetary allocations for health in general and STD in particular;

TABLE IV *Prevalence of lymphogranuloma venereum in some African countries*

Author	Year	Country	Population studied	% Prevalence
Arya and Bennett ⁵	1976	Uganda	Health centre	1.5
Willcox ³⁹	1958	Ghana	Outpatient clinic	13.7
Taha <i>et al</i> ¹⁹	1979	Sudan	STD clinic	2.7
Sogbetun <i>et al</i> ¹⁸	1977	Nigeria	STD clinic	2.5

- (3) Provision of basic facilities for diagnosis, treatment, and contact tracing of patients with STDs;
- (4) Health education of health authorities, medical personnel, and the general public, and in particular encouragement of patients to seek treatment early and avoid self-medication; and
- (5) Training programmes for the provision of necessary health personnel to operate a reasonable STD control service.

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