

The Epidemiology of Sexually Transmitted Diseases in Africa and Latin America

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We review some aspects of the epidemiology of sexually transmitted diseases (STDs) in the developing countries of Africa and Latin America. Apart from their elevated prevalence, they are responsible for important morbidity in mother and child. Stillbirth, premature delivery, conjunctivitis, and respiratory tract morbidity of the neonate are frequently caused by STDs. Sequelae in adult women include pelvic inflammatory disease, ectopic pregnancy, and infertility. The emergence of antimicrobial resistance has complicated the picture in recent times. Genital ulcer disease is very common in developing countries, the most important being chancroid. Both continents are experiencing major epidemics of the acquired immunodeficiency syndrome (AIDS) and human immunodeficiency virus (HIV) infection with different epidemiological characteristics than in the industrialized world. A link might exist between the high prevalence of STDs and the rapid heterosexual spread of HIV infection.

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AFRICA and Latin America consist mainly of developing countries. They share common demographic characteristics; birth rates are high, which means that a considerable part of their population is at a young and sexually active age. Fast-growing cities are attracting a huge number of these young people, especially men, from the rural areas in search of better financial and material conditions. But many of them find themselves unemployed and in a very poor situation. Social control, which might still exist in rural areas, is less important, if not absent, in these urban communities. In such circumstances promiscuity and prostitution find a solid base, providing a major condition for establishing and maintaining elevated prevalences of sexually transmitted diseases (STDs). Besides this, the epidemiology of these diseases shows some other specific aspects when compared with the situation in industrialized countries.

CONVENTIONAL STDS

The STDs caused by *Neisseria gonorrhoeae*, *Chlamydia trachomatis*, *Treponema pallidum*, and *Trichomonas vaginalis* are seen very frequently in Africa and Latin America. Results from both continents are presented in Table 1.¹⁻⁹ Most of the data concern pregnant women, who are a young sexu-

ally active population and are important because of the risk of vertical transmission.

Studies on high-risk populations show much higher figures. For instance, prostitutes from Somalia had a 58% prevalence rate for syphilis, whereas in the same region this was only 3% for pregnant women.¹⁰

Maternal and Child Health

Elevated prevalences of STDs during pregnancy and at the moment of delivery have consequences for the outcome of pregnancy.

In Zambia, women with a positive syphilis serology had a 19-fold risk of having an unhealthy child, a 10-fold risk of having a stillbirth, and the risk for premature delivery was 12 times higher than in seronegative women.¹¹

Maternal gonococcal and chlamydial infections at the moment of delivery are also a major reason of neonatal morbidity in developing countries. The incidence of ophthalmia neonatorum (ON) varies from 9.7%¹² to 23%¹³ and is mostly due to *C trachomatis* and *N gonorrhoeae*.^{12,13} In addition, neonatal chlamydial infections seem also to be a considerable cause of respiratory tract morbidity in Africa.¹⁴ The incidence can be reduced considerably by ocular prophylaxis at birth, but in the majority of the developing countries this is not installed or is only poorly applied. A recent report from Kenya gave evidence of the benefits of such prophylaxis with a decrease in infection rate of 83% among infants exposed to *N gonorrhoeae* and receiving silver nitrate prophylaxis, and 93% in those receiving tetracycline.²

Complications and Sequelae in Women

A further feature of STDs in developing countries is the impact of their sequelae on the health of

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Table 1. Prevalence of Conventional STDs in Africa and Latin America

Diagnosis	Country	Population	% Positive
Gonorrhoea	Cameroon ¹	ANC	15
	Kenya ²	INP	6.4
	Jamaica ³	ANC	11
Genital chlamydial infection	Gabon ⁴	INP	8.3
	Kenya ²	INP	8.9
	Brazil ⁵	Symptomatic patients	21.7
Positive test for syphilis	Gabon ⁶	General population	8 (TPHA)
	Mozambique ⁷	ANC	9.8 (TPHA; FTA)
	Chili ⁸	ANC	3.5 (VDRL)
Trichomoniasis	Cameroon ¹	ANC	20.6
	Nigeria ⁹	ANC	20.7
	Brazil ⁵	Symptomatic patients	2.6

Abbreviations: ANC, antenatal clinic; INP, intrapartum; TPHA, *Treponema pallidum* hemagglutination assay; FTA, fluorescent treponemal antibody absorption test; VDRL, Venereal Disease Research Laboratory.

the adult population. As for other infectious diseases, late complications are more often seen than in the industrialized world. The elevated number of women with acute pelvic inflammatory disease (PID) seen in the Third World is responsible for up to 30% of gynecological admissions.¹⁵ Until recently the majority of cases were considered to be of gonococcal etiology.¹⁵ However, recent studies demonstrated an important role for chlamydial infection.¹⁶ PID seems to be the cause of high levels of infertility in women in certain regions of the Third World.¹⁷ Figures as high as 73% of primary infertility in Kenya¹⁸ and 83% at a fertility consultation in Gabon have been demonstrated.¹⁶ PID also increases the risk for ectopic pregnancy and chronic abdominal pain.¹⁹

Antimicrobial Resistance

Gonococcal infections are frequently associated with the problem of multiple resistance to antibiotics. Since the emergence of penicillinase-producing strains (PPNG) in the 1970s, very high prevalence rates of such strains have been reported from many African countries.²⁰ PPNG seem to be less important in most of South America although hyperendemic foci exist in some areas.²¹

Furthermore, a gradual decline in susceptibility to other antibiotics is encountered. Emergence of resistant strains is attributed to inappropriate or inadequate antimicrobial treatment, which is a recognized problem in developing countries.

Genital Ulcer Disease

Genital ulcer disease (GUD) is more common in Africa than in the industrialized world. The major

known causes include genital herpes, chancroid, donovanosis, and lymphogranuloma venereum.

Chancroid, caused by *Haemophilus ducreyi*, is probably the most important cause in the tropics, representing 49% of GUD in Kenya²² and 37% in French Guyana.²³ It is a disease of the poor, with prostitutes playing an important role as a reservoir. Uncircumcised men appear to be at higher risk for acquiring the infection. Several cross-sectional and a few prospective studies have now demonstrated that chancroid is an important risk factor for the sexual transmission of human immunodeficiency virus (HIV) in Africa.²⁴

Donovanosis is a chronic progressively destructive infection caused by *Calymmatobacterium granulomatis*. The disease was described in 1% of patients at an STD clinic in Uganda²⁵ and more recently it has been reported from French Guyana in three men of 231 with genital ulcer disease.²³

Lymphogranuloma venereum (LGV), caused by *C. trachomatis* serovars L 1 to 3 is more frequent. In a special treatment clinic in Uganda, it accounted for 3.6% of patients.²⁵ Latif, in Zimbabwe, found LGV in 6.1% in a similar population.²⁶

AIDS AND HIV INFECTION IN AFRICA AND LATIN AMERICA

Both Africa and Latin America are experiencing major epidemics of acquired immunodeficiency syndrome (AIDS) and HIV infection, but there are some differences in the epidemiology between the two continents.

The first cases described in the Caribbean region were in homosexual men.²⁷ However, the epidemiological pattern in this area is changing with a

young and heterosexual population being increasingly diagnosed with HIV infection. This is illustrated by a decrease in the male:female ratio of reported cases from 4.5:1 to 2.3:1 between 1985 and 1988.²⁸ Intravenous drug abuse and heterosexual contact with drug users seem major factors in this evolution.

The Latin American continent shows large variations in epidemiological patterns between different regions. Homosexual transmission is still an important factor in much of the area,²⁹ but from the beginning of the epidemic bisexual men accounted for a large proportion of AIDS cases, as did intravenous drug users in some countries. Heterosexual transmission appears to be increasingly occurring.

In sub-Saharan Africa, heterosexual transmission constitutes the most important way of transmission²⁹ with a male-female ratio of 1:1 in most countries.³⁰ Seroprevalence data show that women are infected at a younger age than men, and they show also a peak at the age of less than 1 year, reflecting a dramatic impact of the epidemic on the health of infants by vertical transmission. Transfusion with contaminated blood constitutes an important mode of infection because blood dona-

tions are still not screened for HIV infection in many instances. A second AIDS virus, HIV-2, was first reported from Senegal in 1985. It was later detected in other countries of West and Central Africa.²⁹ By now it has also been described in Brazil.³¹ It is the predominant HIV virus in West Africa. Though it can clearly cause AIDS, there is some controversy as to its pathogenicity as compared with HIV-1 infection.²⁹

AIDS is mainly an urban disease in developing countries, which might have been promoted by the demographic changes as described in the introduction of this article. There is increasing evidence that STDs are a risk factor for the sexual transmission of HIV. This is most obvious for GUD, particularly chancroid,²⁴ but chlamydial infections²⁴ and trichomoniasis³² may be implicated as well.

CONCLUSION

STDs are a major health problem in Africa and Latin America, although they are only recently being recognized as such by public health officials. Special control programs integrated in the existing health structures should be urgently developed in conjunction with the emerging AIDS control programs.

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