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Epidemiology of Sexually Transmitted Diseases and Infections

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SUMMARY Sexually transmitted diseases and infections (STDIs) are known to have a major socioeconomic and biologic impact, particularly on women (e.g., sterility, ectopic pregnancies, neoplasms, etc.) and fetus (intrauterine and perinatal mortality, infection, malformations). Sex workers do not use health services appropriately and are a high-risk category. Despite this evidence, data on prostitution and STDIs in some countries are limited. Sexual health medicine is involved in the community by identifying and minimizing the STDI problems through laboratory screening, diagnostic testing, education, and research.

KEY WORDS: sexually transmitted diseases and infections, epidemiology, non-communicable diseases, health services

INTRODUCTION

The knowledge of irresponsible sex behavior and sexually transmitted diseases and infections (STDIs) in the risk population (particularly in street workers) is important for fostering appropriate health services in the risk category. Sexually transmitted diseases (STDs) are known to have a major socioeconomic and biologic impact, particularly on women (e.g., sterility, ectopic pregnancies, neoplasms, etc.) and fetus (intrauterine and perinatal mortality, infection, malformations). Healthy sexual relations, including freedom from STDs is the area of sexual health medicine. Sex workers do not use health services appropriately and are a high-risk category. Despite this evidence, data on prostitution and STDs in some countries are limited. The treatment of individuals and the contact tracing and treatment of their partners is an essential part of the role of the venereologist (sexual health physician).

EPIDEMIOLOGY, SOCIOLOGY, NON-COMMUNICABLE DISEASES

In a survey of sex workers carried out from January 2001 till January 2004 by use of a questionnaire in the area of Padua (north-east Italy), 135 sex workers were approached (aged between

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17 and 27 years; 50 girls had come from Eastern Europe (Albania, Romania, ex-Yugoslav states, Russia), 38 from Africa (Nigeria, Ghana) and 10 from the Caribbean). Most sex workers (85%) did not use a condom with nonpaying partners (boyfriends, fiancés, and pimps) (1). As for specific knowledge of the various STDs, AIDS was known to 93% of the sex workers, syphilis to 56%, gonorrhea to 23%, genital herpes to 29%, scabies to 24%, viral hepatitis B to 16%, nongonococcal urethritis/vaginitis (chlamydial infections) to 8%, and condylomas (HPV infections) to 6% of the responding persons (1).

Due to worldwide information campaigns, almost all sex workers were aware of AIDS but, despite their relatively satisfactory educational level, they knew very little of other STDs and were almost completely ignorant of STD sequels like viral hepatitis, urethritis, nongonococcal vaginitis, chlamydial infections or HPV infections (condylomas).

With a rising incidence of sexually transmitted infections (STIs) across Europe, it is appropriate to look at different arrangements for the future. The developing plans in the United Kingdom (UK) are described with its national sexual health strategy, targets to be met, and plans for greater use of nurses and primary care and possible future developments using the internet. In some countries like the UK, special hospitals have been established for those with venereal diseases, i.e. Lock Hospitals (2). Specialist care in Europe for STIs is provided by dermatovenereologists but most patients consult primary care providers in the first instance. Care may be guided by national management guidelines in some countries and recent European management guidelines may be of assistance too (2).

Services in western Europe are, therefore, provided by individual doctors on the whole rather than by clinics or institutions. In eastern Europe, while the private sector may be slowly expanding, most services are sited in the state sector in dermatovenereological clinics or polyclinics.

There are differences in collecting epidemiological data between western and eastern Europe. In the UK and Scandinavia it is very accurate. In countries in the West where general practitioners look after much of STDs it is not so accurate. In eastern Europe it is usually reliable. In North America the bulk of service provision is by primary care physicians nowadays. The United States of America (USA) had a superb nationwide clinic service before the Second World War. Nowadays, a number of public clinics serve urban centers, often run by public health doctors or infectious disease physicians, urologists, gynecologists or venereologists but with a bulk of the service being provided by nurses working to protocol. The US Public Health Service has developed the first management guidelines to guide family doctors (2).

Family doctors have had a relatively minor role in the care of STIs but this is due to change. It has always been mandatory for clinics to collect epidemiological data. Thus, cases of all STIs are counted, including HIV diagnoses and reported to the Centre for Disease Surveillance and Control (CDSC), part of the Public Health Laboratory Service, which is an arm of the Department of Health. There is a rising incidence of all STIs in the UK (2). This is true across the whole of Europe and, with the established link between the presence of STIs and the enhanced transmission of HIV infection, there is considerable concern, particularly in eastern Europe.

It is important to recognize who are the principal groups at risk of STIs: young, sex workers, gay men/lesbians and disadvantaged groups such as ethnic minorities, asylum seekers and prisoners.

There are four initial targets established in the Sexual Health Strategy for England and Wales. They are as follows: a 25% reduction in gonococcal infections by 2007; an uptake of 80% on offers of HIV testing for new attendees at clinics by 2005; a 25% reduction of newly acquired HIV infections by 2007; the expected uptake of the full 3 doses of hepatitis B vaccine in homosexual/bisexual men, not naturally immune or previously immunized (2).

The worldwide epidemic of HIV continues to expand in many regions of the world, particularly in southern Africa, south and south-east Asia, east Asia and eastern Europe and central Asia. Estimates are that at the end of 2005 there were 38.6 million persons living with HIV infection and that 4.1 million new infections and 2.8 million deaths from HIV occurred during the year (3). Worldwide, societal shifts and behavioral patterns exacerbated by unique developmental vulnerabilities create a confluence of factors that place today's adolescents at heightened risks of poor health outcomes. Sex education programs should offer accurate, comprehensive information while building skills for negotiating sexual behaviors (4). Girls and boys need access to youth development programs with supportive adults and with educational opportunities. In 2002, MTV launched a global

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multicomponent HIV prevention campaign, "Staying Alive", reaching over 166 countries worldwide. An evaluation of this campaign focused on three diverse sites: Kathmandu, Nepal; Sao Paolo, Brazil; and Dakar, Senegal (5).

There was a consistent positive effect of exposure on interpersonal communication across all sites, although there were differences among sites with regard to whom the respondent talked about HIV (5). The Joint United Nations Programme on HIV/AIDS 2004 epidemic report indicated that nearly 50% of infected people worldwide were women, up from 35% in 1985 (6). The preventive strategies are focused on gender relatives, economics, and migration (GEM) (6). Genital herpes simplex virus type 2 (HSV2) is highly prevalent worldwide and an increasingly important cause of genital ulcer disease (GUD). Continued HSV2 transmission is facilitated by the large number of undiagnosed cases, the frequency of atypical disease and the occurrence of asymptomatic shedding (7). A safe and effective HSV vaccine is urgently needed. Out of 25 organisms known to be transmitted sexually, travelers are at a greater risk of acquiring HIV and other STDs in developing countries in view of the high prevalence rates in these countries, particularly after sexual exposure to local commercial sex workers (CSWs). HIV, gonorrhea, syphilis, non-specific urethritis, hepatitis B, hepatitis C, and other STDs are a significant risk for travelers who engage in unprotected sex, especially with overseas CSWs (8). The successes of the United States and other developed countries in the prevention and treatment of pediatric HIV/AIDS have not been replicated in the developing world, where children continue to become infected with HIV and die from HIV/AIDS at astounding rates (9). Establishment of the Clinical Centers of Excellence Network and Pediatric AIDS Corps of US pediatric health professionals has been proposed by Kline (9). Syphilis and HIV infection share behavioral and epidemiologic patterns. The epidemic of early syphilis is associated with acquisition and transmission of HIV in developed countries, mainly in man who have sex with men (MSM) (10). These patients are also at risk of gonorrhea, *Chlamydia* infection and L2 *Chlamydia* proctitis.

Chlamydia trachomatis is the leading cause of bacterial STDs worldwide. A population-based cross-sectional study of 344 men and women with urogenital chlamydial infections (excluding co-pathogen infections) presenting to clinics serving five US cities from 1995 to 1997 was designed by Millman *et al*. (2006) (11). One hundred and fifty-three (44.5%) of 344 patients had symptoms consistent with urogenital chlamydial infection (11). Future studies might utilize multilocus genomic typing to identify chlamydial strains associated with clinical phenotypes because of polymorphism of chlamydial infections. Gonorrhea is the second most often reported STD in the United States following *Chlamydia*. It is estimated that 600,000 people are infected in the USA *per* year (12). From 1975 through 1997, the national gonorrhea rate declined by 74.3%. In 2003, the Gonococcal Isolate Surveillance Project found about 16% of collected isolates to be resistant to penicillin and/or tetracycline. Since 1998, the number of ciprofloxacin-resistant isolates has been increasing, 270 (4.1%) being reported in 2003 (12). Based on comparisons with international best practice, recommendations are included for improvement in adolescent sexual and reproductive health within the Australian context (13). Australia's high rates of teenage pregnancy and increasing rates of STIs in young people reflect on the public health agenda (13). Major increases in HIV-1 prevalence in India have been predicted (1.7% to 1.1 % in 2000-2004). This fall (from 1.7% in 2000 to 1.1% in 2004) is probably due to the rising condom use by men and female sex workers in South India and education programs for sex workers to control HIV-1 in India (14). The Cape Town Equity Gange Project since 1994 is presented as an example of response to the challenge of inequity and approach to improving health resources (15). In addition to technically efficient interventions (initiative and communication), implementation of pro-eguity policies requires involvement of affected communities (15). Public health programs for HIV infected at-risk populations can operate effectively in Emergency Departments (EDs). The ED notified 77.3% of individuals testing positive in Cincinnati (USA) and referred them to infectious disease specialists. EDs should have a rapidly expanding role in the national public health system (16).

Sexual health medicine is very important nowadays. As Waugh says: "Sexual health medicine is a specialized area of medical practice concerned with healthy sexual relations, including freedom from sexually transmitted infections, unplanned pregnancy, coercion on physical or psychological discomfort associated with sexuality"(17).

CONCLUSION

With the rising incidence of STDIs, the present arrangements are not adequate. At the dawn of

the third millennium, non-communicable diseases are sweeping the entire globe. It is predicted that, by 2020, non-communicable diseases will cause seven out of every ten deaths in developing countries (18). Thus, understanding the sexual behavior of human beings and appropriate prevention is the main goal of Public Health Services. The public health challenge worldwide is to keep uninfected and to treat and care the infected.

This is a global view of the main diseases and their impact on populations living in low as well as good income nations. Preventative strategies must take into account the growing trend of risk factors related to STDIs.

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