Syphilis and Human Immunodeficiency Virus

Prevention and Politics

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In the first half of the 20th century, syphilis was an important public health problem in the United States. With the advent of penicillin and the end of the Second World War, the incidence of syphilis declined. Nonetheless, epidemics sprouted about every 10 years. In the mid-1980s, one such epidemic involved men who had sex with men, and with the adoption of safe sex practices as a consequence of the growing human immunodeficiency virus (HIV) epidemic, the number of cases declined. In the early 1990s, a new epidemic struck heterosexuals (and their newborns), primarily those who traded sex for crack cocaine. Nonetheless, by the late 1990s, the number of cases of syphilis in the United States was so low and the cases were so geographically restricted that the Centers for Disease Control and Prevention (Atlanta, Ga) launched a syphilis elimination program. Because syphilis disproportionately affected African American individuals living in poverty in the southeastern United States and in major urban areas, the program primarily focused on this risk group with the goal of decreasing “one of this Nation’s most glaring racial disparities in health.”

However, in the face of this success, we have seen a resurgence of syphilis in men who have sex with men, most of whom are also infected with HIV. After a decade of decline, the rates of infectious syphilis in the United States have increased in each of the last 3 years, raising the specter of increased HIV rates. This new syphilis epidemic has been difficult to contain, and efforts to do so have resulted in political controversy. For example, the “Healthy Penis” campaign launched by the San Francisco Department of Health (San Francisco, Calif) was labeled an abomination and obscene by conservative groups and objectionable by the Los Angeles County Department of Health Services (Los Angeles, Calif), despite objective evidence of its effectiveness.

Syphilis and HIV share common risk factors. Both are sexually transmitted diseases. Additionally, syphilis increases the risk of HIV acquisition and transmission. Patients with HIV are at increased risk for neurosyphilis. One study estimated that in 1996, more than 1000 heterosexually acquired cases of HIV in the United States were due to syphilis. About 12 million new syphilis infections occur worldwide every year, most in South and Southeast Asia, sub-Saharan Africa, Latin America, and the Caribbean. It is currently estimated that worldwide, approximately 40 million people are infected with HIV, most of whom are in sub-Saharan Africa. In 2003 alone, 5 million people were infected. However, the fastest growing epidemic is in Eastern Europe and Central Asia.

Syphilis and HIV both have neurological complications that occur throughout the body. These complications can affect the central nervous system, leading to meningitis, encephalitis, and neurosyphilis. Neurosyphilis is a serious and potentially fatal condition that can cause permanent damage to the brain and spinal cord. Early detection and treatment are crucial to prevent these complications.

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the course of disease. These complications are important in clinical neurology. For example, we recently showed that 50 (21%) of 233 HIV-infected patients with early and late syphilis had cerebrospinal fluid abnormalities consistent with neurosyphilis. Of these 50, 20 (40%) had symptomatic meningitis and 7 (14%) had symptomatic ocular disease. Similarly, although the incidence of HIV-associated dementia, Toxoplasma gondii encephalitis, and cryptococcal meningitis have declined since potent antiretroviral agents became available, these diseases are still seen in HIV-infected individuals who do not receive such treatment. Distal sensory neuropathy occurs in about 30% of HIV-infected individuals with advanced disease (peripheral blood CD4+ T-cell count lower than 200/µL), and its incidence is not as clearly affected by antiretroviral therapy.

The neurological complications of HIV and syphilis are far easier to prevent than cure. And, of course, prevention is the key to controlling the epidemics of both diseases. Neurologists may not be accustomed to thinking about sexually transmitted disease prevention, and the topic may make us uncomfortable. While prevention of mother-to-child transmission of HIV is a concept everyone supports, philosophical and moral objections may arise when specific programs are proposed such as needle exchange facilities for injection drug users or promoting condom use for men who have sex with men or for commercial sex workers. Nonetheless, an objective, research-driven approach is essential to guide prevention efforts. Moreover, to be successful, these efforts must not be driven solely by political or religious ideology.

In her excellent recent editorial, Helene Gayle outlines the elements of an effective HIV-prevention plan.

The centerpiece is voluntary counseling and testing to identify those infected and those at risk but not yet infected. She notes that availability of antiretrovirals promotes voluntary counseling and testing because it provides an incentive for testing and decreases stigma by changing the perception of HIV from that of a uniformly fatal disease to one that can be managed. Additional elements of HIV prevention include targeted behavioral interventions, such as promotion of condom use; treatment of other sexually transmitted diseases, such as syphilis, that facilitate transmission and acquisition of HIV; and drug treatment and needle exchange programs, as well as vaccines, microbicides, and prophylactic antiretrovirals.

There are several ambitious plans to provide treatment to HIV-infected individuals in low- and middle-income countries. The World Health Organization/UNAIDS “3 by 5” plan aims to provide antiretrovirals to 3 million people by 2005. President Bush announced the US Plan for Emergency AIDS Relief in his 2003 State of the Union address. In May 2003, legislation implementing the president’s plan, called the US Leadership Against HIV/AIDS, Tuberculosis, and Malaria Act of 2003, was adopted. The act, which will provide antiretrovirals for 2 million people, also earmarks 20% of its funds for HIV prevention using an “ABC” (Abstinence or Be faithful to one partner or, if these are not options for you, use Condoms) approach, which was successful in Uganda. For fiscal year 2006-2008, at least one third of the act’s prevention dollars are earmarked for programs that advocate only “abstinence until marriage.”

Some, including several African leaders, have criticized the act’s emphasis on abstinence because of concerns that it further stigmatizes HIV infection by implying that it is due to a moral failure and because it may not be an effective means of HIV prevention. Are there data to show that programs that advocate only abstinence decrease HIV incidence? A meta-analysis suggested that “abstinence education” actually increased the likelihood of pregnancy in teenagers. In 5 studies, the risk of pregnancy in the abstinence-educated young women was 1.46 times greater than the control group and 1.49 times greater. A randomized controlled trial in 659 African American adolescents compared 2 counseling interventions intended to change sexual behavior: 1 advocating abstinence and the other advocating safer sex by condom use. Controls were counseled about health un-
studies that dealt with human sexuality. The Traditionally, Congress directed NIH to defend 190 funded sure was defeated by only 2 votes (212 to 210). Subse- quently, the safer sex group reported more condom use at 3, 6, and 12 months. Perhaps not unexpectedly, abstinence was most effective for those who were sexually active before study entry. In other words, the efficacy of the interventions was different in different groups. Finally, analysis of the Uganda ABC experience suggests that the “be faithful” message, not the abstinence message, was the most effective aspect of the program.10 These data suggest that politics and ideology, and not science, may be driving the insistence on abstinence-only prevention mandated by the act. This lack of attention to the science may jeopardize the efficacy of US HIV-prevention efforts.

There is also evidence that political and religious ide- ology may threaten prevention research in the United States. During the vote on the National Institutes of Health (NIH) (Bethesda, Md) appropriation bill in 2003, Representa- tives Patrick Toomey (R, Pa) and Chris Chocola (R, Ind) proposed an amendment to defund 5 peer-reviewed, approved NIH grants. Four of these grants had sexual themes as determined by their “key words,” such as “abortion,” “condom effectiveness,” “commercial sex workers,” and “men who have sex with men.” The measure was defeated by only 2 votes (212 to 210). Subse- quently, Congress directed NIH to defend 190 funded studies that dealt with human sexuality. The Tradi-

tional Values Coalition, which describes itself as the largest church lobby in the United States, compiled the list of studies to be defended.

These events are likely to have a chilling effect on scientific research. Some investigators have been advised by NIH project officers to avoid words in their grant abstracts that might attract “unfavorable attention.” My own institution suggested that we “avoid sensationalism” in the titles of our grant applications. Thirty-six scientific organizations have issued statements in favor of the NIH review system. For example, the American Association of Medical Colleges press release on October 29, 2003,11 stated:

The Association deplores all efforts to subject the NIH re- search portfolio and individual research grants to ideological litmus tests. The American public must demand that the most scientifically rigorous and relevant research addressing vital public health concerns be funded without regard to the sectarian or ideological views of political parties or other special interest groups—regardless of where they reside on the ideological spectrum.

The NIH subsequently conducted a comprehensive review of supported human sexuality research focusing on those grants that were singled out by members of Congress for special scrutiny. These grants all had undergone peer review. Elias A. Zerhouni, NIH di- rector, responded to Congress in writing on January 26, 2004, supporting the relevance and appropriateness of all of the questioned studies.
It is only through rigorous scientific research that we will ultimately be able to prevent syphilis and HIV. And this research will have to be broad enough to identify effective strategies in all risk groups, even those that make us uncomfortable. Strategies that are not scientifically justified but that are devised to appeal to (or avoid offending) political and religious groups will not prevent syphilis or HIV or any of the other myriad human afflictions that can ultimately be linked to unhealthy behaviors.

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REFERENCES