

Sero Survey of Human Immunodeficiency Virus Infection in Women at a Family Planning Clinic: Absence of Infection in an Indigent Population in San Francisco

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Abstract: To determine the seroprevalence of human immunodeficiency virus (HIV) in contracepting women, 1,308 consecutive attendees at an inner-city family planning clinic completed a risk factor questionnaire and were then asked to have an HIV test. None of the 1,000 women tested was seropositive. Preventive efforts in family planning clinics are likely to be productive because few contraceptors, including those with risk factors, are already infected. The factors which determine differences in HIV positivity between childbearing and contracepting women, who are similar in demographic and HIV risk characteristics, warrant further investigation. (*Am J Public Health* 1989; 79:883-885.)

Introduction

Concern is expressed¹⁻³ over the possibility that the human immunodeficiency virus (HIV) will rapidly become more prevalent in women who can then pass it to their sexual partners⁴⁻⁶ and babies.⁷⁻¹¹ Rates of HIV positivity in childbearing women range from less than one per 1,000 in suburban and rural populations¹² to as high as two per 100 at inner-city municipal hospitals.¹³ Such determinations of HIV infection in women have generally relied on cord blood or heel stick surveys. Few investigations have screened actively contracepting women and avoided, or accounted for, possible selection bias. None have systematically assessed the prevalence of risk factors in such a population. Since 55 percent of US women aged 15 to 44 are active contraceptors,¹⁵ a family planning clinic population may more accurately reflect the HIV status of women of childbearing age than do other populations. This seroprevalence study assessed the level of HIV infection in relation to risk factors for this infection at a family planning clinic serving the indigent women of a city where HIV infection is endemic in homosexual males.

Methods

The study was conducted from November 1987 to April 1988 in an urban hospital-based family planning clinic. In

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1987, 93 percent of the clinic's 3,116 active patients lived in households with incomes beneath the "poverty level"; 12 percent used condoms with or without spermicidal foam, 20 percent used diaphragms and other barrier methods, 65 percent used oral contraceptive pills, and 3 percent used IUDs (data available on request to authors). As part of routine evaluation, all women attending the clinic completed a confidential, self-administered questionnaire, had blood drawn by lab personnel, and were then seen by a clinician. The questionnaire was designed to elicit a history of intravenous (IV) drug use, blood transfusions between 1979 and 1985, artificial insemination between 1979 and 1985, sexual practices including sexual contact with persons diagnosed with AIDS (acquired immunodeficiency syndrome), ARC (AIDS-Related Complex), or hemophilia, sexual contact with IV drug users, sexual contact with bisexual men, and sexual contact with more than five partners in any one year since 1979. Clinicians reviewed the women's responses with them and provided information on HIV infection, prevention, and implications of antibody testing. The women were then asked to permit an HIV test of their blood. The study was approved by the Committee on Human Research of the University of California, San Francisco.

If women consented to an HIV test, an anonymous number coding system permitted them to obtain test results. Blood tests were performed only for women who consented, but demographic and risk factor information was collected for both the women who agreed to testing (participants) as well as those who did not (nonparticipants). Blood specimens were collected aseptically and stored at 4°C pending transport for analysis.

The Viral and Rickettsial Disease Laboratory, Division of Laboratories, California State Department of Health Services analyzed the blood samples using EIA Dupont and Genetic Systems kits. The laboratory analyzed repeat positives with IFA reagents, and if EIA and IFA did not agree, performed Western Blot.

Results

A total of 1,308 women completed questionnaires during the study period, which continued until 1,000 women agreed to participate in the study. There were no significant differences in demographic characteristics of the 1,000 participants and the 308 nonparticipants (Table 1). Participants were more likely to report histories of STDs (sexually transmitted diseases) (Table 1), riskier behavior, and have at least one AIDS risk factor than were nonparticipants (Table 2). Although 14 percent of the participants claimed one or more risk factors, none had HIV antibodies.

TABLE 1—Serosurvey Participants and Nonparticipants by Selected Demographics

Characteristics	Participants (N = 1000)	Nonparticipants (N = 308)
Ethnicity		
% Latino	59.3	56.8
% White	17.3	17.2
% Black	15.3	15.9
% Asian	5.9	6.8
% Other	2.2	3.2
Mean Age (years)	26.3	26.4
Mean Live Births	1.4	1.5
Mean Elected Abortions	0.9	0.8
History of STDs (%)	13.7	6.5

TABLE 2—Number of Risks and Specific Risks Reported by Serosurvey Participants and Nonparticipants

	Participants (N = 1000)		Nonparticipants (N = 308)	
	N	%	N	%
Number of Risk Factors				
One Risk Factor	101	10.1	15	4.9
Two Risk Factors	30	3.0	3	1.0
Three Risk Factors	7	0.7	0	0.0
At Least One Risk Factor	138	13.8	18	5.8
No Risk Factors	830	83.0	279	90.6
Some Not Reported; all others negative	32	3.2	11	3.6
Risk Factors				
IV Drug Use by Self or Partner	26	2.6	0	0.0
5 or More Partners/Year	72	7.2	7	2.3
Partner with AIDS or ARC	1	0.1	0	0.0
Blood Transfusion, 1979-85	19	1.9	3	1.0
Bisexual Partner	11	1.1	0	0.0
Partner Possibly Bisexual	53	5.3	11	3.6

Caucasians and Black women had much higher incidence of risks than did Latinos and Asians (30.1 percent and 20.3 percent versus 7.9 percent and 6.8 percent, respectively) (Table 3). Caucasians were the most likely and Latinos least likely to report multiple AIDS risk factors. A total of 237 women (24 percent) chose to return for their results. This choice was positively correlated with the level of risk: those with greater numbers of risks, those with self or partner IV drug use, and those who had received blood transfusions were the most likely to return for the HIV test results.

Discussion

There are several possible explanations of the absence of

seropositives in our study population: We surveyed a low-risk population; seropositivity is uncommon among San Francisco women in general, including those who report risk factors; or women attending family planning clinics may behave in ways which place them at lower risk than their counterparts in the childbearing population.

Overall, fewer women reported risk factors in this study than in other studies. The fact that the present questionnaire was self-administered may have further increased the chance that some risks were not reported, due to confusion, oversight, or embarrassment. However, other sero surveys have suggested that self-reported risk factors are unreliable predictors of HIV positivity,^{3,11,13} so this risk assessment of San Francisco women may not represent their actual risk. Because 85 percent of the women attending this clinic used contraceptive methods not known to protect against HIV infection (pills, IUD, or diaphragms), the use of contraception by itself seems an unlikely explanation of lower risk. Only the history of intravenous drug use was a significant predictor in Quinn, *et al's*,³ multivariate regression analysis of risk factors. The fact that most IV drug users do not use traditional family planning services means that we did not survey many of the women who are at the greatest risk.

These observations suggest that HIV seropositivity is uncommon in San Francisco family planning clinics, and thus universal HIV screening in these clinics is unwarranted. Instead, these are ideal places for educational efforts to reduce heterosexual transmission of the virus. These results also suggest that further examination of the behavior characteristics which differentiate women who attend family planning clinics from those in the childbearing population might help identify patterns of behavior which place women at lower risk of heterosexual HIV transmission. Because previous studies^{3,12,13} were conducted in East Coast cities only, studies of other West Coast cities are needed to determine if HIV infection differs between contraceptors and the remaining female population of childbearing age. In addition, innovative outreach programs are urgently needed to educate those women who use, or whose partners use, IV drugs of the risks of HIV infection to themselves and their fetuses, and to provide contraception to such women.

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TABLE 3—Risk Factors of HIV Infection by Ethnic Group

Risk Factors	Latino (N = 593) %	White (N = 173) %	Black (N = 153) %	Asian (N = 59) %	Other (N = 22) %	Total (N = 1000) %
IV Drug Use by Self or Partner	0.7	8.7	3.9	1.7	0.0	2.6
5 or More Partners/Year	2.9	19.1	12.4	3.4	4.5	7.2
Partner with AIDS or ARC	0.2	0.0	0.0	0.0	0.0	0.1
Blood Transfusion, 1979-85	1.9	3.5	0.0	3.4	0.0	1.9
Bisexual Partner	0.5	3.5	1.3	0.0	0.0	1.1
Partner Possibly Bisexual	3.5	9.8	7.2	1.7	13.6	5.3
At Least One Risk Factor	7.9	30.1	20.3	6.8	18.2	13.8
Two Risk Factors	1.3	8.7	3.3	3.4	0.0	3.0
Three or More Risks	0.2	2.9	0.7	0.0	0.0	0.7

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Stress Reduction Training Changed Number of Sexual Partners but Not Immune Function in Men with HIV

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Abstract: We tested the impact of stress management training on sexual behavior and immune functioning in 64 gay men infected with human immunodeficiency virus (HIV). Subjects randomized to the stress management group met for eight two-hour sessions and one all day retreat to learn systematic relaxation, health behavior change, and stress management skills. Compared to those randomized to a wait list control, treatment subjects reported significantly fewer sexual partners in the prior month at post-test (1.10 vs 2.29 for controls). There were no differences between groups in lymphocyte numbers and function. (*Am J Public Health* 1989; 79:885-887).

Introduction

Significant associations between stressors, decrements in immunological function and clinical disease have been reported.^{1,2} Relaxation techniques,³ humorous film stimuli,⁴ and operant conditioning procedures⁵ may contribute to immunoenhancement. Levy and Ziegler⁶ proposed that HIV (human immunodeficiency virus) infection is an opportunistic disease, progressing to clinical AIDS (acquired immunodeficiency syndrome) only in those who are immunocompromised by other factors. To date, several co-factors for disease progression have been identified, including time of infection, age, incidence of gonorrhea, and use of hallucinogens.⁷⁻⁹ Antigen exposure, drugs and alcohol use, nutrition, and health habits as well as psychosocial stress are also posited cofactors.² Tension reduction has been related to levels of

sexual activity which may transmit HIV.¹⁰ This study was designed to test experimentally the hypothesis that group stress reduction training will lead to improvements in immune function and reductions in unsafe sex.

Methods

One hundred twenty men responded to a brief article placed in a local San Francisco gay newspaper asking for volunteers. Subjects were selected who: were seropositive for HIV; had not experienced oral candidiasis, hairy leukoplakia, recurrent herpes infection, or herpes zoster; and who were not already practicing meditation regularly. A total of 64 men (mean age = 34.9 years) who met the criteria completed baseline questionnaires and venipuncture. Subjects were then randomized into treatment or control groups. All subjects signed a statement of informed consent approved by the Human Subjects Review Committee of the University of California-San Francisco. Immediately following the termination of each treatment, all experimental and control subjects were re-assessed on the behavioral and immunological measures. Immunological assays included enumeration of lymphocytes and subsets.¹¹ In addition, we completed a number of functional measures of immunity. These included: Natural killer cell function,¹² lymphocyte response to Concanavalin A (ConA) and Candida antigen¹³ and to cytomegalovirus (CMV),¹⁴ and serum Immunoglobulin A (IgA).¹⁵ Laboratory staff were blinded as to subject name and assignment.

Stress reduction training was completed in two-hour sessions once per week for eight weeks, with one all day retreat after week 4. The goals of the sessions were:

- learning systematic relaxation—through use of group time and take-home tapes, to attain some systematic relaxation for each individual every day;
- health habit change—including execution of behavioral contracts around diet, rest, exercise, drug and alcohol use, and smoking;

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