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Sexual Behaviors and Results of Bacterial Sexually Transmitted Infections Testing Among Frail HIV-Infected Individuals

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Abstract

Background—The impact of premature frailty in HIV-infected individuals on the prevalence of sexual behaviors and sexually transmitted infections (STIs) is unknown.

Methods—We compared these factors among individuals aged ≥ 18 years, who had prior determination of a frailty phenotype at the Washington University HIV Clinic between June and December 2008. All P values were 2-tailed and considered significant at <.05.

Results—Of 445 individuals (71% male, 30% Caucasian, median age 43 years) assessed, the prevalence of frailty was 9%. Reports of recent sexual activity (44%) did not differ by frailty status. Consistent condom use (69% overall) was similar between sexually active frail and nonfrail individuals, and there was no significant difference in STI prevalence between groups (0 vs 32 [9%], P = .08).

Conclusion—In this relatively young population, frailty did not affect reports of recent sexual activity or consistent condom use and no significant difference in STI prevalence was observed.

Keywords

HIV; frailty; sexual behaviors; sexually transmitted infections

Background

The manifestation of frailty among HIV-infected individuals is increasingly recognized.^{1–3} Frailty, a geriatric syndrome, which is characterized by weight loss, exhaustion, low physical activity, weakness, and slowing⁴ is associated with markers of advanced immunodeficiency, increased comorbidity, and depression among HIV-infected individuals and has been associated with a number of adverse socioeconomic and clinical outcomes.^{1–3} Frail HIV-infected individuals have a worse prognosis after initiation of highly active antiretroviral therapy (HAART),⁵ increased rates of hospitalization, and longer duration of inpatient stay than nonfrail counterparts.³ Persistent higher risk sexual behaviors have been reported in HIV-infected individuals in general^{6,7} regardless of age,^{8–11} and higher risk sexual behaviors are more likely to occur in those with less advanced immunodeficiency.^{12–14} The impact of frailty on the sexual behaviors and acquisition of sexually transmitted infections (STIs) among frail individuals is unknown. Although frailty may lead to lower rates of sexual activity, it may also conversely result in risky sex practices due to lack of power to negotiate safer sex.^{8,15,16} We hypothesize that frail HIV-infected individuals are

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less sexually active but have higher risk behaviors than nonfrail individuals and a higher prevalence of STIs. This study aimed to evaluate differences in sexual behaviors and prevalence of STIs between frail and nonfrail HIV-infected individuals in our clinic population.

Methods

Collected Data

This was a cross-sectional study of individuals aged 18 years, who presented for HIV-related medical care at the Washington University HIV Clinic, St. Louis, between June 2008 and December 2008 and completed an annual behavioral assessment, administered by trained interviewers, as previously reported.³ The annual behavioral assessment took approximately 10 to 15 minutes and included sociodemographic factors (race/ethnicity, employment status, annual income), a frailty assessment, a revised version of the risk behavior assessment,¹⁷ which was used to measure units of alcohol consumed during a typical week, illicit drug use within the last week/30 days/12 months/ever, sexual behaviors (current sexual relationship, recent sexual activity, condom use, type of sexual encounter, number of sexual partners), and details on disclosure of HIV status (sex partner, family, friends, others). Results of STI testing, within 1 year of the behavioral assessment, were collected from medical records. A complete STI screen included results of urine DNA amplification for *Neisseria gonorrhoeae* and *Chlamydia trachomatis* and rapid plasma reagin (RPR) in the past year. *Treponema pallidum* antibody testing was performed for confirmation of newly reactive RPRs.

Definitions

If an individual had been previously treated for syphilis, a 4-fold increase in rapid plasma reagin (RPR) defined reexposure. Frailty (herein be referred to as frailty) was defined by the presence of 3 of 5 criteria: (1) unintentional weight loss, (2) self-reported low physical activity, (3) self-reported exhaustion, (4) weak grip strength, and (5) slow walking time.^{3,4} This study was approved by the Washington University School of Medicine Human Research Protection Office.

Statistical Analysis

Comparisons between categorical groups were performed using χ^2 tests. All P values were 2-sided and considered significant at $<.05$. All analyses were performed using Statistical Package for the Social Sciences (SPSS) version 16.0.

Results

Results were available for 445 (81%) of 547 individuals who completed the annual assessment and had criteria available for determination of the frailty phenotype (all 5 criteria present or at least 3 negative or positive criteria, if missing variables). As previously reported, in total, 71% were male, 63% were African American, and 75% were taking HAART, with full viral suppression in 230 (69%) of those individuals. Thirty-nine (9%) individuals were considered frail. The median age was 43 years (48 years in frail and 43 years in nonfrail individuals).³

Table 1 details sexual behavior and STI test results by frailty status. Disclosure of HIV status did not differ with frailty status overall, but frail individuals were more likely to disclose their HIV-positive status to family than nonfrail individuals (90% vs 72%, respectively, $P = .02$). Comparable proportions of frail and nonfrail individuals were in a

current sexual relationship (45% overall), and the majority had only 1 sexual partner (95% overall).

Reports of recent sexual activity, although reduced for frail individuals (33% frail vs 45% nonfrail), were also similar. Among those reporting recent sexual activity (33% frail individuals and 45% nonfrail individuals), frail and nonfrail individuals had comparable types of sexual encounters (51% heterosexual and 49% men who have sex with men (MSM)/bisexual overall). Safer sex practices did not differ by frailty status. Both groups had a comparable rate for STI screening. Overall, 33 new STIs were diagnosed in 32 (7%) individuals during the study period. Syphilis was the most common STI ($n = 17$), followed by chlamydia ($n = 9$) and gonorrhea ($n = 8$). All STIs occurred in nonfrail individuals; however, the difference was not statistically significant ($P = .08$).

Discussion

To our knowledge, this is the first study to describe sexual behaviors and prevalence of STIs in frail HIV-infected individuals. We found comparable reports of recent sexual activity, types of sexual encounters, and numbers of sexual partners regardless of frailty status. Furthermore, inconsistent condom use was similar between both groups. These findings contradict our hypothesis that frail individuals would have lower rates of sexual activity but higher rates of risk behaviors and prevalence of STIs than nonfrail individuals because of more advanced HIV disease, greater comorbidity, more depression, and poorer socioeconomic and clinical outcomes.^{1–3} Although sexual dysfunction is often an early manifestation of physical illness,^{9,18–21} and can also be negatively affected by mental illness,^{20,22} we found similar reports of recent sexual activity regardless of frailty status. Any impact of frailty on sexual activity, therefore, may be negated in these individuals by their relatively young age. Similarly, although mental illness has been associated with a number of higher risk sexual behaviors,²¹ and lower socioeconomic status has been reported as a risk factor for ineffective negotiation of condom use and risk taking to maintain a relationship,^{23–26} we did not find a negative impact of frailty on safer sex practices or STI prevalence. These results underline the complex interplay of a number of clinical, behavioral, and socioeconomic factors on these behaviors. The absence of any STIs among the frail individuals likely reflects their overall small number in this study and the relatively low prevalence of this syndrome in the HIV-infected population. Another explanation would be a lower frequency of sexual encounters. However, we did not collect data on frequency of sexual intercourse, as such data are often limited by recall bias.^{27,28} Further limitations of our study include time constraints and missing data, which restricted our determination of the impact of sexual desire, reasons for higher risk sexual behaviors, and use of erectile motility agents. In summary, the premature occurrence of frailty in HIV-infected individuals does not affect reports of recent sexual activity or higher risk sexual behaviors. Care providers should counsel all patients on secondary prevention measures, regardless of the presence of frailty. Further studies are warranted.

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Table I

Summary of Sociodemographic, Clinical, Laboratory, and Sexual Behavior Characteristics According to Frailty Status

Characteristics	All (n = 445)	Frail (n = 39)	Nonfrail (n =406)	P
Age (years) ^a	43 (33–49)	48 (41–51)	43 (32–49)	.03
Disclosure to someone	417 (93.7%)	39 (100%)	378 (93.1%)	.09
Spouse/sex partner	58.9%	51.3%	59.6%	.31
Family member	73.9%	89.7%	72.4%	.02
Friends	59.3%	61.5%	59.1%	.77
Current sexual relationship	201(45.2%)	18 (46.2%)	183 (45.1%)	.92
One partner (%)	94.5%	97.4%	94.5%	.97
Multiple partners (%)	5.5%	2.6%	5.5%	-
Any recent sexual activity	196 (44.0%)	13 (33.3%)	183 (45.2%)	.15
Type of encounters ^b				.61
Heterosexual	91 (51.1%)	7 (58.3%)	84 (50.6%)	-
MSM	82 (46.1%)	5 (41.7%)	77 (46.4%)	-
Bisexual	5 (2.8%)	0	5(3.0%)	-
Number of sex partners ^a				.53
Heterosexual	1(1–10)	1 (1–3)	1(1–10)	-
MSM	1 (1–11)	1 (1–6)	1 (1–11)	-
Bisexual	2 (2–5)	0	2 (2–5)	-
Condom used last anal or vaginal sex ^c	163 (83.6%)	11 (84.6%)	152(83.6%)	.92
Consistent condom use ^d	129 (69.4%)	9 (69.2%)	120 (69.3%)	.99
Complete STI screen	371(83.4%)	31 (79.5%)	340 (83.7%)	.50
Positive result ^e	32 (8.2%)	0	32 (8.9%)	.08

Abbreviations: MSM = men who have sex with men; STI = sexually transmitted infections.

^aMedian (range).

^bn = 178 answered.

^cn = 195.

^dn = 186 answered.

^en = 389 results available.