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Is Patient-Reported Exposure a Reliable Indicator for Anogenital Gonorrhea and Chlamydia Screening in Young Black Men who Have Sex with Men (YBMSM)?

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Abstract

Among 485 young Black MSM recruited in Jackson, MS, 90-day anal sexual exposure significantly predicted rectal infection, but 19.4% of rectal infections would have been missed among men denying receptive anal sex. Reports of consistent condom use were associated with lower infection rates only in men reporting insertive anal sex.

Keywords

gonorrhea; chlamydia; MSM; African American

Introduction

In the United States, men who have sex with men (MSM) have the highest incidence and prevalence of HIV, accounting for 67% of all newly diagnosed cases in 2014.¹ Young Black

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MSM (YBMSM), ages 13–29, account for 74% of all new HIV infections among black MSM and 51% of all new HIV infections among young MSM overall.¹

Black MSM do not report higher levels of condomless sexual risk behavior than their non-black counterparts; however, they have a higher prevalence of HIV and sexually transmitted infections (STIs).² Rectal infections with gonorrhea (NG) and/or Chlamydia (CT) magnify HIV acquisition and transmission risk.^{3,4,5} Thus, an important clinical approach to HIV prevention involves the timely diagnosis and treatment of these infections, particularly among YBMSM.

The Centers for Disease Control and Prevention (CDC) acknowledges that STI screening in MSM is suboptimal in part due to a large focus on diagnosing urethral infections, which are far more likely to be symptomatic than pharyngeal or rectal infections.⁶ Current recommendations advocate screening MSM at all sites at which they report exposure in the past year.⁷ Although these guidelines establish a standard of care for MSM, they rely heavily on the accuracy of patient-reported behavior to assess the need for extragenital testing, which raises an important question: how predictive in the identification of asymptomatic rectal or urethral infections is patient-reported exposure? To the best of our knowledge this is the first published study to address this research question among YBMSM. Accordingly, the purpose of this study was to assess the reliability of patient-reported recent (90 days) exposure with respect to the need for rectal and urethral testing.

Materials and Methods

Participants

A convenience sample of 609 YBMSM was recruited for participation in an NIMH-funded randomized controlled trial (RCT) of a safer sex intervention program designed specifically for this population. For the current study, only baseline data with a focus on anal sex were used. Recruitment occurred in a federally supported clinic designated for the diagnosis and treatment of HIV and other STIs. Inclusion criteria included: 1) assigned male at birth; 2) self-identification as Black/African American; 3) aged 15–29 years; 4) attending the clinic to be tested for HIV or other STIs, 5) having engaged in penile-anal sex with a male partner at least once in the past 6 months, and 6) the ability to speak and comprehend English.

Study Procedures

After providing written informed consent (or parental consent and minor assent for those under 18 years of age) men completed an online questionnaire asking about their sexual behaviors in the prior 90 days, using Qualtrics software, in a private office not physically connected to the clinic. During the clinic visit, men were evaluated for CT/NG at both urethral and rectal sites regardless of their reported exposure. Urethral and rectal infections were detected using the Aptima Combo 2 for CT/NG assay (Hologic, San Diego, CA) on urine and a rectal swab, respectively. The Mississippi State Department of Health Public Health Laboratory performed the NAATs. Results for consenting participants were abstracted from the medical records for the day corresponding to the study enrollment visit. All study procedures were approved by the Institutional Review Boards at the University of

Mississippi Medical Center, the Mississippi State Department of Health, and the University of Kentucky.

Data Analysis

Statistical analysis was performed using IBM SPSS Statistics software v22 (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.) Only men who had valid assay results and who responded to the questionnaire items regarding whether (and how often) they engaged in anal sex were included in the analysis ($N = 485$). Chi-square tests compared rectal infection rates between men reporting any receptive anal sex (RAS) versus those denying RAS in the past 90 days. The same comparison was then made relative to patient-reported condomless RAS. Similarly, we compared the urethral prevalence between men based on these same patient-reports.

Results

Characteristics of the Sample

Seven-hundred-eighty-nine men were screened; of these, 623 were eligible (ineligibility was primarily due to not having anal sex with other males). After being offered the opportunity to enroll, 14 declined, yielding an overall participation rate of 97.7%. Participants' mean age was 22.6 years ($SD=3.2$; range=15–29). Current employment was reported by 56.6%. The majority (60.2%) reported having an education beyond high school, and 46.5% reported current enrollment in school. Nearly one-half (45.8%) reported an average monthly household income of less than \$1,000. One-quarter of the men were HIV-infected upon study enrollment. Of the 485 men included in the analyses, 26.89% were positive for chlamydia or gonorrhea infection at either the urethral or rectal site. Urethral infections accounted for 26.7% of chlamydia infections and 23.3% of all gonorrhea infections. Rectal infections accounted for 76.1% of all chlamydia infections and 62.1% of all gonorrhea infections.

Findings

Table 1 displays the prevalence of urethral and rectal infections among men reporting various behaviors. Men reporting RAS were 1.82 (95% CI 1.12–3.03) times more likely than those denying RAS to have rectal infections. Nonetheless, 19.4% of men denying RAS had rectal infections. There was no significant difference between those who reported using condoms for RAS and those who reported condomless RAS. Sixty-five men (27.8%) reporting using condoms during RAS had rectal infections. Further, a significant difference was not found in rates of rectal infection between men denying insertive anal sex (IAS) and those reporting IAS. Nine men (6.7%) denying IAS had urethral infections. Finally, men reporting condomless IAS were 2.33 (95% CI 1.18–4.66) times more likely to have urethral infections than men who reported always using condoms during IAS. Twenty men (8.5%) denying condomless IAS had urethral infections.

Discussion

In this study, we focused on evaluating the reliability of patient-reported exposure (specifically with respect to anal sex) as an indicator for anogenital STI screening. Twenty-eight rectal infections (19.4%) were identified despite lack of reported exposure in the past 90 days and a total of 65 rectal infections (27.8%) were identified among those reporting they always used condoms for anal sex. These findings have implications for clinicians caring for YBMSM given that guidelines recommend testing based on patient-reported exposure.⁸ The findings demonstrate that reliance on patient-reported exposure will lead to a substantial number of missed rectal infections.

Although YBMSM denying RAS in the past 90 days were significantly less likely to have rectal infections, 19.4% of cases in this group would have been missed by following patient-reported behaviors unless these men also had co-infections of the urethra. More importantly, although significant differences were not observed, 27.8% of men denying condomless RAS had rectal infections, suggesting that clinicians should order rectal screening regardless of whether condomless RAS is reported by their patients.

With respect to IAS, findings suggest that YBMSM denying this behavior may be as likely to have urethral infections as those reporting the behavior. If only rectal testing occurred for men denying IAS, 6.7% of cases would have been missed in this sample (again, barring co-infection). It appears that patient-reported condomless IAS may be a strong indicator of the need for urethral testing; however, 8.5% of men denying this behavior nonetheless had a urethral infection. It is possible, however, that these infections resulted from insertive oral sex or vaginal sex.

YBMSM may be uncomfortable reporting their true sexual practices to providers, or they may be unaware of these largely asymptomatic infections and, thus, not motivated to be entirely truthful.^{8,9} Studies have suggested consideration of the patient-physician dynamic, citing social context, confidentiality concerns and differences in cultural background (mentioned by patients) as well as difficulty obtaining a sexual history and time constraints (mentioned by physicians) as potential barriers.^{10,11} Using “easy to understand language” and being direct with questions, establishing rapport, and encouraging behaviors among patients to improve recall have all been suggested as ways to overcome these barriers.¹²

The observed discrepancies in reported behaviors and their respective infections suggests that STI screening based on patient-reported behavior may lead to missed opportunities to diagnose and treat STIs in YBMSM and perhaps other groups. Currently, the natural history of untreated rectal CT/NG infections is unclear as well as whether or not these infections clear spontaneously over time. From a public health perspective, missed infections create higher odds of community and network-based transmission.

This study has at least three limitations. First, it was based on a convenience sample of YBMSM presenting for screening at a public clinic, representing a population that may be at higher risk of chlamydia and gonorrhea. Second, only behaviors occurring in the last 90 days were assessed; thus, we were unable to rule out the possibility that infections may have occurred prior to that recall period. Finally, patient-reported behaviors were collected by a

computer-assisted self-interview rather than sex histories conducted in exam rooms; thus, alignment between patient-reported behaviors and infections may be very different when physicians conduct interviews as part of the examination process.

Although CDC recommends extragenital testing for MSM based on patient-reported exposure, the findings suggest that a substantial number of rectal infections are being missed among YBMSM under these guidelines. Clinicians caring for YBMSM should consider rectal screening in addition to urethral screening for chlamydia and gonorrhea regardless of patient-reported exposure. Because MSM testing positive for rectal infections are also candidates for PrEP use, clinicians can also counsel men with rectal infections regarding their potential use of PrEP while simultaneously emphasizing the need to maintain a regime of consistent and correct condom use during anal sex.

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References

1. Centers for Disease Control and Prevention. HIV Surveillance Report. 2014; 26 Published November 2015.
2. Millett GA, Peterson JL, Flores SA, et al. Comparisons of disparities and risks of HIV infection in black and other men who have sex with men in Canada, UK, and USA: a meta-analysis. *Lancet*. 2012; 380:341–348. [PubMed: 22819656]
3. Craib KJP, Meddings DR, Strathdee SA, et al. Rectal gonorrhea as an independent risk factor for HIV infection in a cohort of homosexual men. *Genitourin Med*. 1995; 71(3):150–4. [PubMed: 7635489]
4. Kim AA, Kent CK, Klausner JD. Risk Factors for Rectal Gonococcal Infection Amidst Resurgence in HIV Transmission. *Sex Transm Dis*. 2003; 30(11):813–7. [PubMed: 14603087]
5. Bernstein KT, Marcus JL, Neri G, Philip SS, Klausner JD. Rectal gonorrhea and chlamydia reinfection is associated with increased risk of HIV Seroconversion. *J Acquir Immune Defic Syndr*. 2010; 53(4):537–43. [PubMed: 19935075]
6. Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance 2013. Atlanta: Department of Human Health Services; 2014.
7. Centers for Disease Control and Prevention. Sexually Transmitted Diseases Treatment Guidelines, 2015. *MMWR Recomm Rep*. 2015; 64(3):1–137.
8. Hoover K, Butler M, Workowski K, et al. STD screening of HIV-infected MSM in HIV clinics. *Sex Transm Dis*. 2010; 37(12):771–6. [PubMed: 20585275]
9. Kent CK, Chaw JK, Wong W, et al. Prevalence of rectal, urethral, and pharyngeal chlamydia and gonorrhea detected in 2 clinical settings among men who have sex with men: San Francisco, California, 2003. *Clin Infect Dis*. 2005; 41(1):67–74. [PubMed: 15937765]
10. Carter J, Hart-Cooper GD, Butler MO, Workowski KA, Hoover KW. Provider barriers prevent recommended sexually transmitted disease screening of HIV-infected men who have sex with men. *Sex Transm Dis*. 2014; 41(2):137–142. [PubMed: 24413496]
11. Schroeder KEE, Carey MP, Venable PA. Methodological challenges in research on sexual behavior: II. Accuracy of Self-Reports *Ann Behav Med*. 2003; 26(2):104–123. [PubMed: 14534028]

12. Weinhardt LS, Forsyth AD, Carey MP, Jaworski BC, Durant LE. Reliability of validity of self-report measures of HIV-related sexual behavior: Progress since 1990 and recommendations for research and practice. *Arch Sex Behav.* 1998; 27(2):155–80. [PubMed: 9562899]

Short Summary

This study of YBMSM in Jackson, MS found that patient-reported receptive anal sex (RAS) significantly predicted rectal infections; however, infection rates were high (19.4%) even among men denying RAS.

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Table 1

CT/NG Infection rates of YBMSM and reported sexual behavior in the past 90 days

Behavior (Past 90 Days)	CT/NG Infection Rates	Prevalence Ratio (95% CI)
	Rectal	
No RAS ¹	28/144 (19.4%)	1.82 (1.12–3.03)
RAS	111/363 (30.6%)	
RAS with condoms use always	65/235 (27.75%)	1.47 (.90–2.38)
RAS with inconsistent condom use	46/128 (35.9%)	
	Urethral	
No IAS ²	9/134 (6.7%)	1.87 (.87–4.48)
IAS	44/371 (11.9%)	
IAS with condoms use always	20/236 (8.5%)	2.33 (1.18–4.66)
IAS with inconsistent condom use	24/135 (17.8%)	

¹receptive anal sex (RAS),²insertive anal sex (IAS)