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High prevalence of *Chlamydia trachomatis* and *Neisseria gonorrhoeae* infections among HIV-1 negative men who have sex with men in coastal Kenya

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ABSTRACT

Objectives To assess the burden of *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG) in high-risk HIV-1 negative men who have sex with men (MSM) in Africa.

Methods Before the start of a pre-exposure prophylaxis trial, HIV-1 negative volunteers were screened for sexually transmitted infection (STI) including CT and NG, using a highly sensitive and specific nucleic acid amplification test. Samples positive for CT by Aptima testing, were evaluated for the presence of lymphogranuloma venereum (LGV) serovars using an in-house PCR assay. All men were asked to submit a urine specimen, and all had a rectal swab collected by a clinician. Men were asked if they had dysuria, urethral or rectal discharge, or rectal pain.

Results 43 HIV-1 negative MSM were screened, of whom 13 reported sex with men only; the majority (27/43) reported sex work. One volunteer had dysuria and another, rectal pain. Eleven MSM (26%, 95% CI 14% to 41%) had infections with either or both pathogens. Homosexual men had a higher prevalence of any infection than bisexual men (46% vs 17%, $p=0.04$), and all cases of rectal infections, including one with CT, two with NG and two with CT/NG co-infection. All patients with CT were negative for LGV. One patient with a rectal NG infection reported rectal pain.

Conclusions A remarkably high burden of STI infection was found among HIV-1 negative MSM. Most (12/13) infections, including three of four rectal NG infections, were subclinical. These findings suggest that high-risk MSM will benefit from effective STI screening in Kenya.

INTRODUCTION

Men who have sex with men (MSM) in Africa are at high risk for HIV-1 infection.¹ Results from HIV-1 testing among MSM in Coastal Kenya showed a 21% seroprevalence, and HIV-1 incidence among MSM sex workers has been estimated at 9.9 per 100 person-years (95% CI 7.2 to 13.6).² Unprotected receptive anal intercourse is common and greatly increases HIV risk in this group,³ but far less is known about the risk of other sexually transmitted infections (STIs) in this population.

METHODS

Before the initiation of a small trial of pre-exposure prophylaxis,⁴ we screened HIV-1 negative volunteers for STIs, including *Chlamydia trachomatis*

(CT) and *Neisseria gonorrhoeae* (NG), using a highly sensitive and specific nucleic acid amplification test (GenProbe Aptima Combo 2 assay, San Diego, USA). Men were recruited from a previously described at-risk cohort, in which volunteers received monthly or quarterly risk reduction counselling and HIV testing, had a medical history and physical examination at each scheduled visit.⁵

All men submitted a urine specimen, and had a rectal swab collected by a clinician.⁵ Men were asked if they had dysuria, urethral or rectal discharge, or rectal pain. Each sample was tested for CT and NG by the Aptima assay.⁶ Samples positive for CT were re-examined for CT by Aptima testing, and evaluated for the presence of lymphogranuloma venereum serovars using an in-house PCR assay.⁷ Routinely, volunteers who reported rectal anal intercourse (RAI) were offered proctoscopy. Syndromic STI treatment was given to symptomatic volunteers.⁸ Data were tabulated by sexual partner preference (ie, sex with men only or with both men and women), and differences tested by the χ^2 test.

RESULTS

Forty-three MSM were screened: 13 of whom reported sex with men only (MSM-only), and 30 of whom had sex with both men and women (MSMW). The median age was 27 years (IQR 22–32). MSM-only reported more transactional sex than MSMW (85% vs 53%, $p=0.05$). None of the 43 men reported urethral or rectal discharge, but one man had dysuria and another had rectal pain. Overall, 11 MSM (26%) had CT, NG, or both (table 1). Six men had an infection of the urethra (five CT, one NG); and five men an infection of the rectum (one CT, two with NG, and two with CT/NG co-infection). One patient with a rectal NG infection reported rectal pain. All CT cases were confirmed and negative for lymphogranuloma venereum. MSM-only had a higher prevalence of any infection than MSMW (46% vs 17%, $p=0.04$), and all rectal infections. Sixteen (78%) of 21 men who reported RAI refused proctoscopy, including two men with rectal CT/NG co-infection and one men with rectal CT. All 11 cases were traced and received appropriate STI treatment.

DISCUSSION

We documented a high burden of anogenital CT and NG infections in a small sample of HIV-1 negative

Table 1 Prevalence of *Chlamydia* and gonorrhoea in HIV-1 negative MSM, by sexual orientation of MSM, Coastal Kenya

Sexual orientation*	<i>Chlamydia trachomatis</i>		<i>Neisseria gonorrhoeae</i>		Patients with <i>Chlamydia trachomatis</i> or <i>Neisseria gonorrhoeae</i> infections	
	Urethra N (%)	Rectum N (%)	Urethra N (%)	Rectum N (%)	Urethra and rectum N (%)	95% CI
All MSM (n=43)	5 (12)	3 (7)	1 (2)	4 (9)	11 (26)	14 to 41
MSM-only (n=13)	—	3 (23)	1 (8)	4 (31)	6 (46)	19 to 75
MSMW (n=30)	5 (17)	—	—	—	5 (17)	6 to 35

*Reported over the past 3 months.

MSM, men who have sex with men; MSM-only, men who have sex with men only; MSMW, men who have sex with both men and women.

Key messages

- ▶ Little is known about the burden of anogenital sexually transmitted infection (STI) in men who have sex with men (MSM) in Africa.
- ▶ Highly sensitive and specific nucleic acid amplification tests will detect asymptomatic STI and should be considered for screening high-risk MSM in Kenya.

MSM. The absence of urethral or rectal discharge and low acceptance of proctoscopy presents challenges for clinical diagnosis of proctitis in Africa.⁹ That almost half of MSM-only in this study had proctitis despite regular HIV testing and counselling is a great concern.

Potential study limitations include pre-exposure prophylaxis trial selection, small sample size, and the possibility that these men may represent a sexual network in which CT and NG were circulating at the time of this study. These results suggest that Kenyan high-risk MSM, particularly those involved in sex work and practising unprotected RAI, would benefit from regular screening for both rectal and urethral infections with a sample collection method they find acceptable. Nucleic acid amplification test testing, however, is expensive and further work is needed to determine the optimal approach to STI screening in this high-risk population.

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Competing interests None.

Patient consent Obtained.

Ethics approval This study was conducted with the approval of the National Ethical Review Committee of the Kenya Medical Research Institute.

Contributors EJS was primary investigator of this study, conceived the paper, and wrote the first draft. ANT, JM and FP contributed to study design. EJS and HSO analysed the data. RSM and SG helped write and edit the paper. HdV and JS conducted the laboratory assays. All authors contributed to the final version of the paper.

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REFERENCES

1. **Smith AD**, Tapsoba P, Peshu N, *et al*. Men who have sex with men and HIV/AIDS in sub-Saharan Africa. *Lancet* 2009;**374**:416–22.
2. **Mwangome M**, Okuku HS, Fegan G, *et al*. MSM sex workers maintain a high HIV-1 incidence over time in Mombasa Kenya. *International AIDS Society meeting*. Cape Town, South Africa, 2009.
3. **Sanders EJ**, Graham SM, Okuku HS, *et al*. HIV-1 infection in high risk men who have sex with men in Mombasa, Kenya. *AIDS* 2007;**21**:2513–20.
4. <http://www.clinicaltrials.gov/ct2/show/NCT00971230?term=E001+PrEP&rank=1> (accessed 24 May 2010).
5. **Moncada J**, Schachter J, Liska L, *et al*. Evaluation of the self-collected glans and rectal swabs from men who have sex with men for the detection of *Chlamydia trachomatis* and *Neisseria gonorrhoeae* by use of nucleic acid amplification tests. *J Clin Microbiol* 2009;**46**:1657–62.
6. **Alexander S**, Martin I, Ison C. Confirming the *Chlamydia trachomatis* status of referred rectal specimens. *Sex Transm Infect* 2007;**83**:327–9.
7. **Spaargaren J**, Fennema HSA, Morre SA, *et al*. New lymphogranuloma venereum chlamydia trachomatis variant, Amsterdam. *Emerg Inf Diseases* 2005;**11**:1090–2.
8. **Grijsen ML**, Graham SM, Mwangome M, *et al*. Screening for genital and anorectal sexually transmitted infections in HIV prevention trials in Africa. *Sex Transm Infect* 2008;**84**:364–70.
9. **World Health Organization**. *Guidelines for the management of sexually transmitted infections*. Geneva, Switzerland: World Health Organization, 2003.