

SEXUALLY TRANSMITTED INFECTIONS (STIs) AMONGST MEN WHO HAVE SEX WITH MEN (MSM) ENROLLED IN HIV VACCINE TRIAL NETWORK (HTN) 702 IN SOUTH AFRICA.

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(Public Health)

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INTRODUCTION

Sexually transmitted infections (STIs) are a global public health concern: 376 million new infections were acquired worldwide in 2016 [1]. Men who have sex with men (MSM) are disproportionately affected by STIs [2]. Undiagnosed and untreated STIs can lead to serious health outcomes e.g. infertility [3]. There is limited data about bacterial STIs in MSM populations in sub-Saharan Africa as most research is centred on HIV. The aim of this study was to describe the prevalence of bacterial STIs in MSM enrolled in the HIV Vaccine Trial Network (HVTN) 702 trial and compare these rates to those of females and non-MSM males.

METHODS

MSM Definition

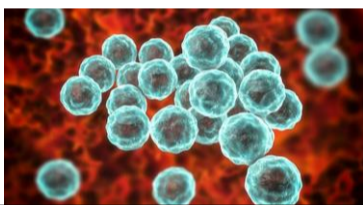
For our analysis MSM were defined as:

- Born male
- Gender identity: Male or Transgender female
- Sexual orientation: Homosexual or Bisexual

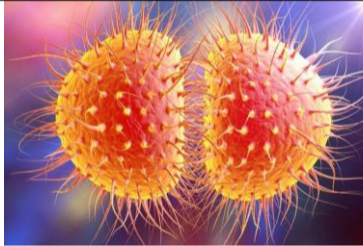
We retrospectively analysed data collected during the HVTN 702 clinical trial.

Variables collated:

- Demographics (Table 1)
- Clinical: circumcision status, STI history
- Behavioural: Sexual history
- Microbiological: urine (all), rectal swabs (MSM only), vaginal swabs (female only)



⁴NG and CT testing was done on urine and/or rectal/vaginal swabs using polymerase chain reaction (PCR) testing every 6 months.



⁵Syphilis serology using Rapid Plasmin Reagin (RPR) and reflex Treponema Pallidum Hemagglutination Assay (TPHA), every 12 months.



RESULTS

Table 1: Baseline MSM Demographics (N = 183)

Age/yrs. (Median, IQR)	(N, %)
Age/yrs. (Median, IQR)	22 (20-25)
Race:	
Black	179 (97.8)
Colored	4 (2.2)
Gender identity:	
Male	173 (94.5)
Transgender female	10 (5.5)
Sexual orientation:	
Homosexual	123 (67.2)
Bisexual	60 (32.8)
Marital status:	
Married/main partner	134 (73.2)
No main partner	46 (25.1)
Unknown	3 (1.6)
Lives with spouse/main partner:	
Yes	20 (10.9)
No	114 (62.3)
Unknown	3 (1.6)
No main partner	46 (25.1)
Highest education completed:	
Some high school	36 (19.7)
Completed high school	99 (54.1)
National certificate	3 (1.6)
Some tertiary	39 (21.3)
Completed tertiary	6 (3.3)
Residence:	
Urban/City/Town	167 (91.3)
Rural/Country	13 (7.1)
Unknown	3 (1.6)
Number of sexual partners in last 30 days (Median, IQR)	2 (2-6)
Number of sexual acts in last 30 days (Median, IQR)	8 (4-19)
Transactional sex:	
Yes	73 (39.9)
No	109 (59.6)
Unknown	1 (0.5)

Table 3: Baseline STI testing results for females at birth, non-MSM males at birth and MSM who had data available.

	Female at birth (n=3389)	Male at birth		p-value ³ for MSM vs. Female at birth	p-value ³ for MSM vs. non-MSM
		non-MSM (n=1080)	MSM (n=173)		
C trachomatis¹				0.492	0.001
Positive	779 (23.0)	154 (14.3)	45 (26.0)		
Negative	2541 (75.0)	900 (83.3)	125 (72.3)		
Not done/indeterminate	69 (2.0)	26 (2.4)	3 (1.7)		
N gonorrhoea¹				0.120	< 0.001
Positive	179 (5.3)	25 (2.3)	14 (8.1)		
Negative	3134 (92.5)	1034 (95.7)	156 (90.2)		
Not done/indeterminate	76 (2.2)	21 (1.9)	3 (1.7)		
C trachomatis/ N gonorrhoea¹ co-infection				0.019	< 0.001
Positive	86 (2.5)	13 (1.2)	13 (7.5)		
Negative	3239 (95.6)	1047 (96.9)	157 (90.8)		
Not done/indeterminate	64 (1.9)	20 (1.9)	3 (1.7)		
Syphilis²				0.019	0.007
Positive	44 (1.3)	17 (1.6)	9 (5.2)		
Negative	3322 (98.0)	1056 (97.8)	161 (93.1)		
Not done/indeterminate	23 (0.7)	7 (0.6)	3 (1.7)		

¹Test performed on cervical/vaginal swab, urine, or rectal swab

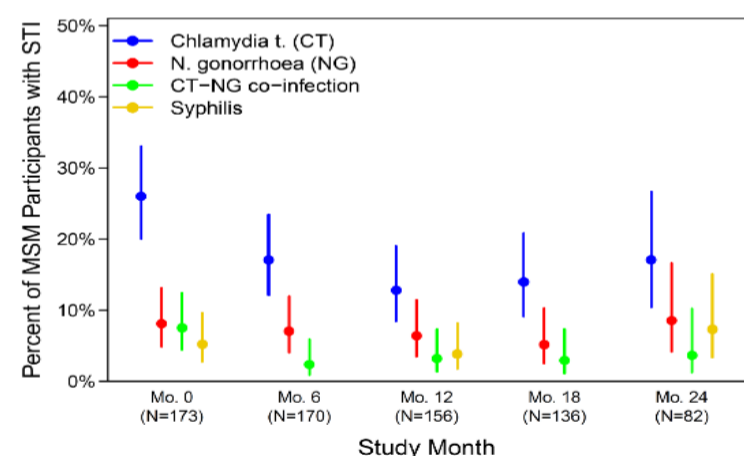
²Both non-treponemal and treponemal test must be positive for a positive diagnosis

³Barnard's exact test - based on Positive and Negative result categories only

Table 2: STI prevalence over time of enrolled MSM participants with available STI testing data

STI prevalence (n, %, 95CI)	MONTH 0	MONTH 6	MONTH 12	MONTH 18	MONTH 24
Number of participants eligible for testing (n)	183	171	156	136	82
Number of participants tested (n)	173	170	156	136	82
CT	45 (26.0) (20.0-33.0)	29 (17.1) (12.1-23.4)	20 (12.8) (8.5-19.0)	19 (14.0) (9.1-20.8)	14 (17.1) (10.5-26.6)
NG	14 (8.1) (4.9-13.1)	12 (7.1) (4.1-11.9)	10 (6.4) (3.5-11.4)	7 (5.1) (2.5-10.2)	7 (8.5) (4.2-16.6)
CT-NG co-infection	13 (7.5) (4.4-12.4)	4 (2.4) (0.9-5.9)	5 (3.2) (1.4-7.3)	4 (2.9) (1.1-7.3)	3 (3.7) (1.3-10.2)
Syphilis	9 (5.2) (2.8-9.6)	N/A	6 (3.8) (1.8-8.1)	N/A	6 (7.3) (3.4-15.1)

Figure 1: Estimated STI prevalence and 95% CIs over time among MSM participants who had data available at enrolment into HVTN 702.



There were 183 MSM enrolled into the HVTN 702 trial, with a median age of 22 years (20-25) [Table 1].

Between months 0-24, CT was the most prevalent STI amongst MSM [Table 2].

Baseline (Mo. 0) data showed CT prevalence was similar in MSM and females (26.0% vs 23.0%, p=0.492), but CT was more prevalent in MSM compared to non-MSM males (26.0% vs 14.3%, p=0.001) [Table 3].

NG prevalence was similar in MSM and females (8.1% vs 5.3%, p=0.120), but NG was more prevalent in MSM compared to non-MSM males (8.1% vs 2.3%, p<0.001). CT-NG co-infection was more prevalent in MSM vs females and non-MSM males (7.5% vs 2.5%, p=0.019) and (7.5% vs 1.2%, p<0.001) respectively.

CONCLUSION AND RECOMMENDATIONS

CT was the most prevalent STI amongst MSM enrolled in the HVTN 702 clinical trial followed by NG, whilst syphilis was the least prevalent [Table 3]. Despite routine testing and treatment in some parts of the world, STIs are still a global issue. Better STI prevention packages e.g. vaccines are needed to reduce STI prevalence globally.

REFERENCES

1. World Health Organization. Report on global sexually transmitted infection surveillance, 2018. Available from: <https://apps.who.int/>.
2. Centers for Disease Control and Prevention. Detection of STIs in special populations: Men who have sex with men (MSM). Available from: <https://www.cdc.gov/std/treatment-guidelines/msm.htm>
3. Google images. Available at: https://www.google.com/search?q=google+images&sxsrf=ALiCzsb0c4mlWzK5qck-gHJOITWvE81RBg:1664800166817&source=lnms&tbm=isch&sa=X&ved=2ahUKEwjdpcl0h8T6AhWR-6QKHTsJBroQ_AUoAXoECAEQAw&biw=1535&bih=746&dpr=1.25

