Lower Odds of HIV Among Circumcised MSM in China and Interaction With Anal Sexual Role

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♦ Background

Male circumcision reduces heterosexual acquisition of HIV, but evidence for its efficacy for preventing transmission among men who have sex with men (MSM) is unconvincing.

♦ Objective

To study the association of male circumcision and odds of HIV and syphilis among Chinese men who have sex with men, along with interactions of anal sexual role.

♦ Methods

During 2010-2011, we conducted a cross-sectional study among 1155 MSM who were living in Beijing, China. Each participant completed a standardized questionnaire to collection demographic/sexual behavior information. Circumcision status was evaluated by both questionnaire self-reporting and by genital examination; and both HIV and syphilis infections were assessed with blood screening serology and confirmatory testing. We compared 2 methods for ascertaining circumcision; we performed both stratified analysis by anal sex role and multivariate logistic regression analysis for assessing the relationship of circumcision and HIV risk.

♦ Results

Among1155 participants including 242 with known seropositive and 913 with unknown HIV status at enrollment, the circumcision rate by self-report (10.4%) was higher than by genital exam (8.2%; P<0.01). The number of men (n=26) who reported circumcision but had not been circumcised as per genital exam was larger than that of men (n=5) who had circumcision by genital exam but did not report being circumcised. If using genital exam as a gold method, the positive predictive value (PPV) and negative predictive value (NPV) of self-report in assessing circumcision were 74% and 99%, respectively (Table 1).

Table 1. Agreement of male circumcision status based on self-report and genital examination among Chinese men who have sex with men (MSM)

Self-reporting	Genital examination		Total
	Circumcised	Uncircumcised	
Circumcised	74 (7.7%)	26 (2.7%)	100 (10.4%)
Uncircumcised	5 (0.5%)	859 (89.1%)	864 (89.6%)
Total	79 (8.2%)	885 (91.8%)	964 (100%)

There were no differences in sexual and drug using behaviors among circumcised and uncircumcised participants. A history of sexually transmitted infections was reported by 28% of circumcised and 30% of uncircumcised men. Multivariate logistic models showed the odds of being HIV infected among circumcised MSM was 54% lower that among uncircumcised MSM (aOR, 0.46; 95% CI, 0.24-0.89); there is non-statistically significant association between circumcision and syphilis infection (aOR, 0.70; 95%CI, 0.40-1.24) (Table 2).

Table 2. Association between male circumcision and HIV or syphilis infection among Chinese MSM

Circumcision status	**N**	**HIV (+)**	**Adjusted OR (95% CI)**	**P-value**
Uncircumcised	1013	263	1.0	0.02
Circumcised	79	11	0.46 (0.24,0.89)	
Circumcision status	**N**	**syphilis (+)**	**Adjusted OR (95% CI)**	**P-value**
Circumcised	1015	266	1.0	0.22
Uncircumcised	80	16	0.70 (0.40,1.24)	

Among men who were uncircumcised, those who reported predominantly insertive anal sex but were uncircumcised had a 57% lower risk of HIV infection (aOR, 0.43; 95% confidence interval [CI], 0.32-0.59) compared to a reference group of men reporting practicing dual or predominantly receptive anal sex. Among men who were circumcised, MSM reporting dual or predominantly receptive anal sex had a 52% reduction of HIV risk (aOR, 0.48; 95% CI, 0.22-1.02) and those who reported predominantly insertive anal sex had an 85% lower risk (aOR, 0.15; 95% CI, 0.04-0.65) compared to the reference group (Table 3).

Table 3. Association between circumcision and HIV risk stratified by anal sexual role/position among Chinese MSM

Anal sex role	Circumcised	HIV status (N=1053)		Unadjusted OR (95% CI)	Adjusted OR (95% CI)
		Positive (N=264)	Negative (N=789)		
Receptive/versatile	No	177	364	1.0	1.0
Insertive	No	76	358	0.44 (0.32, 0.59)	0.43 (0.32, 0.59)
Receptive/versatile	Yes	9	38	0.49 (0.23, 1.03)	0.48 (0.22, 1.02)
Insertive	Yes	2	29	0.14 (0.03, 0.60)	0.15 (0.04, 0.65)

♦ Discussion

Our study suggests a 54% reduction of HIV infection among Chinese MSM who were circumcised, particularly among those who predominantly practiced insertive anal sex (85% reduction). We did not find a significant relationship between male circumcision and syphilis infection, though there was a weak trend towards protection. It is suggested that circumcision may be a promising HIV prevention strategy for MSM. A feasibility trial is needed.

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