

Male circumcision and incident HIV infection among men who have sex with men: a randomized controlled trial



Yanxiao Gao¹, Yinghui Sun¹, Luoyao Yang¹, Zhihui Guo¹, Weijie Zhang¹, Yuwei Li¹, Huachun Zou^{1,2}

¹ School of Public Health (Shenzhen), Sun Yat-sen University, Shenzhen, China ² Kirby Institute, University of New South Wales, Sydney, Australia

Corresponding author: Prof. Huachun Zou hzou@kirby.unsw.edu.au

Background

Meta-analyses and systematic reviews of observational studies suggest that voluntary medical male circumcision (VMMC) may reduce the risk of HIV acquisition among men who have sex with men (MSM), especially in men who primarily engage in insertive anal sex. We conducted a randomized controlled trial (RCT) to assess the efficacy of VMMC in reducing incident HIV acquisition among MSM.

Methods

This RCT was conducted in eight cities in China. Uncircumcised, HIV-negative men aged 18-49 years who predominantly practiced insertive anal sex and had two or more male sex partners in the past 6 months, were randomized to either intervention (immediate circumcision) or control (delayed circumcision) arms. HIV testing was repeated at 3, 6, 9, and 12 months. Behavioral questionnaires and HIV confirmatory testing were performed at baseline, 6, and 12 months. HIV incidence and 95% confidence intervals (CIs) were calculated using intent-to-treat analysis. The trial was registered with Chinese Clinical Trial Registry (ChiCTR2000039436).

Results

A total of 247 MSM were enrolled: 124 in the intervention arm and 123 in the control arm. Baseline characteristics of participants in the intervention and control groups were comparable. Retention rates in both arms were similar during follow-up. The two arms contributed 120 and 119 person-years of follow-up, respectively. No HIV seroconversions occurred in the intervention arm (zero HIV infections per 100 person-years, 95%CI: 0.0 – 3.1) and five were seen in the control arm (4.2 per 100 person-years, 95%CI: 1.4 – 9.8) within 12 months. HIV incidence was lower in the intervention arm (log-rank P=0.025). No evidence of HIV risk compensation was found.

Keywords

Voluntary medical male circumcision, HIV, men who have sex with men, randomized controlled trial

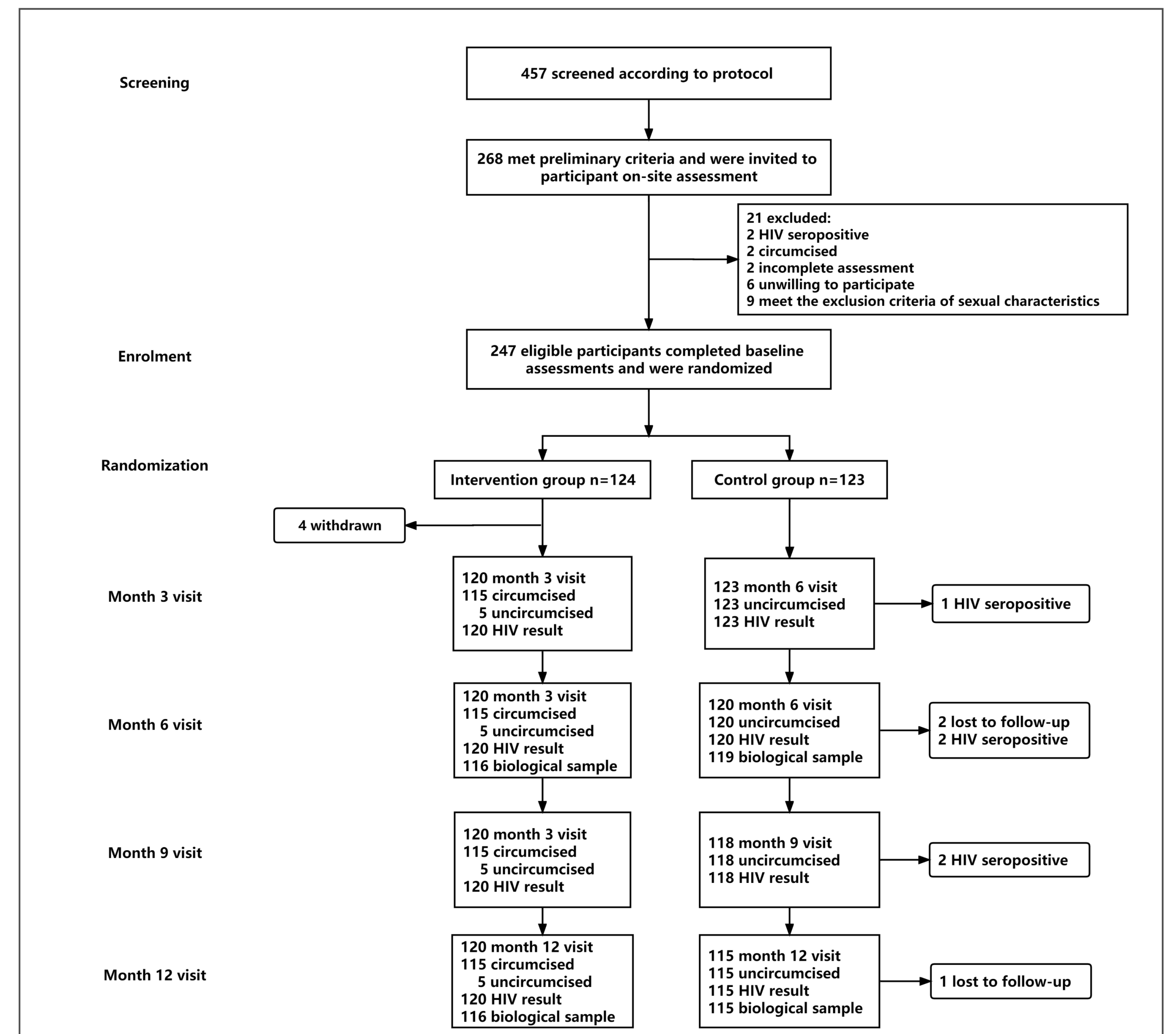


Figure 1. Trial profile

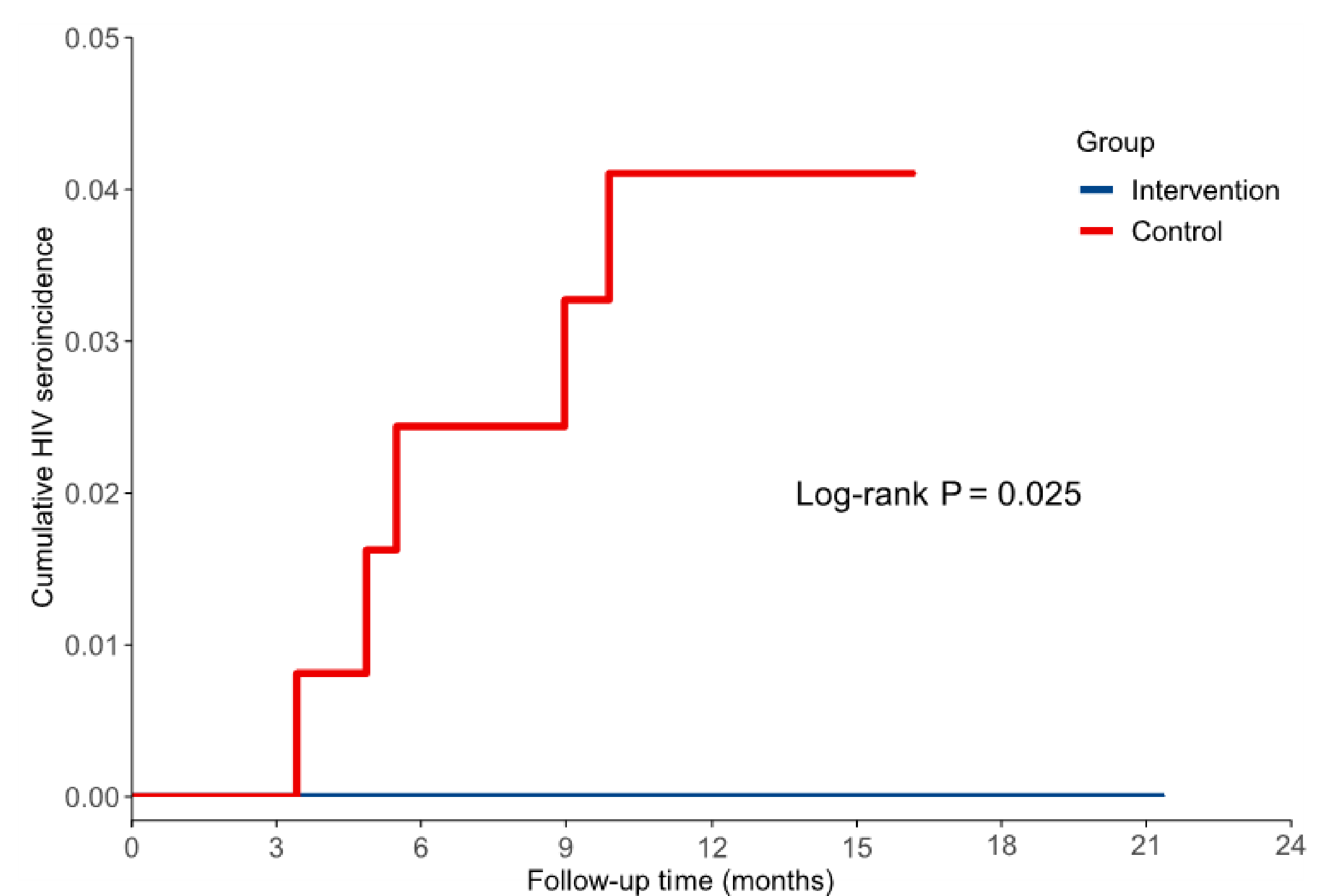


Figure 2. Cumulative HIV seroincidence across follow-up visits by treatment

Conclusions

This is the first RCT to demonstrate the efficacy of VMMC in preventing HIV among MSM. VMMC is very likely to be efficacious in preventing incident HIV acquisition among MSM who predominantly practice insertive anal sex. Large-scale RCTs with long-term follow-up may be necessary to further confirm this efficacy.