Recent HIV Infections and HIV Incidence Among Sexual Minority Adolescents PrEP users in Brazil

1030

Diana Reyna Zeballos Rivas[1], Fabiane Soares[1], Laio Magno[2], Celia Landmann[3], Orlando Ferreira[4], Matheus Westin[5], Dirceu Greco[5], Alexandre Grangeiro[6], Inês Dourado[1] for the PrEP1519 Study Group
[1]Universidade Federal da Bahia, Salvador, Brazil, [2]Universidade do Estado da Bahia, Salvador, Brazil, [3]Fundação Oswaldo Cruz, Rio de Janeiro, Brazil, [4]Universidad Federal do Rio de Janeiro, Rio de Janeiro, Brazil, [5]Universidade Federal de Minas Gerais, Belo Horizonte, Brazil, [6]Universidade de São Paulo, São Paulo, Brazil

BACKGROUND

- Over the past decade, HIV infection rates have risen among young men in Brazil. However, PrEP stands out as an effective prevention measure capable of mitigating HIV incidence in this demographic.
- Recent advancements in HIV-1 infection testing algorithms (RITAs) have enabled the estimation of HIV incidence from cross-sectional data.
- Our objective was to estimate recent HIV-1 infection (RHI) among adolescent men who have sex with men (aMSM) and transgender women (aTGW) at baseline within the PrEP1519 cohort. Additionally, we aimed to determine the HIV incidence rate among aMSM and aTGW individuals who have initiated daily oral PrEP usage.

METHODS

- The PrEP1519 study is a demonstration cohort study conducted in three Brazilian capital cities among sexually active aMSM and aTGW aged 15-19 years.
- We conducted a cross-sectional analysis using baseline data from 2020, which included participants screened with a fourth-generation HIV rapid test. The Recent HIV Infection Testing Algorithm (RITA) employed blood specimens tested with the Sedia LAg assay, which detects antigen-driven antibody response (Sedia BioSciences, Portland, OR), along with an HIV-1 RNA test, viral load, and a CD4 count prior to ART initiation. HIV incidence based on RITA was calculated using a mean duration of recent infection of 167 days and a false-recent rate of 0.02 among these participants.
- Data from adolescents who tested HIV-negative and initiated PrEP in 2020 were utilized to calculate HIV incidence while on PrEP. Incidence was determined considering the duration from the first PrEP prescription until the positive HIV test. The contributing time of each participant was the sum of days between the date of the first PrEP dispensation and the date of HIV seroconversion or the date of the last visit to the clinic in 2020. Tenofovir-diphosphate (TFV-DP) concentrations in dried blood spots were estimated for individuals who had a positive test for HIV.

At baseline, HIV incidence based on RITA was 2.6 per 100 persons-years. Among adolescents who started PrEP use, the HIV incidence was 2.5 per 100 person-years, new cases had TFV-DP levels below the limits of quantification.

RESULTS

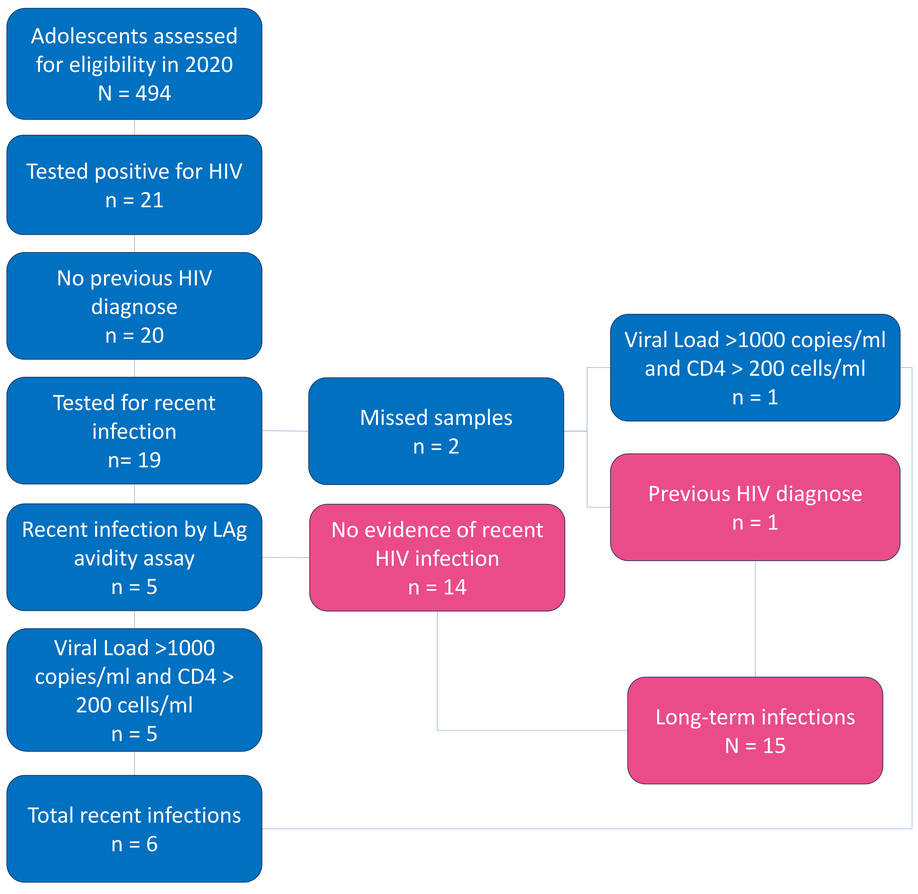

Figure 1. RITA in the context of the PrEP1519 study

- At baseline, the HIV prevalence stood at 4.3%, with the estimated recent HIV infection (RHI) rate being 2.6 (95%CI 0.5-4.8) per 100 person-years. Among the 418 adolescents who initiated PrEP, the HIV incidence was 2.5 (95% CI 0.7 – 6.4) per 100 person-years. Notably, all adolescents who seroconverted had levels of TFV-DP below the limits of quantification.

CONCLUSIONS

- The observed RHI rate underscores the necessity for targeted HIV prevention interventions among sexual minority adolescents.
- Integrating RHI testing into routine practices can facilitate the monitoring of prevention effectiveness and enhance early access to HIV care.
- Addressing challenges such as low adherence and PrEP discontinuation among adolescents is crucial for improving PrEP effectiveness.
- Offering a variety of choices, including long-acting PrEP, may serve as a viable strategy to tackle these issues.

ADDITIONAL KEY INFORMATION

Funding: UNITAID
Sponsored by: FIOTEC and the Ministry of Health of Brazil

Author Contact Information

E-mail: dianazeballos@gmail.com

Acknowledgements

The authors would like to express their gratitude to the study participants, the local teams that carried out the fieldwork in the three cities, and all collaborators.