

LETTER TO THE EDITOR**HIV-NAAT use for early detection of HIV infection among high-risk men who have sex with men in Italy**

Dear Editor-in-Chief,

Recently, Sanders et al. published the results of a clinical trial on point-of-care HIV nucleic acid testing (NAAT) in Kenya, highlighting that this strategy detected 1/40 chronic HIV infections and 1/750 acute infections [1]. We present the results of a cross-sectional monocentric study on men who have sex with men (MSM) at high risk of HIV infection, carried out in Italy at IRCCS San Raffaele (teaching hospital) or Milano Check Point (community based) from February 2020 to March 2022. NAAT is of great interest in Italy for the HIV screening of high-risk MSM as they detect infection before seroconversion, reducing secondary transmission and allowing early initiation of antiretroviral therapy (ART) [2].

Our study included individuals reporting high-risk sexual behaviours, presenting with a sexually transmitted infection (STI) diagnosis, using PrEP incorrectly (more than one missed pill in event-based PrEP, more than three missed pills in daily-based PrEP), or with a Smith index >10 in the 3 months before testing. The Smith index is a 7-item screening index that is predictive of HIV seroconversion among MSM that was adopted in Italian HIV guidelines for prioritization of PrEP prescription [3]. HIV-NAAT was performed using the rapid Xpert[®] Qual test.

Overall, we tested 184 MSM. Of these, 50 were taking PrEP, 30 of them incorrectly in the previous 30 days (22 event-based PrEP, eight daily-based PrEP), and 94/184 were tested in order to start PrEP. Individuals' characteristics are presented in Table 1. In the 184 individuals tested, we detected four acute, one primary, and no chronic HIV infections with NAAT (1/37 individuals tested vs 1/750 by Sanders et al.) [1]. Two individuals were classed as Fiebig stage I, one as stage II, one as stage III, and one as stage V with a negative AlereDetermine[®] HIV test upon diagnosis [4].

Only the individual diagnosed in Fiebig V stage was taking on-demand PrEP, with reportedly low adherence; the other four were intending to start PrEP (median time between last HIV-negative test and HIV-positive NAAT 4.5 months [interquartile range 3–6]).

All five individuals were linked to care, and viral loads were undetectable within 3 months.

TABLE 1 Individuals' characteristics at time of testing

Characteristics	Overall (n = 184)	Negative HIV- NAAT (n = 179)	Positive HIV- NAAT (n = 5)
Age (years)	33 (28–41)	34 (28–42)	31 (30–32)
Ethnicity			
Caucasian	144 (78)	139 (78)	5 (100)
Hispanic/ Latino	20 (11)	20 (11)	–
Black/African American	7 (4)	7 (4)	–
Middle Eastern	5 (3)	5 (3)	–
Asian	4 (2)	4 (2)	–
Other	4 (2)	4 (2)	–
Chemsex ^a	39 (21)	36 (20)	3 (60)
Number of sexual partners ^a			
0–5	46 (25)	45 (25)	1 (20)
6–10	44 (24)	44 (25)	–
11–20	37 (20)	35 (20)	2 (40)
21–50	19 (10)	17 (9)	2 (40)
>51	4 (2)	4 (2)	–
Missing	34 (18)	34 (19)	–
Previous STI ^a	39 (21)	36 (20)	3 (60)
Smith Index ^a			
10–15	21 (11)	21 (12)	–
16–20	35 (19)	35 (19)	–
21–25	54 (29)	53 (30)	1 (20)
26–30	13 (7)	13 (7)	–
>30	27 (18)	23 (13)	4 (80)
Missing	34 (18)	34 (19)	–
Syphilis at testing	6 (3)	6 (3)	0 (0)
Chlamydia at testing	17 (9)	15 (8)	2 (40)
Rectal site	13 (7)	11 (6)	2 (40)

(Continues)

TABLE 1 (Continued)

Characteristics	Overall (n = 184)	Negative HIV- NAAT (n = 179)	Positive HIV- NAAT (n = 5)
Urethral site	4 (2)	4 (2)	–
Pharyngeal site	–	–	–
Gonorrhoea at testing	18 (10)	17 (10)	1 (20)
Rectal site	12 (6)	11 (6)	1 (20)
Urethral site	3 (2)	3 (2)	–
Pharyngeal site	3 (2)	3 (2)	–

Data are presented as median (interquartile range) or N (%).

Abbreviations: HIV-NAAT, HIV nucleic acid testing; STI, sexually transmitted infection.

^aReferred to the 3 months before HIV-NAAT.

HIV-NAAT helps with the early detection of HIV infection among high-risk MSM, particularly in young men with high numbers of partners, with previous/concurrent STIs, and engaging in chemsex. The use of HIV-NAAT in Italy is mostly intended for key populations, unlike the use in Kenya suggested by Sanders et al. [1]. A high Smith Index might be a good indicator of the need for HIV-NAAT screening in Italy, especially among individuals starting PrEP. Detecting acute HIV infections among individuals willing to start PrEP is paramount to avoid selection of resistant strains: the use of NAAT may be personalized according to Smith Index and offered during PrEP counselling [3, 5]. All individuals with positive NAAT results were linked to care: combining community-based and hospital-based strengths might help achieve high linkage and retention in care levels. Early detection of infections among high-risk individuals allowed prompt ART initiation and rapid undetectable viral load, possibly limiting transmission. Given that the incidence of HIV is lower in Italy than in Kenya, HIV-NAAT is mostly intended for acute HIV-infection screening of key populations, allowing for the detection of a higher proportion of infections.

AUTHOR CONTRIBUTIONS

S.N. designed the study, contributed to the writing of the article, and conducted medical visits. A.R.R. contributed to the writing of the article and data analysis. E.B. contributed to the writing of the article. P.V. performed tests, provided counselling, and contributed to data collection and reviewing the article. D.C., M.C., S.B., A.D.B., and R.R. performed tests, provided counselling, and contributed to the reviewing of the

article. A.C. and A.D.M. contributed to the reviewing of the article. All authors contributed to the article and approved it.

FUNDING INFORMATION

The project was partially supported by a Gilead Sciences Medical Grant.


CONFLICT OF INTEREST

None.

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