HIV INCIDENT INFECTIONS IN A PREP COHORT

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BACKGROUND

HIV pre-exposure prophylaxis (PrEP) is an intervention based on the use of antiretroviral drugs (ARV) intended to prevent HIV transmission. The ARV used in PrEP include tenofovir disoproxil fumarate and emtricitabine (TDF-FTC) [1] or cabotegravir (CAB-LA) [2]. Resistance-associated mutations (RAMs) have been observed in people who acquire HIV in the setting of PrEP, requiring a genotype to better choose the antiretroviral therapy regimen (ART) [3].
Our aim was to describe the RAMs and virological outcomes of the HIV incident infections in our cohort of PrEP users.

METHODS

A retrospective cohort study was performed. The data from clinical records of PrEP users during the period of analysis were reviewed.

RESULTS

Between June 2018 and June 2024, **517 subjects** started PrEP in ClinSex, a reference sexual health clinic for people at risk, located in the Hospital Ramos Mejia in Buenos Aires. The demographic characteristic of the cohort are presented in Table 1.
Six (1%) HIV infections were found, four in patients receiving TDF/FTC and two with CAB-LA. In the **TDF/FTC** PrEP users, **3/4 (75%) reported irregular adherence** due to missing doses and intolerance. **Both individuals** who used **CAB-LA** had **good adherence**.

The genotypic resistance testing revealed major RAMs in three (50%) of the incident infections (Table 2).
All the individuals achieved undetectable HIV RNA after starting ART with TDF/FTC/DRV/r, DTG/DRV/r or TDF/3TC/DTG, according to the previous ARV exposure.
Of note, all regimens were started before receiving the genotypic results.
An unexpected genotypic finding (major RAMs NNRTI) was detected in one subject without history of NNRTI exposure.

TABLE 1. DEMOGRAPHIC CHARACTERISTICS. PREP COHORT. N = 517

Age; median (IQR)	31 (27–37)
Gender	
• Cisgender MSM; n (%)	512 (99)
• TGW; n (%)	5 (1)
ARV used for PrEP	
• TDF/FTC; n (%)	391 (76)
• CAB–LA; n (%)	126 (24)
Days in PrEP; median (IQR)	545 (318–967)

TABLE 2. HIV INCIDENT INFECTIONS. CLINICAL CHARACTERISTICS.

	ARV for PrEP	Adherence	Days in PrEP	HIV RNA copies/mL (log)	CD4; n (%)	Major RAMs INSTI	Major RAMs NRTI	Major RAMs NNRTI	Major RAMs PI
S1	CAB–LA	Good	75	1,003; (3.0)	658 (30)	**E138K; Q148K**	None	None	None
S2	CAB–LA	Good	1,736	39,570 (4.6)	589 (22)	**E138K; Q148K**	None	**K101E; E138K**	None
S3	TDF/FTC	Good	98	600 (N/A)	564 (21)	None	**K70KE, M184I**	None	None
S4	TDF/FTC	Regular	238	18,355 (4.3)	603 (22)	None	None	None	None
S5	TDF/FTC	Regular	339	16,138 (N/A)	884 (28)	N/A	N/A	N/A	N/A
S6	TDF/FTC	Regular	895	404,160 (5.6)	643 (N/A)	None	None	None	None

CONCLUSIONS

Although PrEP is highly effective, infrequent HIV incident infections may occur.
Interestingly, we found major RAMs to the PrEP regimen used in half of the acute infections in our cohort.

REFERENCES

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