Virologic Outcomes After LA ART Initiation With and Without Viremia in 2 Large US Clinic Cohorts

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BACKGROUND

- Long-acting cabotegravir/rilpivirine (LA CAB/RPV) was initially studied only among people with HIV (PWH) with virologic suppression (VS) on oral ART
- **One-third of U.S. PWH are not virologically suppressed**, often due to adherence challenges
- LA CAB/RPV is now increasingly used among PWH with **viremia**, supported by updated U.S. guidelines in 2024
- Limited real-world data exists on **blips, persistent low-level viremia (PLLV), and virologic failure (VF)** after LA ART initiation among viremic PWH
- **Hypothesis:** PWH initiating LA ART with viremia achieve high rates of VS but experience higher rates of blips, PLLV, and VF compared to those initiating while suppressed when examined longitudinally in a large two-site cohort

METHODS

- Design: Longitudinal cohort analysis from the **two largest U.S. clinic-based LA ART programs initiating PWH on LA ART with viremia**
- Sites:
  1. Grady Ponce Center (Atlanta, GA)
  2. UCSF Ward 86 HIV Clinic (San Francisco, CA)
- Population: PWH initiating LA CAB/RPV (2021–present), including those with viremia and/or oral ART adherence challenges
- **Primary Exposure: Viral load status at LA ART initiation (viremic >50 cp/mL vs suppressed)**
- **Outcomes:**
  1. Virologic failure (VF): ≥2 viral loads >200 cp/mL
  2. Blip: Single viral load >50 cp/mL after suppression
  3. PLLV: Consecutive viral loads >50 cp/mL after suppression
- Analysis: Mixed-effects logistic regression adjusted for demographics, site, CD4+ cell count, BMI, and dosing pattern

In two large U.S. clinic-based cohorts, people with HIV initiating long-acting cabotegravir/rilpivirine with viremia achieved rapid viral suppression. Virologic failure and blips remain uncommon among those on LA ART, although both are more frequent among those initiating long-acting therapy when viremic and experiencing a blip was associated with later virologic failure.

RESULTS

- 1,070 PWH met inclusion criteria, including 30% who initiated LA ART with viremia (>50 cp/mL)
  - Median age of 42 (IQR: 34-54) years; 74% were cisgender men, 20% cisgender women, 3% transgender women; 57% identified as Black race, 17% as Hispanic; and 36% experienced homelessness; with median follow-up time 392 days (IQR: 147-649)
- Among the viremic group with ≥2 follow-up viral loads (n = 299), **96% achieved a viral load <50 cp/mL at a median of 4 weeks** (IQR: 4-8 weeks; **Figure 1**)
- **Among PWH who initiated LA ART while viremic, blips were more common** (9% vs. 5% with ≥1 blip; AOR 1.04, 95% CI: 1.00-1.07; p=0.046), adjusted for age, race, dosing, BMI, and CD4 count
- **PWH who initiated while viremic were also more likely to have PLLV** (2% vs. 0.4%; AOR 1.02, 95%CI 1.01-1.04, p = .003)
- Across the two sites, 8,446 injections were administered, **91% were on-time (+/- 1 week)**
- **PWH who initiated while viremic were more likely to have VF** (6% vs. 1%; AOR 1.03, 95%CI 1.01-1.04, p = .004), with similar results adjusting for on-time injections.
- **Experiencing a blip or PLLV was associated with later development of VF** (AOR 4.13; 95%CI 1.03-15.3, p=.036; **Figure 2**)

Figure 1: Time to Viral Load <50 copies/mL among People with HIV who Initiated Long-Acting ART (1/2021-8/2025)

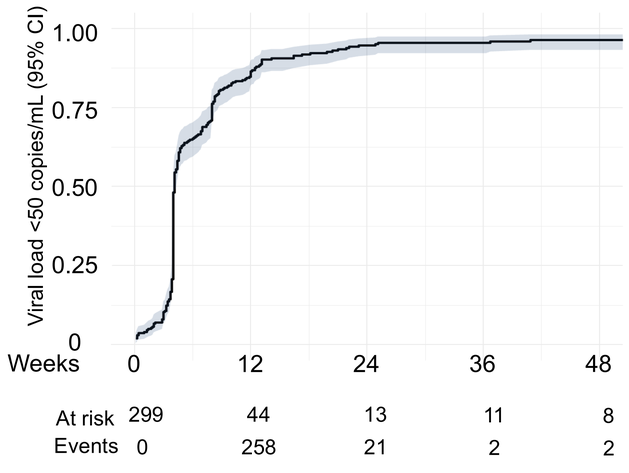
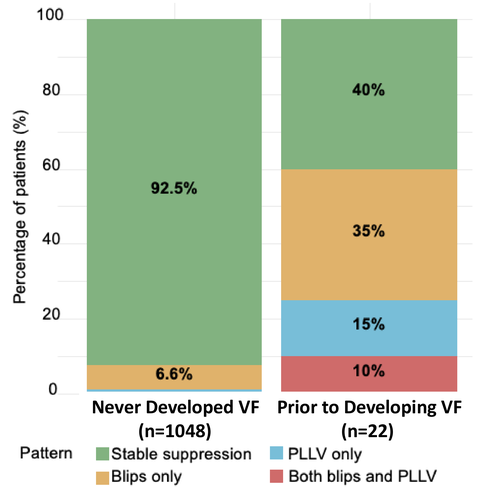


Figure 2: Blips and PLLV among those who did and did not go on to develop virologic failure (VF) in the future



CONCLUSIONS

- Nearly all PWH initiating LA ART with viremia achieved rapid viral suppression, with a median time of 4 weeks
- Blips, PLLV, and VF were uncommon, but occurred more frequently among those initiating LA ART with viremia
- Experiencing a blip was associated with future VF
- These findings support expanded use of LA ART among viremic PWH in real-world clinical settings

Implications / Next Steps

- LA ART is a viable and highly effective strategy for PWH with viremia and adherence challenges
- If initiating LA ART with viremia, blips can portend future VF, and may support regimen intensification
- Further studies are needed to:
  - Elucidate mechanisms underlying blips and VF (e.g., LA ART drug concentrations, viral reservoir)
  - Evaluate optimization strategies, including treatment augmentation (e.g., lenacapavir)

ADDITIONAL KEY INFORMATION

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Acknowledgements: NIAID/NIH 5R37AI098472. We would like to thank the Ponce De Leon and Ward 86 SPLASH patients and staff. This study is presented in loving memory of Dr. Lauren Collins, founder of the Ponce LA-ART program, an exceptional physician-scientist whose dedication to patients and passion for implementation of long-acting HIV therapy shaped this work.

PLAIN LANGUAGE SUMMARY

Most people with HIV who started long-acting injectable treatment while they still had detectable virus quickly achieved an undetectable viral load, usually within about one month. Small viral “blips” and treatment failure were uncommon, though they happened more often in those who started with detectable virus than in people who started treatment after already being suppressed.