Prevalence of Cabotegravir and Rilpivirine Resistance Associated Mutations Among Treatment Experienced Patients in a South Carolina Outpatient Clinic

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BACKGROUND

- Cabotegravir/Rilpivirine (CAB/RPV) was approved in January 2021 as the first long-acting injectable treatment for people living with human immunodeficiency virus (PLWHIV).
- CAB/RPV is indicated as a switch therapy for PLWHIV who have been virologically suppressed and clinically stable on their current combination antiretroviral therapy (cART).
- One key consideration prior to switching to CAB/RPV therapy is to evaluate patients' cumulative history of mutation genotype(s) to decrease the risk for virologic failure.
- The primary objective of this study was to characterize the proportion of individuals with resistance associated mutations (RAMs) to CAB and/or RPV.

METHODS

Study Design	• Retrospective, observational cohort study
Study Inclusion	• PLWHIV who were referred to pharmacist and screened for eligibility to transition to CAB/RPV therapy between April 1, 2021 and August 31, 2022 at Prisma Health Immunology Center
Key Definitions	• The Stanford University HIV Drug Resistance Database was used to evaluate the inferred resistance level for reverse transcriptase (RT), integrase strand transfer inhibitor (INSTI), and protease inhibitor (PI) sequences
Statistical Analysis	• Descriptive statistics

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DISCLOSURES

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C. Derrick is now affliated with Janssen Pharmaceuticals

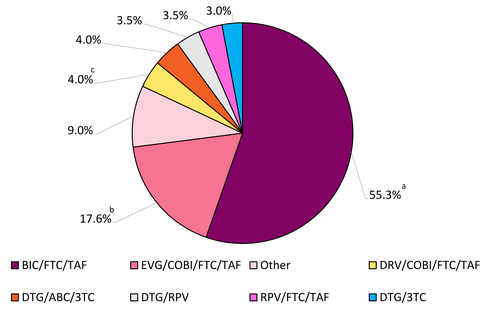
RESULTS

Table 1. Baseline Characteristics

Characteristics	N = 199
Age, years, median (min, max)	38 (17-72)
Gender, n (%)	
Male	132 (66.3)
Female	65 (32.7)
Transgender	2 (1.0)
Race, n (%)	
Asian	2 (1.0)
Black or African American	163 (81.9)
Native Hawaiian or Other Pacific Islander	1 (0.5)
White or Caucasian	29 (14.6)
Hispanic or Latino	4 (2.0)
Charlson Comorbidity Index, mean (SD)	1.4 (2.1)
BMI (kg/m^2), median (min, max)	28.6 (16.5, 74.1)
Genotype Report Availability, n (%)	
Any	147 (73.9)
NRTIs	144 (72.4)
NNRTIs	144 (72.4)
PIs	143 (71.9)
INSTIs	36 (18.1)
Number of Genotype Reports, median (min, max)	1 (1-11)

Abbreviations: NRTIs, nucleoside reverse transcriptase inhibitors; NNRTIs, non-nucleoside reverse transcriptase inhibitors; PIs, protease inhibitors; INSTIs, integrase strand transfer inhibitors

Figure 1. Baseline cART Regimen at the Time of CAB/RPV Eligibility Screening



Number of patients who had at least 1 other concomitant cART: [a]n = 1; [b]n = 2; [c]n = 1

Figure 2. Prevalence of RAMs to CAB or RPV

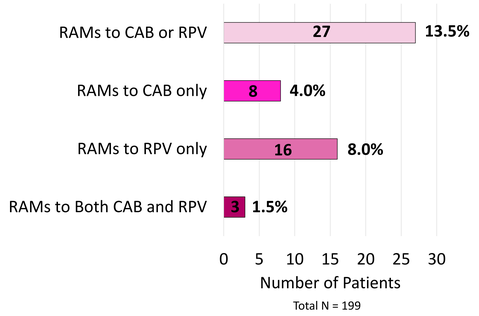


Table 2. Types of RAMs to CAB and RPV

CAB, n		RPV, n
• E138K: 2	• S147G: 2	• E138A/K: 5
• E92Q: 3	• S230R: 2	• K101E: 2
• G140S: 1	• T66I: 1	• L1001: 1
• N155H: 1	• T94A: 1	• V179D/E: 2
• Q148H/R: 2		• Y181C/I: 10

Total individual, unique copies of RAMs to CAB and RPV, n = 36

Figure 3. Prevalence of RAMs and Exposure History to cART

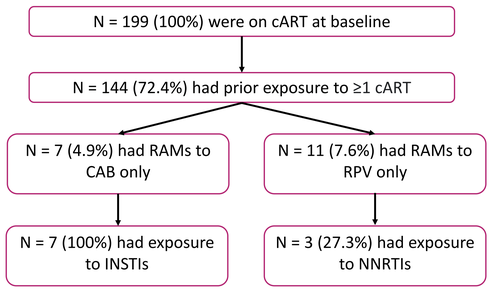
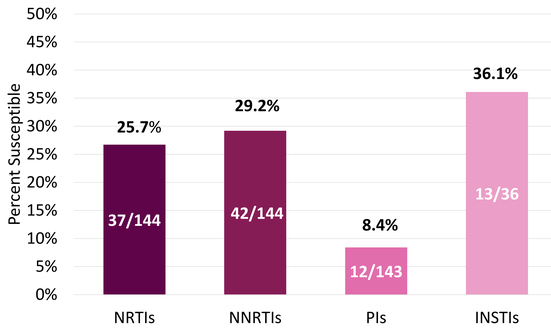


Figure 4. Prevalence of RAMs to NRTIs, NNRTIs, PIs, and INSTIs



CONCLUSIONS

RAMs
- The high prevalence of RAMs to CAB or RPV suggest increased risk for virologic failure when transition to CAB/RPV therapy

Exposure
- Findings suggest relationship between prevalence of RAMs to CAB and exposure history to cART, whereas prevalence of RAMs to RPV could be transmitted

Practice Implications
- Genotype assessment is pertinent for determining patient specific mutations to decrease risk of virologic failure when considering transition to CAB/RPV therapy

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