Evaluation of Treatment Simplification Strategies in Patients Living with HIV and Multi-Drug Resistance

Taylor Harris, PharmD; Lindsey Buscemi, PharmD, BCPS, AAHIVP
University of Virginia Health, Charlottesville, Virginia

BACKGROUND

- HIV can become resistant to current first-line antiretroviral therapy (ART) if a patient is non-adherent to medication which can lead to prescribing regimens with a high pill burden
- Lowering pill burden can increase adherence, which leads to maintaining virologic suppression
- A common regimen at the University of Virginia (UVA) Ryan White Clinic (RWC) for patients with multi-drug resistance (MDR) and history of treatment failure includes darunavir boosted with ritonavir, etravirine, and an integrase inhibitor, with or without additional agents
- The UVA RWC has previously reviewed eligibility for regimen simplification; however, clinical outcomes of this strategy have not been formally assessed.

PURPOSE

To assess if simplification of salvage ART regimens in PLWH and a history of MDR and prior treatment failure leads to sustained HIV virologic suppression

METHODS

- Single center, retrospective, observational , cohort study
- **Inclusion Criteria:** Age ≥ 18 years, HIV-1 infection, received care at the UVA RWC, received salvage ART (3+ ART agents from at least 3 separate classes) between July 2016 – July 2021
- **Exclusion Criteria:** Transfer of care/death prior to eligibility review

Primary Outcome	• Percentage of patients with virologic suppression (HIV-1 RNA < 50 copies/mL) at most recent RWC visit
Secondary Outcomes	• Virologic failure (HIV-1 RNA ≥ 200 copies/mL) at most recent RWC visit • Emergence of new resistant mutations

Study Groups:

- **Simplified:** Patients who were on salvage therapy and had their ART regimen reduced by one or more pills
- **Non-Simplified:** Patients who remained on their salvage therapy with no pill reductions in their ART regimen

RESULTS

Table 1: Patient Characteristics

Characteristic	Simplified Group (n=28)	Non-Simplified Group (n=22)
Age (yr); median (range)	58 (35 – 77)	63 (18 – 76)
Male; n (%)	21 (75.0)	18 (81.8)
Caucasian; n (%)	16 (57.1)	11 (50.0)
Duration of HIV diagnosis (yr); median (range)	27 (6 – 36)	26 (3 – 32)
CD4 count; median (range)	545 (7 – 1680)	529 (75 - 1310)
Suppressed viral load at time of simplification review; n (%)	23 (82.1)	18 (81.8)
Number of pills before simplification, median (range)	8 (3 – 11)	8 (4 – 11)
Number of pills after simplification; median (range)	2 (1 – 7)	---
Hep B co-infection; n (%)	1 (3.6)	4 (18.2)
NRTI high level resistance; n (%)	21 (75.0)	18 (81.8)
NNRTI high level resistance; n (%)	22 (78.6)	15 (68.2)
PI high level resistance; n (%)	5 (18.0)	8 (36.4)
INSTI high level resistance; n (%)	0	3 (13.6)
DRV-specific mutations; n (%)	**2 (7.1)**	**7 (31.8)**

NRTI: nucleoside reverse transcriptase inhibitor
NNRTI: non-nucleoside reverse transcriptase inhibitor
INSTI: integrase strand transfer inhibitor
PI: protease inhibitor
DRV: darunavir
STR: single tablet regimen

Figure 1: Simplified ART Regimens

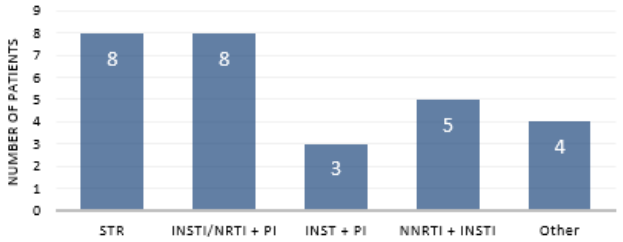

Table 2: Clinical Outcomes

Study Outcome	Simplified Group (n=28)	Non-Simplified Group (n=23)	P-value
Viral Suppression; n (%)	24 (85.7)	16 (72.7)	0.302
Virologic Failure; n (%)	3 (10.7)	5 (22.7)	0.277
Treatment Emergent Resistance; n (%)	0	0	1.000

CONCLUSION

Simplification of ART salvage regimen based on genotype in PLWH with a history of MDR and prior virologic failure resulted in similar rates of virologic suppression and virologic failure as non-simplified regimens.

REFERENCES

- Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the Use of Antiretroviral Agents in Adults and Adolescent with HIV. Department of Health and Human Services. Available at http://ww.aidsinfo.nih.gov/contentfiles/adultandadolescentGL.pdf. Accessed November 1, 2021.
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