SCIENCE SPOTLIGHT[™]

Effectiveness of Recommended Three-Drug Regimens for Treating Advanced HIV Infection

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Background

- Advanced HIV: presenting for care with CD4 cell count <200 cells/ μ L
 - Increased risk of morbidity & mortality
 - Increased risk of transmission
 - Higher healthcare costs
- DHHS HIV treatment guidelines
 - Do not use RPV-based regimens or DRV/r + RAL due to a higher rate of virologic failure with low pretreatment CD4
- Literature on advanced HIV treatment with common regimens is limited





Objective









Inclusion criteria

≥18 years of age

 $eGFR \ge 30 mL/min/1.73m^2$

ART-naïve

• No ART history & baseline VL > 1000 copies/mL

Advanced HIV-1 infection

• CD4 cell count < 200 cells/ μ L

Initiate ART between Jan 1, 2018 and Jul 31, 2019

- B/F/TAF
- DRV(/c/r) + 2 NRTIs
- DTG + 2 NRTIs
- EVG/c + 2 NRTIs

Censoring

Regimen modifications, loss to follow-up, death or study end (Jul 31, 2020)

Analyses

- Univariate Poisson regression
- Cox proportional hazards models
- Robust variance estimator
- Inverse probability of treatment weights (IPTW)
 - Baseline index year, age, CD4 cell count, viral load (continuous, quadratic term)
 - Baseline sex, Black race, hepatitis B







OPERA Cohort











* p <0.05 for the comparison with BIC

2



Third agent discontinuation

Duration of follow-up (months)					
	B/F/TAF	bDRV	DTG	EVG/c	
Median	17	13	16	12	
IQR	(13-21)	(7-18)	(11-22)	(6-23)	

Unadjusted cumulative probability of discontinuation



Unadjusted incidence rate of discontinuation









Immune recovery



- No statistical difference between groups for immunologic outcomes
 - Overall, 70% achieved a CD4 cell count ≥200 cell/µL
 - Overall, 4% achieved a CD4:CD8 ratio ≥1



Virologic effectiveness



Unadjusted cumulative probability of VL <50 copies/mL



Unadjusted cumulative probability of VL <200 copies/mL



Adjusted association between regimen and viral suppression



*Marginal structural model with sIPTW controlling for baseline index year, age, CD4 cell count, viral load, sex, race, HBV; among 762 individuals with follow-up viral load





Conclusions

Among people with advanced HIV infection, those initiating B/F/TAF:

- Were less likely to discontinue or switch their third agent compared to other 3DR
- Had a greater likelihood of virologic suppression than bDRV-based 3DR, but not other INSTI-based regimens
 - Statistical significance reached when suppression defined as a viral load <200 copies/mL



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