Incidence and severity of drug interactions before and after switching antiretroviral therapy to bictegravir/emtricitabine/tenofovir alafenamide in treatment-experienced patients

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Background

- Switching antiretroviral therapy (ART) in virally suppressed people living with HIV (PLWH) can influence their risk for drug-drug interactions (DDIs).

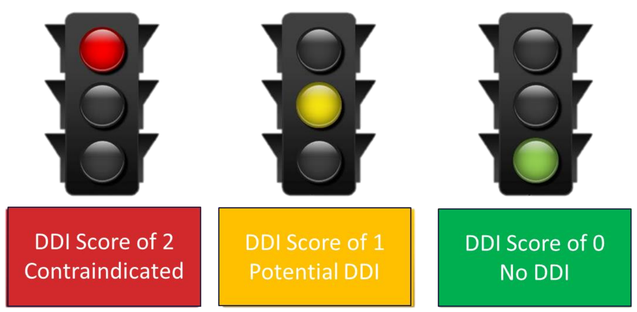
Objective

- To assess changes in the incidence and severity of DDIs in PLWH who switched their ART to bictegravir/ emtricitabine/tenofovir alafenamide (BIC/FTC/TAF).

Methods

- This was a multicenter retrospective cohort study of PLWH on ART and at least one concomitant medication (CM) who switched their ART to BIC/FTC/TAF.
- Two DDI analyses were performed for each patient with the University of Liverpool HIV DDI Database.
- The first assessed patients' pre-switch ART regimens with their CM list. The second assessed the same CM list with BIC/FTC/TAF.
- Each ART-CM combination was given a score of zero (no or potential weak interaction), one (potential interaction), or two (contraindicated interaction).
- A paired t-test analyzed changes in total DDI scores following ART switches and linear regression examined factors contributing to DDI score reductions.

Figure 1. Drug Interaction Assessment and Scoring



Results

Table 1. Description of Study Subjects (n = 411)

Factor	
Age, mean (SD)	51.3 (12.4)
Sex, n (%)	
Male	253 (61.6)
Female	151 (36.7)
Transgender Female	7 (1.7)
Race, n (%)	
African American	290 (70.6)
White	75 (18.2)
Hispanic/Latinx	36 (8.8)
Asian	8 (1.9)
Native Hawaiian/Pacific Islander	2 (0.5)
Years with HIV, median (Q1, Q3)	14.0 (8.0, 22.0)
Years on ART, median (Q1, Q3)	10.0 (6.0, 15.0)
Viral suppression, n (%)	324 (78.8)
Polypharmacy, n (%)	234 (56.9)
Baseline ART regimens, n (%)	
Dolutegravir-based	155 (37.7)
Elvitegravir-based	124 (30.2)
NNRTI-based	71 (17.3)
PI-based	59 (14.4)
Reason for switching, n (%)	
Improve long term safety	97 (23.6)
Simplify the regimen	69 (16.8)
Other	66 (16.1)
Mitigate drug interactions	58 (14.1)
Mitigate side effects	45 (10.9)
Not documented	36 (8.8)
Mitigate toxicity	14 (3.4)
Manage virologic failure	5 (1.2)
Reduce patient costs	2 (0.5)

Table 2. Changes in DDIs before and after the ART switch (n = 411)

	Pre-switch	Post-switch
Total number of DDIs, n	**552**	**188**
DDIs with scores of one, n (%)	**497/552 (90)**	**187/188 (99.5)**
DDIs with scores of two, n (%)	**55/552 (10)**	**1/188 (0.5)**
Total DDI scores, median (SD)*	**1.4 (1.8)**	**0.4 (0.6)**

***p<0.001**

Figure 2. Subjects with at least one DDI Between their ART and Selected CM Categories Pre- and Post-switch

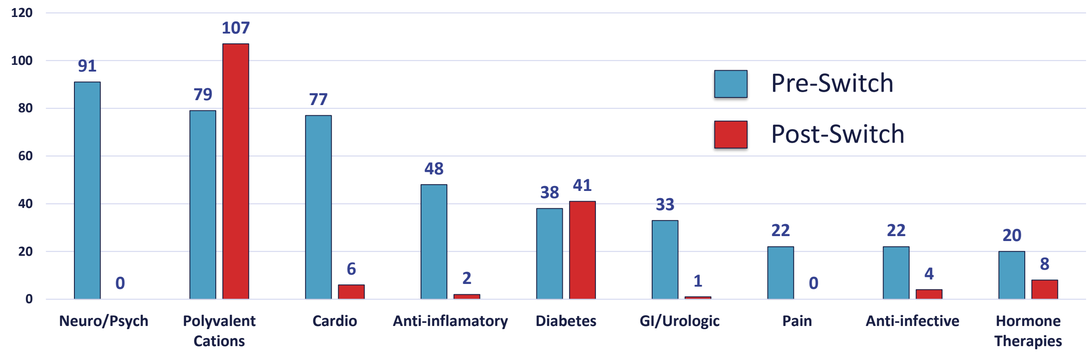


Table 3. Linear Regression for Changes in DDI scores according to CM Categories

Variable	Estimate	95% CI	p-value
Neuro/Psych	-1.52	(-1.72, -1.32)	**<.0001**
Polyvalent Cations	-0.02	(-0.21, 0.17)	0.82
Cardiovascular	-1.42	(-1.64, -1.19)	**<.0001**
Anti-inflammatory	-1.90	(-2.14, -1.65)	**<.0001**
Diabetes	0.02	(-0.23, 0.28)	0.85

Variable	Estimate	95% CI	p-value
GI/Urologic	-1.51	(-1.79, -1.24)	**<.0001**
Chronic Pain	-1.49	(-1.85, -1.13)	**<.0001**
Anti-infectives	-1.05	(-1.38, -0.72)	**<.0001**
Hormone Therapies	-0.82	(-1.16, -0.48)	**<.0001**
Other	-0.86	(-1.27, -0.45)	**<.0001**

Conclusions

- Treatment experienced PLWH that are receiving CMs and are eligible to switch their ART, may experience significant declines in the number and severity of DDIs if their regimen is switched to BIC/FTC/TAF.
- This may be particularly important for patients experiencing polypharmacy and those receiving CMs for conditions common to patients aging with HIV.

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