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## BACKGROUND

- The integrase strand transfer inhibitor (INSTI) class of antiretroviral therapy (ART) has become an integral component of HIV treatment
- INSTI-associated weight gain has been observed in recent studies but with limited data on bicitegravir
- We sought to examine weight change associated with switch to bicitegravir/emtricitabine/tenofovir alafenamide (B/F/TAF) in virally suppressed people with HIV (PWH)

## METHODS

- PWH attending an academic outpatient clinic who were treated with B/F/TAF from 02/07/2018-02/07/2020, had a baseline HIV RNA < 200 copies/mL, and had at least two weight measurements in the pre and post switch time period were included
- Baseline demographic and clinical data were collected
- Linear mixed effects models adjusted for relevant covariates (female sex) were used to examine the effect on weight pre/ post switch to B/F/TAF - overall and by baseline ART class
- Separate analyses were performed examining factors associated with BMI ≥ 10% versus BMI < 10% change as compared to baseline

Table 1. Baseline characteristics at B/F/TAF switch

Variable	All Patients (N=282)
Age, years	47.3 [35.4, 56.9]
Male gender	201 (71.2)
African American	202 (71.6)
Comorbidities	
Hypertension	128 (45.3)
Hyperlipidemia	100 (35.4)
Diabetes mellitus	42 (14.8)
Weight, kilograms	80.9 [68.0, 96.7]
Body mass index, kg/m <sup>2</sup>	27.0 [22.9, 32.1]
<18.5	10 (3.5)
18.5-24.9	97 (34.4)
25-29.9	70 (24.8)
≥30	105 (37.2)
Baseline CD4	612 [431, 869]
Duration of HIV diagnosis, years	10.4 [5.4, 18.2]
Duration of baseline ART, years	2.3 [1.4, 3.4]
Baseline antiretroviral therapy	
NNRTI	42 (14.8)
PI	40 (14.1)
INSTI	229 (81.2)
TAF	160 (56.7)
TDF	67 (23.7)

Abbreviations: NNRTI – Nonnucleoside reverse transcriptase inhibitor, PI – Protease inhibitor, INSTI – Integrase strand transfer inhibitor, TAF – Tenofovir alafenamide, TDF – Tenofovir disoproxil fumarate, ART – Antiretroviral therapy, B/F/TAF – Bicitegravir/Emtricitabine/Tenofovir alafenamide  
Categorical results are displayed at N (%); Continuous data are displayed as median [IQR].

In virally suppressed PWH, switching to B/F/TAF was associated with significant increases in rate of change of BMI.

This was most evident in those switching from baseline non-INSTI (including NNRTI) based ART.

## RESULTS

Table 2. BMI rate of change: slope estimates and comparisons post-pre switch

Variable	Estimate	Standard Error	P-value
Overall			
Slope before switch	0.016	0.008	0.055
Slope after switch	0.041	0.010	<0.001
Slope comparison post-pre switch	0.025	0.010	0.016
Baseline non-INSTI based regimen			
Slope before switch	-0.008	0.021	0.689
Slope after switch	0.060	0.021	0.005
Slope comparison post-pre switch	0.068	0.024	0.005
Baseline NNRTI based regimen			
Slope before switch	0.025	0.021	0.236
Slope after switch	0.122	0.025	<0.001
Slope comparison post-pre switch	0.098	0.027	<0.001
Baseline treatment with TDF			
Slope before switch	0.004	0.017	0.809
Slope after switch	0.071	0.019	<0.001
Slope comparison post-pre switch	0.067	0.020	0.001

- 282 virally suppressed PWH switching to B/F/TAF were identified, of whom 52% were either overweight or obese
- Baseline ART (prior to switch) most commonly contained the INSTI class (81%) – including elvitegravir (54%) or dolutegravir (43%)
- Overall, significant increases in rate of change of BMI were observed between the post-switch and pre-switch period: 0.02458 (SE 0.010), p=0.016
- When stratified by baseline ART class, significant increases in rate of change of BMI were observed between the post-pre switch time periods for the following:
  - Non-INSTI based ART: 0.068 (SE 0.024), p=0.005
  - NNRTI based ART: 0.098 (SE 0.026), p<0.001
  - TDF containing ART: 0.010 (SE 0.011), p=0.001
- In PWH who experienced BMI ≥ 10% vs. BMI < 10% change as compared to baseline, switch from non-PI (18.6% vs. PI 2.9%, p=0.022) and TDF (25.4% vs. non-TDF 13.5%, p=0.031) containing ART were associated with greater weight gain (data not shown)

## CONCLUSIONS

- Switch to B/F/TAF was associated with significant increases in the rate of change of BMI between the pre and post switch time periods
- The effect was notable in those switching from non-INSTI including NNRTI based ART

## CONTACT INFORMATION

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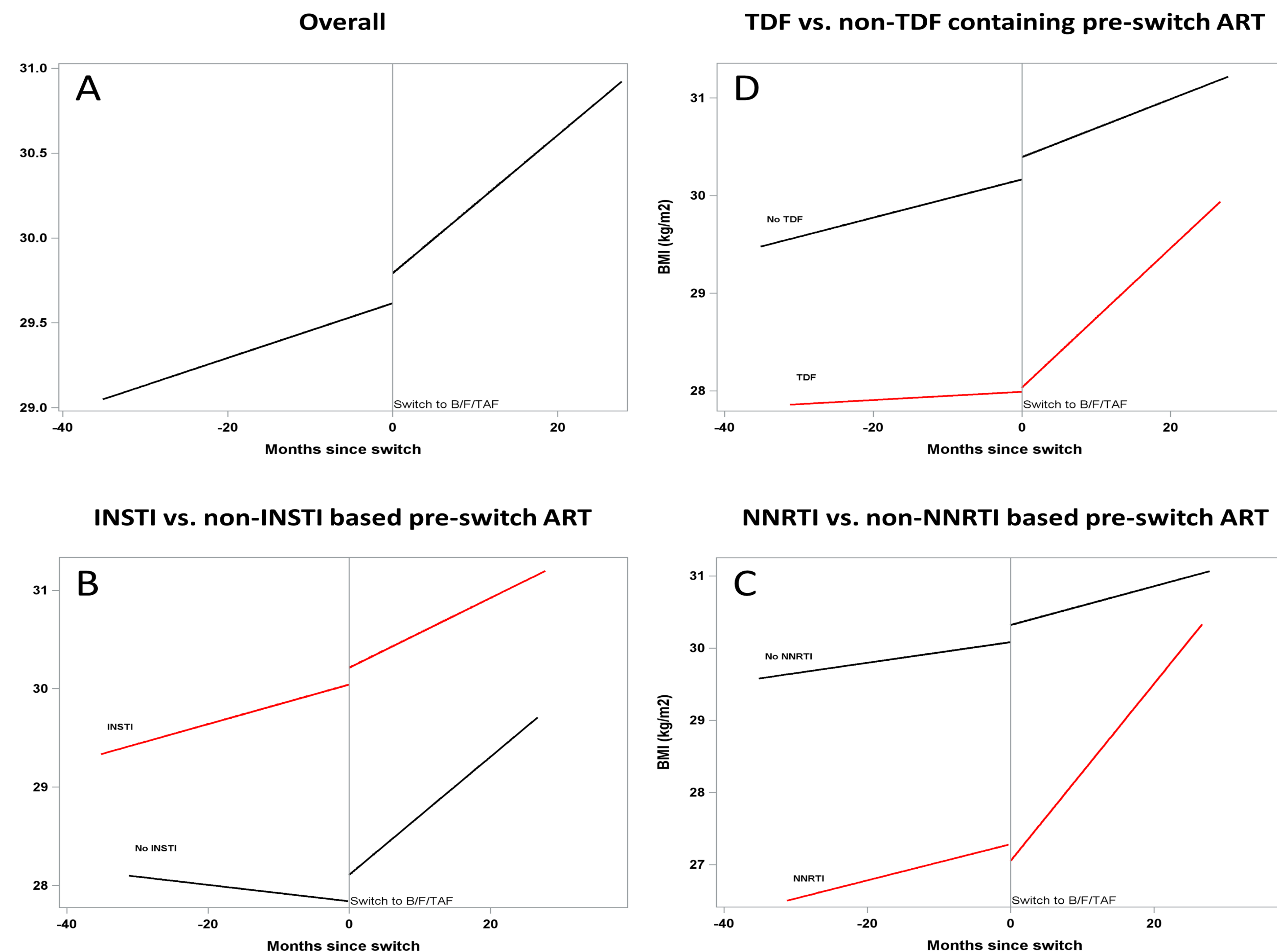


Figure 1. Slope estimates in the pre and post switch periods overall (Panel A) and by class of pre-switch ART. Panel B depicts BMI rate of change before and after switch from INSTI (red line) vs. non-INSTI (black line) based ART. Panel C depicts BMI rate of change in those switching from NNRTI based ART (red line). Panel D depicts BMI rate of change in those switching from TDF containing ART (red line).