Comparison of weight changes in treatment-naïve HIV-infected patients receiving integrase inhibitor-based therapy compared to protease inhibitor-based therapy

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Background

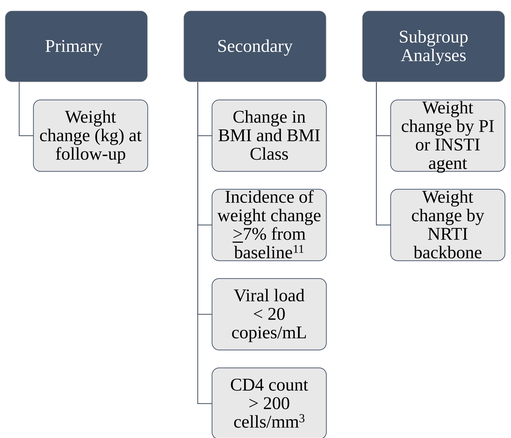
Current guidelines recommend integrase inhibitor-based (INSTI) therapy as first line in treatment-naïve patients with HIV. However, recent data indicate they may be associated with increases in weight, BMI, and body fat.[1-5] Protease inhibitors (PI) are known to alter metabolism and body weight and are a potential alternative regimen in certain clinical situations.[5-8]

Variation in clinical outcomes related to weight gain has been observed with differing demographic factors[9] and nucleoside reverse transcriptase inhibitor (NRTI) backbones utilized[10] alongside INSTIs. Published data for bictegravir-based regimens are scarce, and data comparing these drug classes could inform clinical decision making based on baseline patient characteristics.

Methods

- Retrospective observational cohort
- Data collected from a chart review for all treatment-naïve patients initiating a PI- or INSTI-based regimen from 1/1/13 to 7/31/19.
- Exclusion criteria: Less than 18 years old, less than 10 months of therapy, pregnancy, quadriplegia or paraplegia, amputation, or lack of weight or lab data at 10-14 months after starting ART.

Endpoints



Statistical Analysis

Categorical Variables: Chi Square Analysis with or without Bonferroni correction (*), as appropriate

Continuous Variables: Wilcoxon Rank Sum Test

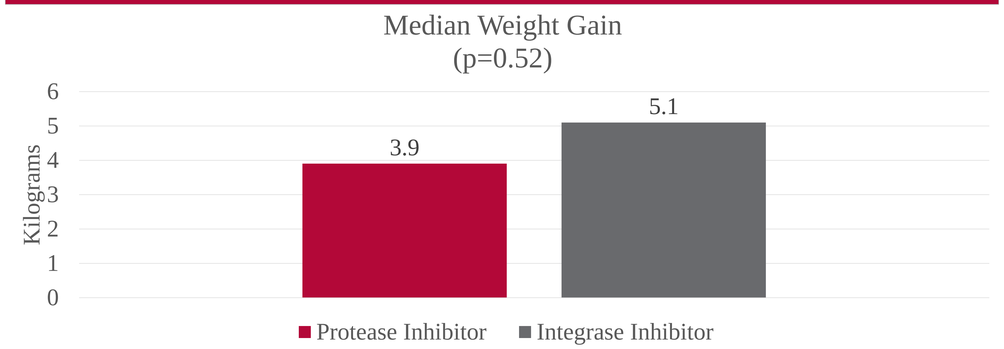
Power: In order to detect a difference of 7%, assuming a baseline average weight of 76 ± 15 kg[4] with a power of 80% and type 1 error rate of 5%, 282 patients were needed.

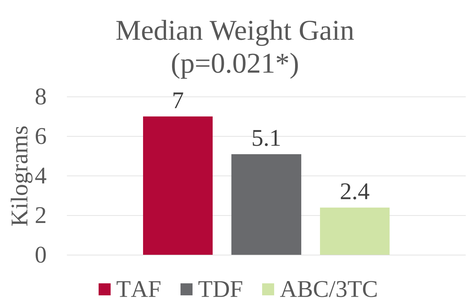
Baseline Characteristics

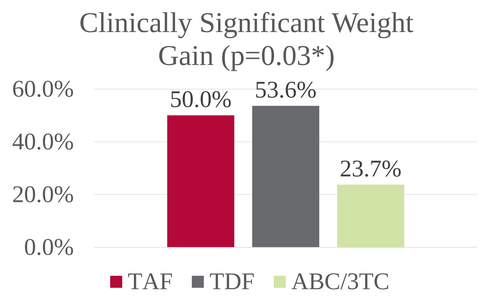
	INSTI (N=145)	PI (N=17)
Sex		
Male	82.8%	76.5%
Female	17.2%	23.5%
Ethnicity		
Asian American	0.7%	11.8%
Hispanic	2.1%	5.9%
African American	57%	47%
Caucasian	40%	35.3%

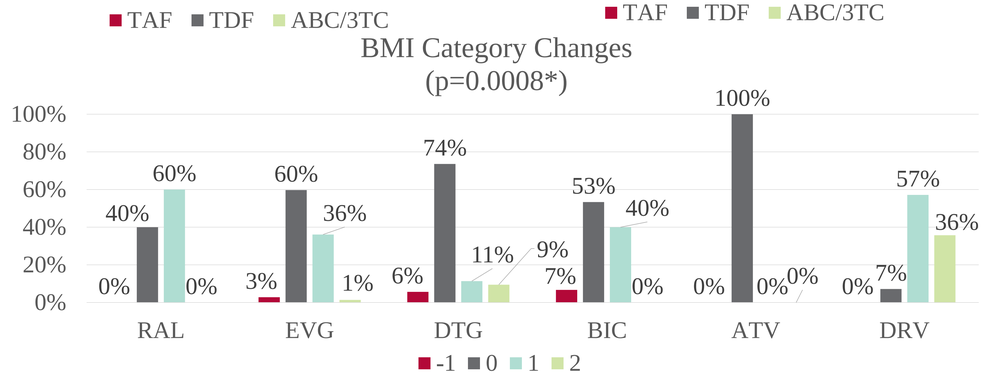
	INSTI (N=145)	PI (N=17)
INSTI or PI		
ABC/3TC	26.2%	5.9%
TDF	37.2%	88.2%
TAF	36.6%	5.9%
p value	0.0034*	
ATV		17.6%
BIC	10.3%	
DRV		82.4%
DTG	36.6%	
EVG	49.7%	
RAL	3.4%	

Results









Discussion

In conjunction with the findings of previous studies, it would seem some amount of weight gain with INSTI- or PI-based therapy can be expected for some patients. Additionally, baseline characteristics, such as sex, race, comorbidities, and background therapies may accentuate or attenuate this effect.

Contrary to other studies, both forms of tenofovir were associated with increased weight gain and a higher incidence of clinically significant weight gain, rather than only being associated with TAF. This study considered the potential impact of baseline characteristics on incidence and degree of weight gain and provided data for newer agents, such as bictegravir. The small number of patients receiving PI-based therapy and dyssynchrony between prescribing practices during the study time period and current practice limit the applicability of these findings.

References

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