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Weight gain and lipid change according to baseline comorbidities and previous antiretroviral regimen in a cohort of people treated with bictegravir/emtricitabine/tenofovir alafenamide

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Introduction

- Modern antiretrovirals such as integrase inhibitors (INSTIs) and tenofovir alafenamide (TAF) have been associated with excess weight gain (WG) in people living with HIV (PWH).
- The single tablet regimen bictegravir/emtricitabine/TAF (B/F/TAF) contains the INSTI+TAF combination, and its role in further weight gain is object of investigation.
- The aim of the present study is to assess metabolic and weight changes in ART-naïve (nPWH) and experienced (ePWH) people initiating B/F/TAF, focusing on non-infectious comorbidities and, in ePWH, according to previous ART regimen.

Study Design and Methods

- Observational retrospective single centre study including all PWH starting B/F/TAF between January 2020 and August 2022.
- Demographics, laboratory data and comorbidities were extracted from electronic charts.
- Data are showed as means (standard error).
- Changes of continue variables over time were studied by paired t-test.
- A GLM procedure was used to perform the multivariable analysis.

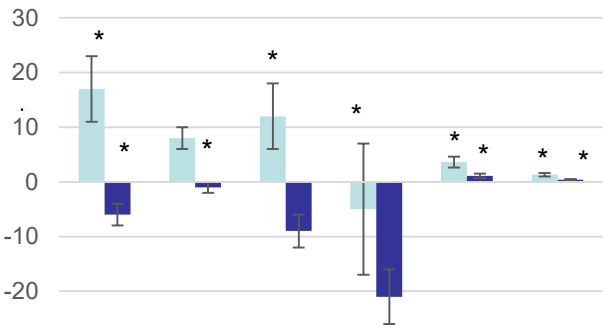
Results

- We enrolled 475 PWH, of which 47 nPWH. Females were 156 (32.8%) and people in CDC stage C were 50 (10.5%). Mean age at enrolment was 49 (0.6) years, and 81% were Caucasian.

Blood lipids

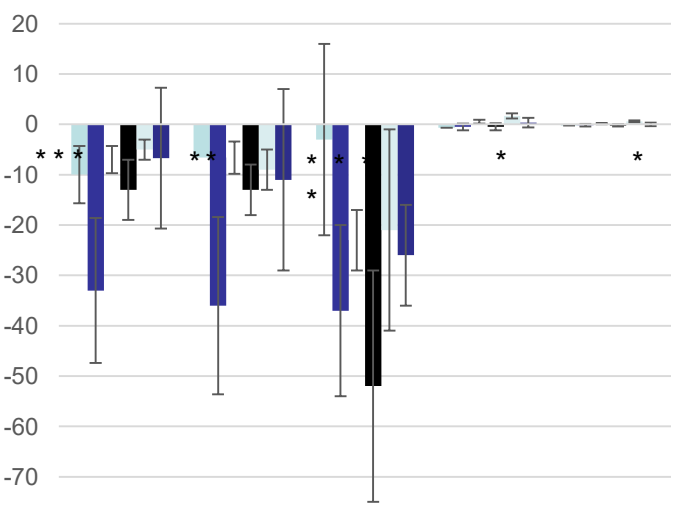
- Blood lipids showed a different trend in nPWH or ePWH
- In ePWH, total cholesterol, TC [-6 (2) mg/dL, p=0.005], LDL [-9 (3) mg/dL, p=0.0008] and triglycerides [-21 (5) mg/dL, p<0.0001] all significantly decreased
- In mPWH, TC [+17 (6) mg/dL, p=0.009] and HDL [+8 (2) mg/dL, p=0.002] increased (**Figure 1**).

Figure 1. Mean yearly change in total, HDL, LDL cholesterol, and triglycerides and in weight and body mass index (BMI), in naïve and experienced people living with HIV. Asterisks indicate significant changes from baseline value. The bars indicate the standard error.



	Total cholesterol	HDL cholesterol	LDL cholesterol	Triglycerides	Weight	BMI
Naive	17	8	12	-5	3.6	1.3
Experienced	-6	-1	-9	-21	1.1	0.4

Figure 2. Mean yearly change in total, HDL, LDL cholesterol, and triglycerides and in weight and body mass index (BMI), according to comorbidities diagnosed in the study population. Asterisks indicate significant changes from baseline value. The bars indicate the standard error.



	Total Cholesterol	LDL Cholesterol	Triglycerides	Weight	BMI
MI	-9.98	-6.6	-3	-0.68	-0.25
Dyslipidemia	-33	-36	-37	-0.49	-0.16
Hypertension	-7	-6.6	-23	0.55	0.16
Diabetes	-13	-13	-52	-0.5	-0.2
CKD	-5	-9	-21	1.7	0.6
Depression	-6.7	-11	-26	0.34	0.01

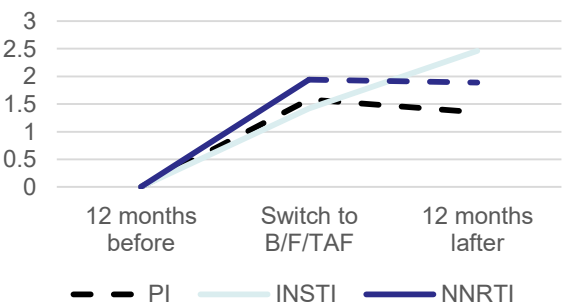
Comorbidities

- Among study participants, five (1.0%) had a history of myocardial infarction (MI), 21 (4.4%) of dyslipidemia, 44 (9.3%) of hypertension, 24 (5.1%) of diabetes, 10 (2%) of chronic kidney disease (CKD), and 29 (6.1%) of depression.
- PWH with at least one comorbidity experienced on average a reduction in blood lipids, while weight did not change significantly, except in people with CKD, in which a slight increase was reported (**Figure 2**).
- At multivariable analysis, in a model including the above reported comorbidities, age (>50 or < 50 years), sex, being ART naïve/experienced and baseline weight, this last variable was the only one significantly linked to WG (p=0.0064).

Weight changes

- Weight significantly increased in either nPWH [+3.6 (1.0) kg, p=0.0008] and ePWH [+1.1 (0.4) kg, p=0.002], with a sharper increase in nPWH (p=0.0387).
- We explored if weight change, in ART experienced PWH, was different in people who were on INSTI (N = 351), PI (N=59) or NNRTI (N=18) before switching to B/F/TAF (**Figure 3**). After correcting for age, sex and baseline weight, the anchor drug resulted not correlated to different WG after the switch.

Figure 3. Weight change according to antiretroviral regimen before switching to bictegravir/emtricitabine/tenofovir alafenamide (B/F/TAF). Solid lines indicate a significant change from the previous value, while dashed lines indicate a nonsignificant change.



Conclusions

- In this large cohort of people taking B/F/TAF, PWH with comorbidities associated with increased cardiovascular risk, such as previous MI, diabetes, dyslipidemia and hypertension, experienced favorable changes in lipids and indifferent changes in weight. Switching to B/F/TAF from PI or NNRTI did not result in a greater WG than switching from INSTI-based regimens.

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