

Background

Weight gain and obesity disproportionately affect people living with HIV (PLWH). Antiretroviral therapy (ART) may contribute to this.¹ There is increasing evidence that integrase strand transfer inhibitors (INSTI) are associated with more weight gain than other classes of antiretrovirals.² In 2018, the FDA approved a single tablet regimen -Bictegravir/Emtricitabine/Tenofovir Alafenamide Fumarate (BIC/FTC/TAF) containing the second generation INSTI Bictegravir. The primary aim of this study was to evaluate weight changes over 1 year following commencement of BIC/FTC/TAF in treatment naïve and experienced PLWH. The secondary aim was to compare weight changes by gender and evaluate changes in lipid profiles and HBA1C.

Methods

We conducted an observational, retrospective single centre analysis on PLWH who commenced BIC/FTC/TAF within the calendar year 2019. Patients with weight recorded prior to commencing BIC/FTC/TAF and at 6 months and/or 12 months afterwards were eligible for the study. Weight, lipids and HBA1C were recorded at 0 and 12 months along with each patient's demographic and clinical data. A Wilcoxin signed rank test was used to analyse weight changes at 6 and 12 months.

Results

242 patients were commenced on BIC/FTC/TAF over this time period. 67 patients were eligible for the study. 45 patients had a weight recorded at 0 and 6 months, 34 had a weight recorded at 0 and 12 months and 12 patients had a weight recorded at 0, 6 and 12 months. 46 (68.7%) patients were male and 21 (31.3%) patients were female. 5 patients were ART-naïve, 1 patient restarted ART and 61 patients switched therapy. 40 patients had a non-detectable viral load and 27 patients had a detectable viral load at initiation. The median weight was higher at 6 months: 74.4kg (55.4; 133.5) to 77.2kg (56.5; 132) p0.00002 (Fig. 1) and 12 months: 82.5kg (58.4; 126) to 87.3kg (55.2; 129), p0.032. (Fig. 2) Female patients were associated with a higher median weight gain of 3.8kg (+1.9; +11.8kg) at 12 months compared to male patients with a median weight gain of 1.7kg (-13.5; +19.4kg) at 12 months. (Fig. 3) No significant change was noted in lipid profiles or HBA1c from 0 to 12 months.

Demographics (N=67)		
Age		50 (26-76)
Gender	Male	46
	Female	21
BMI at commencement	Underweight	3
	Normal	19
	Overweight	3
	Obese	12
	Unavailable	30
HIV Status	Detectable VL	27
	Non Detectable VL	40
ART	Naïve	5
	Switch	62

Fig. 1 Median Weight 0 and 6 months

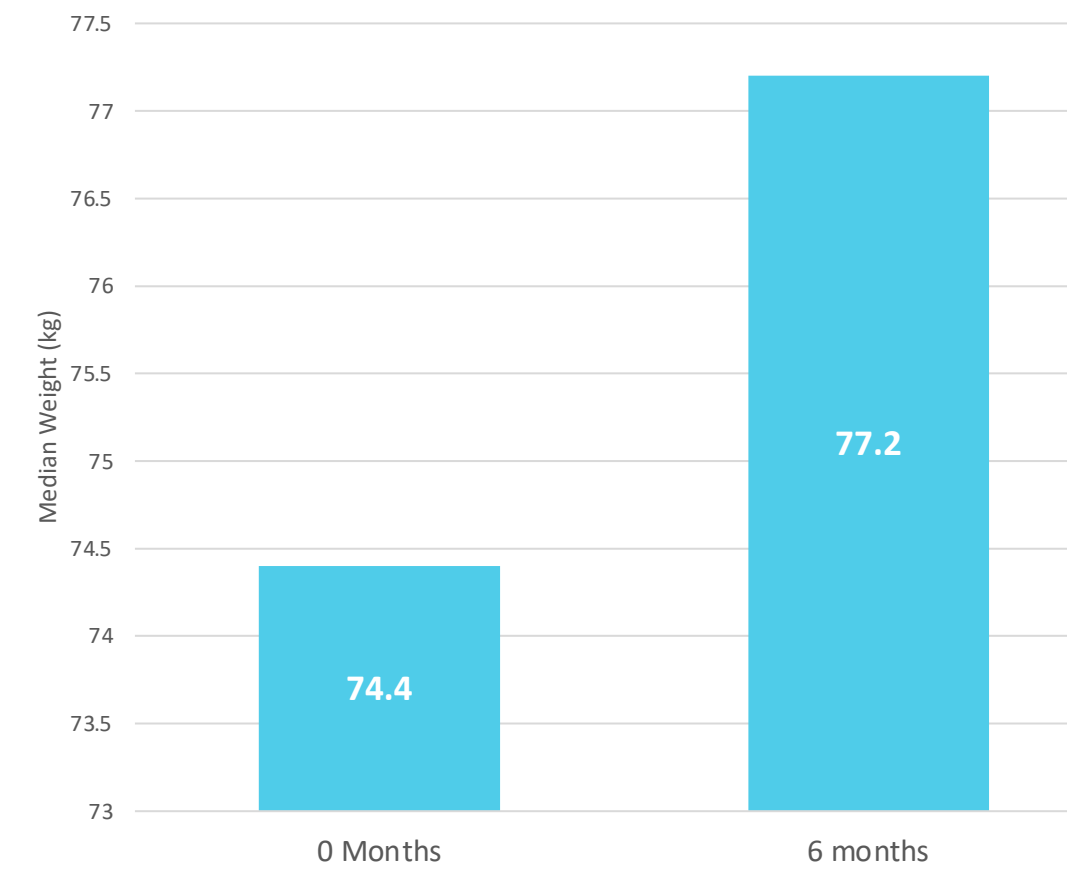


Fig. 2 Median Weight 0 and 12 months

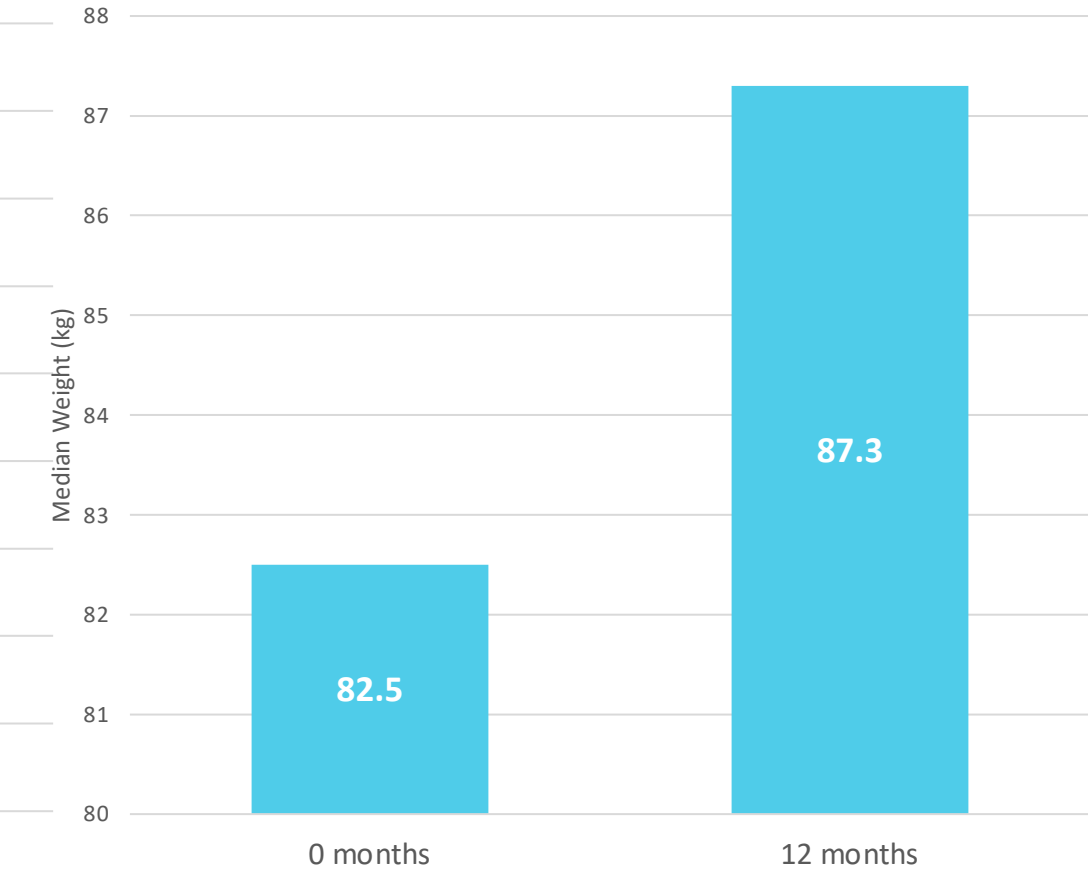
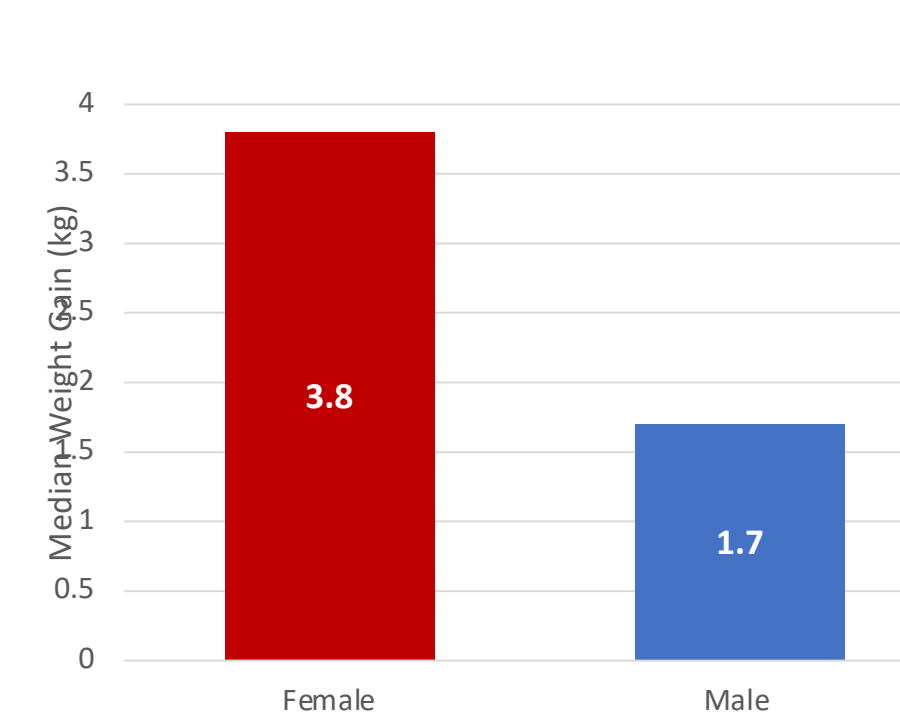


Fig. 3 Median Weight Gain at 12 months



Conclusion

Commencement of BIC/FTC/TAF resulted in a significant median weight gain at 6 and 12 months, with increased weight gain noted in female patients. There was no significant impact on lipid profile or HBA1c. Although INSTI based regimens are highly efficacious, they appear to cause more weight gain than other regimens. Further research is needed to explore the pathogenesis and associated factors of weight gain in order to individualise therapy.

References

1. Sax PE, Erlandson KM, Lake JE, et al. Weight Gain Following Initiation of Antiretroviral Therapy: Risk Factors in Randomized Comparative Clinical Trials. *Clin Infect Dis.* 2020;71(6):1379-1389. doi:10.1093/cid/ciz999
2. Bourgi K, Rebeiro PF, Turner M, et al. Greater Weight Gain in Treatment-naïve Persons Starting Dolutegravir-based Antiretroviral Therapy. *Clin Infect Dis.* 2020;70(7):1267-1274. doi:10.1093/cid/ciz407