Association of Weight Gain on Dolutegravir With Changes in Adherence and Viral Load

Matthew L. Romo,[1,2] Ajay Parikh,[1,2] Allahna L. Esber,[1,2] Joseph S. Cavanaugh,[1] Susannah Colt,[1,2] Emma Duff,[1,2] Trevor A. Crowell,[1,2] Valentine Sing'oei,[3,4] John Owuoth,[3,4] Jonah Maswai,[1,5] Michael Iroezindu,[1,6] Emmanuel Bahemana,[1,7] Hannah Kibuuka,[8] Neha Shah,[1] and Julie A. Ake,[1] on behalf of the AFRICOS Study Group

[1] U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, MD; [2] Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, MD; [3] U.S. Army Medical Research Directorate – Africa, Kisumu, Kenya; [4] HJF Medical Research International, Kisumu, Kenya; [5] U.S. Army Medical Research Directorate – Africa, Kericho, Kenya; [6] HJF Medical Research International, Abuja, Nigeria; [7] HJF Medical Research International, Mbeya, Tanzania; [8] Makerere University-Walter Reed Project, Kampala, Uganda

Poster 533

BACKGROUND

- Transition to dolutegravir (DTG)-containing antiretroviral therapy (ART) has been shown to have a positive impact on HIV treatment outcomes, but is also associated with excess weight gain in some people
- Weight gain could negatively affect ART adherence if undesired by the individual taking DTG, which may have downstream effects on viral suppression
- **Study objective:** Examine association between total body weight (TBW) change after switching ART regimen to TDF/3TC/DTG (TLD) with changes in ART adherence and viral load

METHODS

- Data came from the **African Cohort Study (AFRICOS)**, a prospective cohort enrolling PLWH at 12 clinical care facilities in Kenya, Nigeria, Tanzania, and Uganda supported by PEPFAR
- These analyses included participants who initiated ART ≥6 months before switching to TLD and **excluded participants with**:
  - Prior INSTI exposure
  - Unknown regimen prior to switch
  - Pregnancy
  - Missing pre- and/or post-TLD TBW measurement
- Study period began at most recent study visit in the 12 months before switching to TLD ("**pre-TLD**") and ended at first study visit after ≥6 months on TLD ("**post-TLD**")
- Multivariable multinomial logistic regression to evaluate association of **change in TBW*** (≥5% gain, <5% change, ≥5% loss) with:
  - **ART adherence** (change in self-reported number of missed doses [0, 1-2, or ≥3] in past 30 days)
  - **Viral load category** (change among <50, 50-999, and ≥1000 copies/mL categories)
  - **Models adjusted for**: age group, sex, study site, calendar year of starting ART, prior ART regimen, number of months since starting TLD, pre-TLD body mass index, and post-TLD food insecurity

*5% TBW change considered to be "clinically significant" based on Hill A, et al. *J Virus Erad*. 2019;5:41–43. and Milic J, et al. AIDS. 2022;36:1643–1653.

RESULTS

- 1508 participants were included who switched to TLD between 10/2018-11/2021
  - Median time from starting TLD to follow-up TBW assessment was 9 months (IQR 7-11)
- Median age was 45 years (IQR 38-52), 55.0% were female, 75.4% switched from an EFV regimen (table)
  - 439 (29.1%) participants had a TBW gain ≥5%, which was more common among female participants (32.2%) and those switching from an EFV-containing regimen (32.0%)

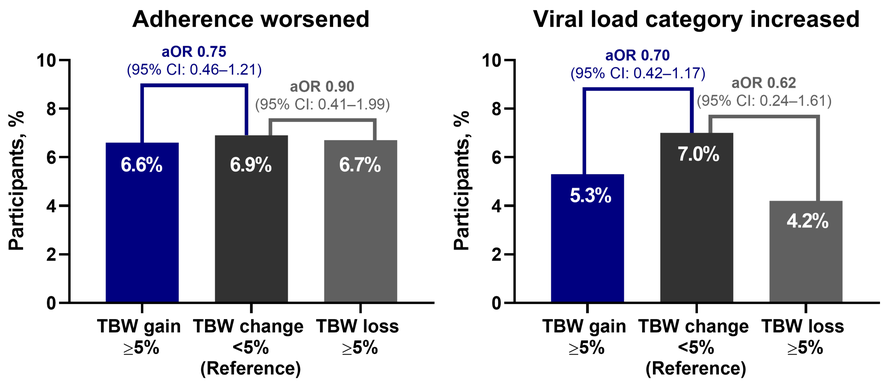
Characteristics of sample overall and by pre- and post-TLD percent total body weight change

	Total	≥5% Total body weight gain	<5% Total body weight change	≥5% Total body weight loss	p-value
Total, n (%)	1508	438 (29.1)	950 (63.0)	120 (8.0)	
Age group, n (%)					0.247*
19-30y	93 (6.1)	27 (29.0)	55 (59.1)	11 (11.8)	
30-39y	361 (23.9)	118 (32.7)	219 (60.7)	24 (6.7)	
40-49y	585 (38.8)	169 (28.9)	375 (64.1)	41 (7.0)	
≥50y	469 (31.1)	124 (26.4)	301 (64.2)	44 (9.4)	
Sex, n (%)					**0.005***
Female	830 (55.0)	267 (32.2)	493 (59.4)	70 (8.4)	
Male	678 (45.0)	171 (25.2)	457 (67.4)	50 (7.4)	
Study site, n (%)					0.274*
Kayunga, Uganda	286 (19.0)	88 (30.8)	173 (60.5)	25 (8.7)	
South Rift Valley, Kenya	513 (34.0)	142 (27.7)	328 (63.9)	43 (8.4)	
Kisumu, Kenya	332 (22.0)	82 (24.8)	228 (68.7)	22 (6.6)	
Mbeya, Tanzania	234 (15.5)	77 (32.9)	137 (58.6)	20 (8.6)	
Abuja and Lagos, Nigeria	143 (9.5)	49 (34.3)	84 (58.7)	10 (7.0)	
Prior ART regimen anchor drug, n (%)					**<0.001***
Efavirenz	1137 (75.4)	364 (32.0)	686 (60.3)	87 (7.7)	
Nevirapine	336 (22.3)	67 (19.9)	239 (71.1)	30 (8.9)	
Boosted protease inhibitor	35 (2.3)	7 (20.0)	25 (71.4)	3 (8.6)	

*Pearson's chi-square test.

- Compared with **a TBW change <5%, a TBW gain ≥5% was not significantly associated with worsened adherence** (adjusted odds ratio [aOR] 0.75, 95% CI: 0.46–1.21) **or an increase in viral load category** (aOR 0.70, 95% CI: 0.42–1.17)
  - Also, no significant associations with improved adherence (aOR 1.11, 95% CI: 0.69–1.77) or decreased viral load category (aOR 0.87, 95% CI: 0.53–1.42)

Associations of pre- and post-TLD change in total body weight with changes in self-reported ART adherence and viral load category



- **Regarding more extreme weight gain**, 116 (7.7%) participants had a TBW gain ≥10%
- A TBW gain ≥10% was also not significantly associated with worsened adherence (aOR 0.92, 95% CI: 0.43–1.97) or increased viral load category (aOR 0.61, 95% CI: 0.23–1.60) compared with a TBW change <5%

CONCLUSIONS

- Clinically significant weight gain in a short period of time after switching to TLD was common
  - ART-experienced sample likely mitigated "return to health" phenomenon
- **We did not find evidence of a negative impact of weight gain with TLD on changes in ART adherence or viral load**
- Findings provide some reassurance regarding adherence and virologic outcomes, but highlight importance of addressing potential increase in cardiometabolic risk in a new era of HIV treatment

NOTES

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Author contact:
Matthew Romo, PharmD, PhD
mromo@hivresearch.org