Body composition changes among DMPA and non-hormonal contraceptive users on TDF based ART switched to B/F/TAF

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Background

- We previously demonstrated a higher bone mass among DMPA users on tenofovir alafenamide (TAF) compared with tenofovir disoproxil fumarate (TDF) containing ART.
- However, concerns about metabolic complications remain.
- We assessed the effect of switching women living with HIV (WLWH) from TDF/ lamivudine/ dolutegravir (TLD) to Bictergravir /Emtricitabine / TAF (B/F/TAF) on body composition over a 2-year period in the BONE: STAR study.

Methods

- WLWH on TDF and DMPA-IM were randomized in a 1:1 ratio to either continue on a TDF based ART regimen **(HIV+/ DMPA+/TDF+)** or switch to B/F/TAF **(HIV+/DMPA+/ TAF+)**.
- A third group of WLWH on TDF and using non-hormonal contraception were all offered B/F/TAF **(HIV+/DMPA-/TAF+)**.
- Dual energy x-ray absorptiometry was used to measure lean mass, total, trunk, and extremity fat at enrollment and every 6 months.
- Multivariable linear regression was used to assess differences in mean % change in fat and lean mass adjusting for age, and body mass index.

Results

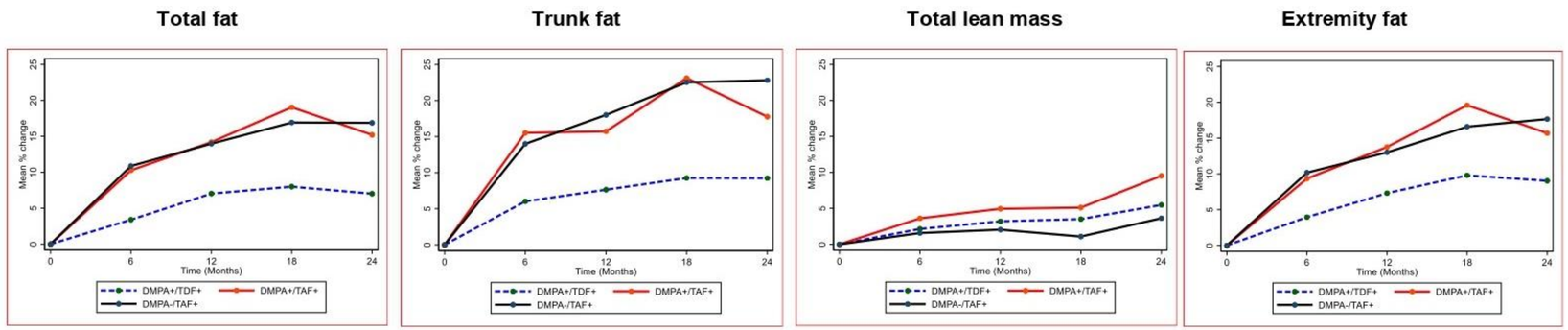
- A total of 346 WLWH were included in the analysis, with follow-up between December 2019 and August 2023.
- Median age was 31 years (IQR, 27.9 to 34.7).
- Both non-hormonal and DMPA groups who switched to B/F/TAF had significant increases in mean lean mass, total, trunk, and extremity fat post switch, p-value <0.001.
- No differences in body composition parameters were noted between women on B/F/TAF using DMPA versus B/F/TAF and non-hormonal contraception, p>0.125.
- In addition, there were no significant differences between women on B/F/TAF using DMPA or non-hormonal contraception, versus and women on TLD, p>0.173.

Significant increases were observed in fat and lean mass in all groups with no differences between DMPA users on TDF and DMPA or non-hormonal contraception users switched to B/F/TAF.

Adjusted differences in Body Composition by DMPA-IM and ART status 24 months post baseline

Exposure group	N	Adjusted % difference (95% CI)[5]	P-value[4]
Total fat			
HIV+/DMPA+/TDF+[1]	82	Ref	
HIV+/DMPA-/TAF+[2]	78	3.438 (-2.294, 9.171)	0.239
HIV+/DMPA+/TAF+[3]	103	3.485 (-1.706, 8.674)	0.187
Trunk fat			
HIV+/DMPA+/TDF+[1]	82	Ref	
HIV+/DMPA-/TAF+[2]	78	5.038 (-2.214, 12.290)	0.173
HIV+/DMPA+/TAF+[3]	103	4.756 (-2.322, 11.834)	0.187
Total lean mass			
HIV+/DMPA+/TDF+[1]	82	Ref	
HIV+/DMPA-/TAF+[2]	78	1.703 (-0.808, 4.214)	0.183
HIV+/DMPA+/TAF+[3]	103	-0.075 (-1.985, 1.836)	0.939
Extremity fat			
HIV+/DMPA+/TDF+[1]	82	Ref	
HIV+/DMPA-/TAF+[2]	78	2.868 (-2.250, 7.987)	0.271
HIV+/DMPA+/TAF+[3]	103	2.696 (-1.921, 7.314)	0.251
Body weight			
HIV+/DMPA+/TDF+[1]	90	Ref	
HIV+/DMPA-/TAF+[2]	90	2.983 (0.274, 5.691)	0.031
HIV+/DMPA+/TAF+[3]	106	0.891 (-2.178, 3.960)	0.568

Mean % change in total fat, trunk fat, total lean mass and extremity fat among DMPA and non-hormonal contraceptive users on TLD switched to B/F/TAF



Mean % change from baseline from baseline, p<0.001 for all parameters except increase in total fat in the HIV+/DMPA+/TDF+ group (p=0.099)

Conclusions

- We observed no differences in body composition parameters between DMPA users on TDF and DMPA or non-hormonal contraceptive users switched to B/F/TAF.
- Longer term follow-up data beyond 2 years are needed to further understand the impact in WLWH of different ART options on fat gain and obesity-related conditions.

Gilead Sciences, Inc.

BONE STAR STUDY

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