PATTERNS OF ADIPOSITY AND GESTATIONAL WEIGHT GAIN IN PREGNANT SOUTH AFRICAN WOMEN LIVING WITH HIV

984

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BACKGROUND

- There are concerns that dolutegravir (DTG) may be associated with excess gestational weight gain (GWG) in pregnant women with HIV (WWH) but there are few data, including from Africa.

METHODS

- The Obesogenic oRigins of maternal and Child metabolic Health Involving Dolutegravir (ORCHID) study is evaluating metabolic outcomes of pregnant WWH receiving tenofovir+lamivudine+DTG (TLD) and HIV seronegative (HIV-) pregnant women seeking antenatal care at a primary healthcare facility in South Africa.
- For this analysis, we included 949 pregnant women (388 WWH, 561 HIV-) enrolled with gestational age (GA) <13 weeks (w) and age >16 years (y).
- Body composition was assessed using air displacement plethysmography (ADP) and serial standardised anthropometry including skinfold thicknesses to distinguish visceral versus subcutaneous fat distributions.
- Latent profile analysis (LPA) was used to identify adiposity patterns and examine whether these patterns varied by HIV status or duration of TLD use.
- We used linear regression to examine whether GWG(change in weight between first and third trimester in kg/week) varied by HIV/TLD.

Table 1 - Characteristics of participants enrolled in the study and their gestational weight changes in the 3rd trimester.

Characteris?c	HIV -ve (n = 561)	WWH (n = 388)	Total (n = 949)
Age - years	26 [23-30]	29[25-34]	27[24-32]
Gestational age - weeks	10 [8-12]	10 [8-11]	10 [8-12]
Nulliparous	273 (49%)	107 (28%)	380 (40%)
BMI - kg/m2	31 [26-36]	29 [25-34]	30 [25-35]
FMI - kg/m2	13 [9-17]	12 [9-16]	12 [9-17]
Centripetal fat ratio	52 [47-56]	52 [47-56]	52 [47-56]
Obesity phenotype			
Normal/moderate central fat	119 (21%)	108 (28%)	227 (24%)
Overweight/higher central fat	110 (20%)	78 (20%)	188 (28%)
Obese/moderate central fat	157 (28%)	108 (26%)	259 (27%)
Obese/lower central fat	30 (5%)	15 (5%)	45 (5%)
Morbid obese/higher central fat	145 (26%)	85 (22%)	230 (24%)
ART duration – years	--	4.2 [1.5-7.9]	4.2 [1.5-7.9]
TLD initiation			
In pregnancy after enrolment	--	117 (30%)	117 (30%)
Prior to pregnancy	--	271 (70%)	271 (70%)
Viral load < 50 copies/ml	--	286 (74%)	286 (74%)
Weight change from T1 to T3 - kg (n = 798)	7 [4-10]	5 [3-8]	6[3-9]
Rate of change from T1 to T3 - kg/week (n = 798)	0.3 [0.1-0.4]	0.2 [0.1-0.3]	0.3 [0.1-0.4]

All characteristics are presented as medians with interquartile ranges and frequencies with proportions

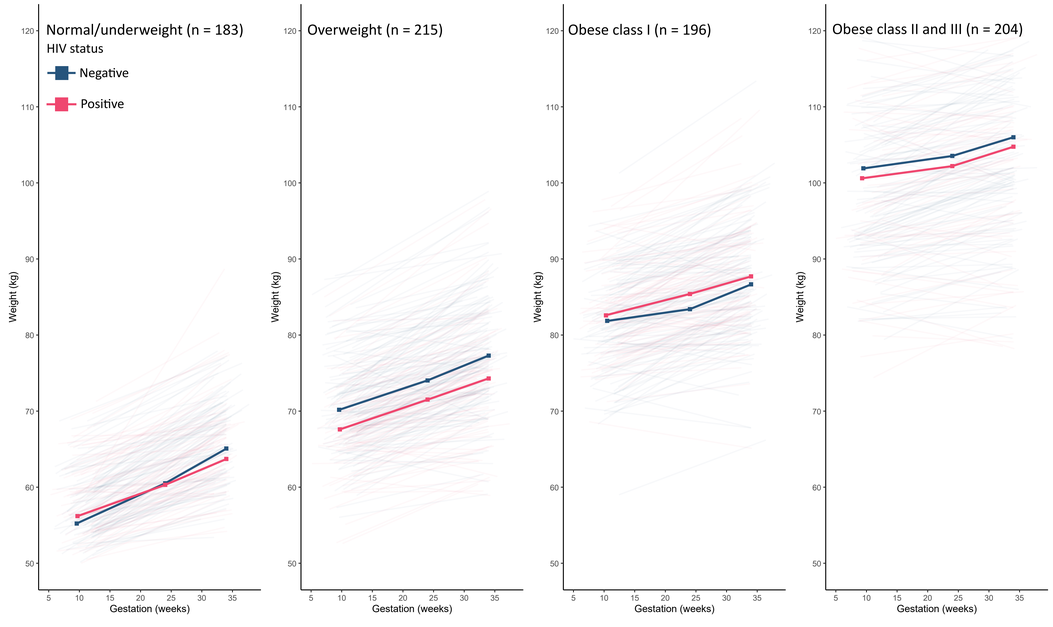
DTG is not associated with gestational weight gain in pregnant South African women.

Patterns of adiposity specific to this population are not associated with HIV/DTG.

RESULTS

- At enrolment, median age was 27y [Interquartile range (IQR), 24-32]; GA 10w [8 -12]; BMI 30 kg/m2 [25-35]; fat-mass index (FMI) 12 kg/m2 [9-17]; centripetal fat ratio (CPFR) 52 [47-56]. In WWH, median duration of TLD use was 219 days [10 - 646] and 30% of women initiated TLD in pregnancy after enrolment (Table 1).

Figure 1 - Median changes in weight throughtout gestation between first and third trimesters by HIV status and BMI categories. Light shaded streaks represent individual changes of weight for each participant.



- LPA identified five distinct adiposity patterns: weight/moderate central fat, (ii) overweight/higher central fat, (iii) obese/moderate central fat, (iv) obese/lower central fat, and (v) morbid obese/higher central fat.
- While women in pattern (i) were significantly younger, neither HIV status nor TLD duration were different across adiposity patterns after adjusting for maternal age.
- Among 798 women (84%) with third trimester GWG assessment, GWG patterns varied by HIV and BMI (Figure 1): WWH experienced 0.03 kg/week lower rate of GWG compared to HIV- women after adjustment for age, parity, education, GA and BMI at enrolment (95% CI: -0.06 to 0.01, p = 0.02). Restricted to WWH, GWG did not vary by TLD duration (not shown).

Table 2- Univariate and multivariate linear regression models showing the association between HIV and rate of weight change between 1st and 3rd trimesters.

Predictor	Univariate analysis	Multivariate analysis
HIV		
Negative	Ref	Ref
Positive	-0.04 (-0.07, -0.02)	-0.03 (-0.06, -0.01)
Age	-0.006 (-0.008, -0.003)	-0.001 (-0.004, -0.002)
Nulliparous		
No	Ref	Ref
Yes	0.08 (0.05, 0.11)	0.05 (0.02, 0.01)
Gestational age	0.02 (0.01, 0.03)	0.02 (0.01, 0.03)
BMI at enrolment	-0.009 (-0.011, -0.007)	-0.008 (-0.010, -0.007)
Education		
Beyond secondary	Ref	Ref
Secondary and below	-0.06 (-0.10,-0.01)	-0.06 (-0.10,-0.01)

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CONCLUSIONS

- These reassuring data suggest that DTG is not associated with GWG in this setting.
- While the patterns of adiposity identified are specific to this population, these are not associated with HIV/DTG.

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Healthy pregnancies. Healthy children. Healthy and optimal lives.