Gestational weight gain by timing of dolutegravir initiation among pregnant women living with HIV

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Background

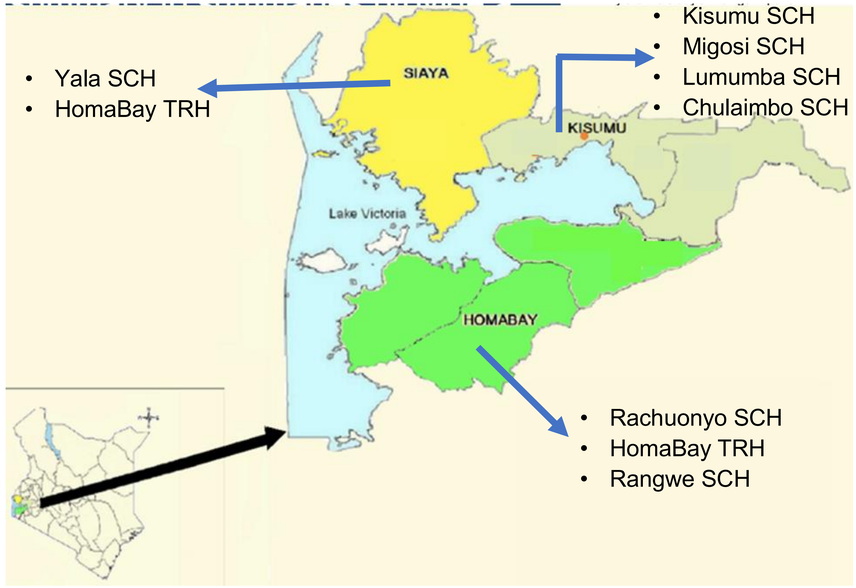
- Gestational weight gain and body mass index (BMI) are key determinants of maternal and infant health outcomes
- Currently, DTG is the WHO-recommended first-line therapy for pregnant WLWH due to higher viral suppression, lower viral resistance, good tolerability, lower toxicity and fewer drug-drug interactions
- DTG use has been associated with metabolic changes such as weight gain
- Despite growing use of DTG in pregnancy, data are scarce on how timing of DTG initiation influences gestational weight gain

WLWH who initiated DTG early in pregnancy experienced more weight gain and BMI increases compared to those initiating DTG preconception or later in pregnancy

Methods

- We analyzed data from an ongoing safety evaluation of DTG use in pregnancy in Homa Bay and Siaya counties

Figure 1: Distribution of study sites



- Pregnant WLWH were enrolled based on timing of DTG-ART initiation (pre-conception, 1st, or 2nd trimester) and followed up monthly.
- Height was measured at enrollment and weight measured at each visit to compute BMI.
- We fitted linear mixed-effects models to examine changes in weight and BMI across gestation relative to DTG initiation.
- Gestational age was modeled using natural cubic spline for nonlinear trends, with random intercepts and slopes accounting for repeated measures.
- Model fit was assessed using AIC, BIC, and log-likelihood to identify optimal spline degrees of freedom.

Results

Table 1: Baseline characteristics of study participants

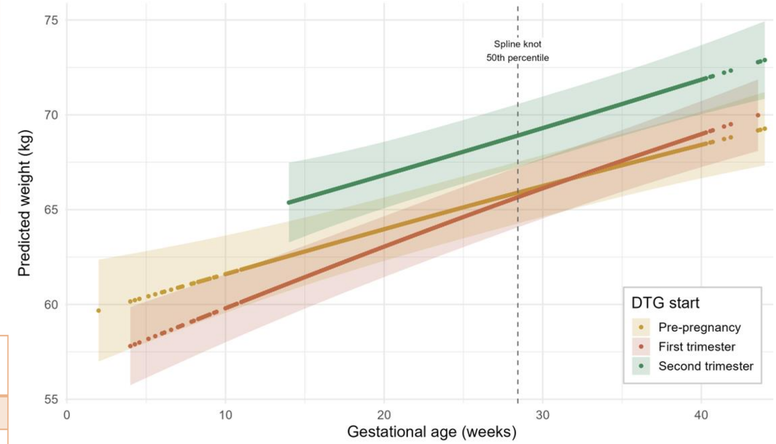
Characteristics	Overall (N = 480)	Pre-pregnancy (N = 160)	1st trimester (N = 166)	2nd trimester (N = 154)
Age	27.0 (23.0 - 31.0)	29 (25 - 32.3)	26 (23.0 - 30.0)	26.0 (22.0 - 30.8)
Age groups				
18 – 24 years	174 (36.3%)	37 (23.1%)	72 (43.4%)	65 (42.2%)
More than 24 years	306 (65.8%)	123 (76.9%)	94 (56.6%)	89 (57.8%)
Gestational age	21.0 (14 - 27)	23.5 (16.0 - 29.0)	14.0 (11.0 - 20.0)	24.5 (20.0 - 28.8)
Partner disclosure	319 (74.9%)	135 (94.4%)	106 (70.7%)	78 (58.7%)
BMI at enrolment	24kg/m^2 (IQR: 22-25)	24kg/m^2 (IQR: 22-25)	23kg/m^2 (IQR: 21-26)	25kg/m^2 (IQR: 23-28)

- BMI increased nonlinearly throughout pregnancy (all spline terms p<0.001).
- Compared to WLWH starting DTG pre-conception, WLWH who started DTG in the 1st trimester:
  - Gained more weight (β:2kg, 95% CI:0.221–3.79, p=0.028)
  - Had increased BMI per week in the 2nd half of pregnancy (β:0.805kg/m^2, 95% CI:0.129–1.48, p=0.020) (Figure 1).
- WLWH who started DTG in the 2nd trimester did not have statistically significant changes in weight/BMI by week compared to those who initiated preconception.

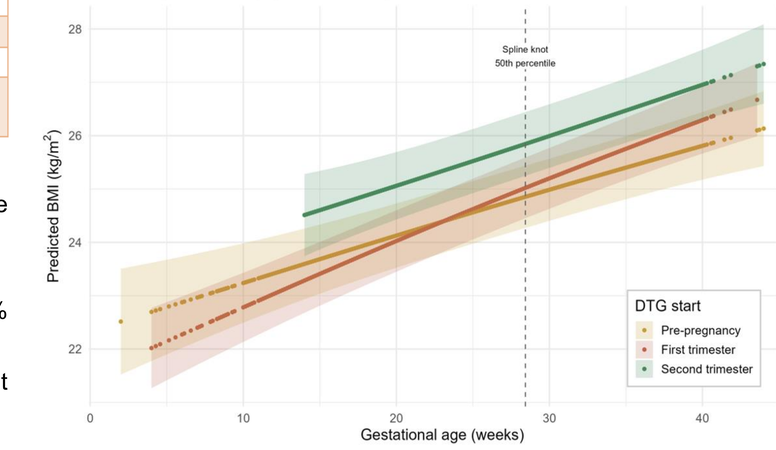
Results

Figure 1: Change in weight and BMI by gestational age and DTG initiation

A: Change in weight by gestational age and DTG initiation



B: Change in BMI by gestational age and DTG initiation



Conclusions

- WLWH who initiated DTG early in pregnancy experienced more weight gain and BMI increases compared those initiating DTG preconception or later in pregnancy.
- Further research to investigate how weight and BMI changes among WLWH on DTG during pregnancy is needed to provide guidance for optimizing HIV management among pregnant WLWH.

Acknowledgements

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