POSTER 0751

SIMILAR BIRTH ANTHROPOMETRICS WITH *IN UTERO* EXPOSURE TO DOLUTEGRAVIR OR EFAVIRENZ

AUTHORS: Samuel W. Kgole[1], Jennifer Jao[1,2,3], Shan Sun[2], Nicholas Mmasa[1], Gosego Masasa[1], Justine Legbedze[2], Sikhulile Moyo[1], Coulson Kgathi[1], Joseph Makhema[1], Francis Banda[4], Mitchell E. Geffner[5], Mariana Gerschenson[6], Irwin Kurland[7], Elaine Abrams[8], Kathleen M Powis[1, 9, 10]

Affiliations: [1]Botswana Harvard AIDS Institute Partnership, [2]Northwestern University Feinberg School of Medicine, Chicago, [3]Ann & Robert H. Lurie Children's Hospital of Chicago, [4]University of Botswana, [5]Keck School of Medicine of University of Southern California, [6]John A. Burns School of Medicine, University of Hawaii at Manoa, [7]Albert Einstein College of Medicine, [8]ICAP at Columbia University, [9]Harvard University

BACKGROUND

Prior to a policy of lifetime antiretroviral treatment (ART) for all pregnant women living with HIV (WLHIV), some studies reported lower HIV-exposed uninfected (HEU) infant birth anthropometrics compared to HIV-unexposed uninfected (HUU) infants. In the current era of "treat all", where all pregnant WLHIV should be receiving ART in pregnancy, it is important to evaluate how in utero exposure to antiretrovirals (ARVs) affects HEU infant birth weight and length. This is particularly important as newer ARVs are used in pregnancy such as dolutegravir (DTG).

OBJECTIVES

To assess associations between in utero DTG or EFV exposure and growth among HIV-uninfected children of WLHIV in Botswana. We quantified birth anthropometrics by infant HIV exposure status in two Botswana prospective studies, where HEU infants were exposed to either DTG- or efavirenz (EFV)-based regimens.

METHODS

This study was a combined analysis of WLHIV and HIV-uninfected (HIV-U) women enrolled in the Tshilo Dikotla study between 16-36 weeks gestation and the Infant Gut Microbiome study between 36 weeks gestation and 3 days post-delivery. All WLHIV received a backbone of tenofovir + emtricitabine, and either DTG or EFV. Birth anthropometrics for singleton infants were abstracted from hospital records. Intergrowth21 was used to derive birth weight-for-age (WAZ) and length-for-age (LAZ) z-scores, adjusting for sex and gestational age at birth. Mean birth WAZ and LAZ were compared between HEU and HUU infants using Student's *t*-test. Among HEU infants, birth WAZ and LAZ were compared by *in utero* exposure to either a DTG- vs EFV-based regimen.

RESULTS

TABLE 1. Characteristics of Pregnant Women and their Infants

Maternal Characteristics	WLHIV (DTG/TDF/FTC) (n=158)	WLHIV (EFV/TDF/FTC) (n= 117)	HIV-U (n=188)	*P*-value
Maternal Age, years	29.1 (25.5-34.4)	30.4 (36.4-35.6)	25.3 (22.1-30.6	**<0.001**
Gravidity	3 (2,3)	3 (2,4)	2 (1,3)	**<0.001**
Married/Cohabitating	62 (39.2)	59 (31.4)	45 (38.5)	0.25
Highest Education				**< 0.001**
Primary Education	5 (3.2)	7 (5.9)	3 (1.6)	
Secondary Education	137 (86.7)	97 (82.9)	125 (66.8)	
Tertiary Education	16 (10.1)	13 (11.0)	59 (31.6)	
Infant Characteristics	**DTG-Exposed Infants (n= 158)**	**EFV-Exposed Infants (n=117)**	**HIV/ARV Unexposed Infants (n=188)**	
Male	75 (47.5)	60 (51.3)	90 (47.8)	0.75
Gestational age at birth, weeks	39 (37-40)	39 (38-40)	40 (38-40)	0.34

Continuous variables expressed as median (interquartile range) and categorical variables as n (%). P-values from Wilcoxon or Chi-square. ARV= Antiretroviral; DTG= dolutegravir; EFV=efavirenz; FTC = emtricitabine; WLHIV= Pregnant women living with HIV; HIV-uninfected (HIV-U); TDF=tenofovir disoproxil fumarate.

Summary of Cohort Characteristics

Pregnant women living with HIV had a higher median age than pregnant women without HIV and had experienced more pregnancies. Women who were HIV-uninfected were more educated with 31.6% having a tertiary education compared to only 10.6% of those living with HIV.

We extend our sincere appreciation to the Microbiome, Tshilo Dikotla mother-infant pairs and the study staff.

TABLE 2: Birth Anthropometrics by HIV Exposure Status

	HEU Infants (N=275)	HUU Infants (N=188)	*P*-value
Mean WAZ (95% CI)	-0.13 (-0.25, -0.01)	0.00 (-0.16, +0.16)	0.20
Mean LAZ (95% CI)	+1.07 (+0.87, +1.26)	+1.17 (+0.93, +1.41)	0.51

TABLE 3: Birth Anthropometrics for HEU Infants by *in utero* Exposure to DTG vs EFV

	DTG-Exposed Infants (N=158)	EFV-Exposed Infants (N=117)	*P*-value
Mean WAZ (95% CI)	-0.09 (95% CI -0.26, +0.09)	-0.18 (95% CI -0.36, 0.00)	0.45
Mean LAZ (95% CI)	+1.16 (95% CI +0.89, +1.43)	+0.95 (95% CI +0.66, +1.23)	0.28

CONCLUSIONS

We found no significant difference in birth WAZ or LAZ between HEU and HUU infants or between HEU infants exposed *in utero* to DTG-based versus EFV-based regimens. Our findings require validation in larger birth cohorts.

Study Funded by NIDDK/NIH: R01 DK109881