0885

Disparities in Prenatal Syphilis Risk Among Pregnant Women Living with HIV in Brazil

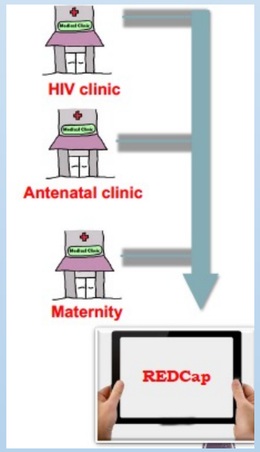
Jessica L. Castilho[1], Fernanda F. Fonseca[2,3], Ahra Kim[4], Emilia Jalil[5], Andréa M.B. Beber[2], Valdiléa G. Veloso[5], Carmen S.B. Domingues[2], Catherine C. McGowan[1], Angélica E.B. Miranda[2], Beatriz Grinsztejn[5], Adele S. Benzaken[2,3], Bryan E. Shepherd[4], and Gerson F.M. Pereira[2] on behalf of the National Cohort Study of Dolutegravir and Pregnancy Outcomes in Brazil

[1]Vanderbilt University Medical Center, Division of Infectious Diseases Nashville, TN, United States; [2]Ministry of Health – Brazil, Department of Diseases with Chronic Conditions and Sexually Transmissible Infections, Brasilia, Brazil; [3]AIDS Health Care Foundation, AHF, Global Program, São Paulo, Brazil; [4]Vanderbilt University Medical Center, Department of Biostatistics, Nashville, TN, United States; [5]Fiocruz, Instituto Nacional de Infectologia - Evandro Chagas, Rio de Janeiro, Brazil

Background

- Prenatal syphilis is associated with preventable adverse pregnancy outcomes and has been associated with vertical HIV transmission in women living with HIV (WLWH)[1-3]
- Prevalence of prenatal syphilis is high in many countries, including Brazil, but less is known of prenatal syphilis epidemiology in WLWH[4,5]
- Using a national cohort, we evaluated whether more vulnerable pregnant WLWH in Brazil experienced increased prenatal syphilis risk.

Methods



Systematic abstraction of comprehensive retrospective data, including syphilis data, of pregnant WLWH throughout Brazil exposed to dolutegravir or efavirenz (1:3) between January 2015 and May 2018 identified through national ART databases[6]

Included: WLWH with known pregnancy outcomes

Prenatal syphilis: Defined as (1) documented syphilis diagnosis and treatment or (2) first positive anti-treponemal test or any positive VDRL test between ≤30 days before estimated date of conception (EDC) and end of pregnancy

Statistical Approach: Multivariable logistic regression included demographic, clinical, and geographic covariates selected *a priori*. Multiple imputation with 20 replications performed to account for missing data. Maternal age fit with restricted cubic splines. All covariates included in model shown in Figure.

Prenatal syphilis was prevalent in 7.7% in pregnant WLWH in Brazil. Increased risk of prenatal syphilis was observed among the most vulnerable WLWH.

Results

- Among 2,169 pregnant WLWH, 166 (7.7%) met criteria for prenatal syphilis, of whom 151 (91%) had documented syphilis treatment. Median gestational age at syphilis diagnosis was 14.6 weeks (IQR: 9.5-24.3).
- Median number of prenatal visits was seven (IQR: 5-9) in women with and without prenatal syphilis (p=0.19)
- Overall, 45.0% of all women were of mixed race, 34.4% White, 12.2% Black, 0.8% Asian, 0.6% Indigenous, and 7.0% missing/unknown race
- Compared to those without prenatal syphilis, WLWH with prenatal syphilis were younger (25.9 vs. 27.7 years, p=0.043), more likely to be Black or mixed race (67.3% vs. 56.4%, p=0.003), more likely to have <8 years of education (47.8% vs. 39.4%, p=0.004), and were diagnosed with HIV in later calendar years (median year 2016 vs. 2015, p<0.001)
- Women with prenatal syphilis more likely to ever (before or during pregnancy) use tobacco (33.7% vs. 18.6%), alcohol (30.7% vs. 16.1%), and crack/cocaine (21.1% vs. 7.0%) (all p<0.0001)

Figure: Multivariable logistic regression for odds of prenatal syphilis

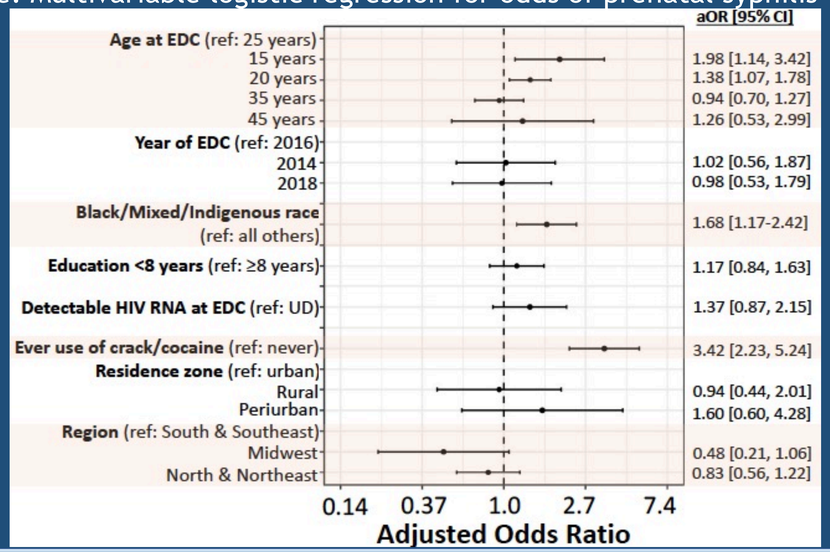


Table: Pregnancy outcomes by maternal prenatal syphilis status (n=2207 fetuses total)

	No Prenatal Syphilis (n=2039)	Prenatal Syphilis (n=168)	P value[a]
Outcome, n (%)			0.867
Livebirth	1970 (96.6)	161 (95.8)	
Stillbirth	20 (1.0)	2 (1.2)	
Spontaneous abortion	49 (2.4)	5 (3.0)	
Birthweight in grams, median (IQR)	3040.0 (2755.0-3355.6)	3085.0 (2781.7-3370.0)	0.635
Gestational age at delivery in weeks, median (IQR)	38.9 (38.0-39.4)	39.0 (38.0-40.0)	0.007

[a] Compared using Wilcoxon ranksum and Chi-square tests for continuous and categorical measures, respectively

Limitations

- ART restrictions may introduce selection bias
- Data only available through 2018
- Comparative data for women without HIV not collected
- Retrospective, observational data from medical records subject to inherent limitations for collection of social determinants of health

Conclusions

- In this national cohort in Brazil, prenatal syphilis was highly prevalent among WLWH
- Younger women, women of Black or mixed race, women with lower education status, and women with any history of crack/cocaine use were at increased risk for prenatal syphilis
- More than 90% of women with prenatal syphilis received treatment; serious adverse pregnancy outcomes were rare overall

References
1. Newman L, *et al.* Global estimates of syphilis in pregnancy and associated adverse outcomes: analysis of multinational antenatal surveillance data. *PLoS Med* 2013;10(2):e1001396.
2. Watson-Jones D, *et al.* Syphilis in pregnancy in Tanzania. I. Impact of maternal syphilis on outcome of pregnancy. *J Infect Dis* 2002;186(7):940-7.
3. Adachi K, *et al.* Combined evaluation of sexually transmitted infections in HIV-infected pregnant women and infant HIV transmission. *PLoS One* 2018;13(1):e0189851.
4. Domingues RM, Szwarcwald CL, Souza Junior PR, *et al.* Prevalence of syphilis in pregnancy and prenatal syphilis testing in Brazil: birth in Brazil study. *Rev Saude Publica* 2014;48(5):766-74.
5. Zachek CM, *et al.* The Intersection of HIV, Social Vulnerability, and Reproductive Health: Analysis of Women Living with HIV in Rio de Janeiro, Brazil from 1996 to 2016. *AIDS Behav* 2019;23(6):1541-1551.
6. Pereira GFM., *et al.* Dolutegravir and pregnancy outcomes in women on antiretroviral therapy in Brazil: a retrospective national cohort study. *Lancet HIV*, 2021. **8**(1): e33-e41.

This work was supported by the Ministry of Health of Brazil and the Caribbean, Central and South America network for HIV epidemiology (CCASAnet), a member cohort of the International epidemiology Databases to Evaluate AIDS (U01AI069923). JLC also supported by K23AI120875.

jessica.castilho@vumc.org