

NEURAL TUBE DEFECTS AND PRENATAL EXPOSURE TO DOLUTEGRAVIR: UNITED STATES, 2008-2019

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No increased risk of infant neural tube defects was demonstrated in the largest U.S. cohort, to date, of women with periconceptional/early pregnancy dolutegravir (DTG) exposure.

Women with HIV had higher rates of stillbirth and pregnancy losses compared with women without HIV; data were inconclusive when comparing women with periconceptional/early pregnancy DTG vs. other ARV exposures.

Background

A study from Botswana identified an elevated risk of neural tube defects (NTD) in infants of mothers with HIV treated with dolutegravir (DTG) around the time of conception. Comprehensive data from the United States, a setting with folic acid fortification of food, have not been reported.

Methods

Data Sources:

- MarketScan Commercial Claims and Encounters Database 2008 -2019
- Centers for Medicare and Medicaid Services Medicaid Data, 2008 -2019.

Methods:

- We identified pregnancies with enrollment during their whole duration among women aged 15-49 years old;
- We determined presence of HIV diagnosis and antiretroviral (ARV) prescriptions by type of ARV. We developed an algorithm to estimate time of conception, identify pregnancy outcomes, and match infants with NTD diagnoses to their mothers.

Measures:

- We estimated incidence of NTD by type of ARV (DTG vs any other ARV) periconceptionally and during first trimester (8 weeks before conception - 13 weeks gestation).
- We estimated risk ratio of NTD, stillbirths, and pregnancy losses (including spontaneous and induced abortions) among women with DTG or other ARV exposure in early pregnancy as well as for women without HIV.

Table. Risk ratios (95% confidence intervals) of neural tube defects (NTD) and adverse outcomes in pregnancies with exposure to dolutegravir (DTG) or other antiretroviral (ARV) medications periconceptionally and during the first trimester, compared to women without HIV, MarketScan commercial and Medicaid databases 2008-2019

		Women without HIV	Women with HIV, DTG in early pregnancy		Women with HIV, Other ARV in early pregnancy	
		N (Rate, per 1,000)	N (Rate, per 1,000)	Risk Ratio (95% Confidence Interval)	N (Rate, per 1,000)	Risk Ratio (95% Confidence Interval)
MarketScan (Weighted)	Pregnancies (N)	17,522,140	509		6,892	
	Live births*	12,988,678 (741.3)	316 (620.3)	0.84 (0.78 – 0.90) ‡	4,427 (642.3)	0.87 (0.85 – 0.88) ‡
	NTD**	9,901 (0.8)	0 (0.00)	N/A	4 (0.9)	1.12 (0.41 – 3.07)
	Stillbirths	108,164 (6.2)	8 (15.9)	2.58 (1.30 – 5.11) ‡	83 (12.1)	1.96 (1.58 – 2.42) ‡
	Pregnancy Loss†	4,304,479 (245.7)	185 (363.8)	1.48 (1.32 – 1.66) ‡	2,304 (334.2)	1.36 (1.32 – 1.41) ‡
Medicaid	Pregnancies (N)	18,904,008	2,331		18,437	
	Live births*	15,515,806 (820.8)	1,515 (649.9)	0.79 (0.77–0.82) ‡	13,182 (715.0)	0.87 (0.86–0.88) ‡
	NTD**	12,910 (0.8)	1 (0.7)	0.79 (0.11 – 5.63)	9 (0.7)	0.82 (0.43 – 1.58)
	Stillbirths	104,465 (5.5)	12 (5.1)	0.93 (0.53–1.64)	130 (7.1)	1.28 (1.07–1.51) ‡
	Pregnancy Loss†	3,205,797 (169.6)	795 (341.1)	2.01 (1.90 – 2.13) ‡	4,976 (269.9)	1.59 (1.55 – 1.63) ‡

*: per 1,000 pregnancies; **: per 1,000 livebirths; †: Pregnancy Loss includes spontaneous and induced abortions. ‡: p-value < 0.05;

Disclaimer

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention

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