CHRD 2024: Abstract Submission Form

Presenter Name
Sherif Eltonsy (3)

Presenter Status
Non-Trainee

Role in the project
Design
Perform Experiments
Analyze Data
Write Abstract

Research Category
Community Health / Policy

Title
Antiseizure medication use during pregnancy and the Risk of adverse neonatal birth outcomes in two Canadian provinces.

Background
Antiseizure medication (ASM) exposure in-utero has been associated with an increased risk of adverse birth outcomes.

Objective
We aimed to study the association between ASM use during pregnancy and the risk of adverse neonatal outcomes among all pregnant people, pregnant people with epilepsy (PPWE) and pregnant people without epilepsy (PPWOE)

Methods
We conducted a multisite population-based retrospective cohort study of pregnant people in Manitoba (1998-2021) and Saskatchewan (1995-2023). We examined the association between ASM exposure anytime during pregnancy and the following outcomes: risk of small for gestational age (SGA), low birth weight (LBW), preterm birth, NICU admissions, infants' length of hospital stays (LOS) (>3days), infant mortality (≤27days), neonatal mortality (≤365days), persistent pulmonary hypertension (PPHTN), neonatal respiratory distress syndrome (NRDS), severe neonatal morbidity (SNM) and neonatal readmissions. This analysis was done among all pregnant people, PPWE and PPWOE. Multivariate regression models were adjusted for maternal age, pain, comorbidities, urban/rural, socioeconomic status, multiple births, and teratogenic drugs exposure in first trimester. Random effects models were used to meta-analyse the aggregated data from the two sites.

Results
We included a total of 545,121 pregnancies in our analysis, with 6,874 (1.26%) ASM exposed pregnancies. We observed a significant increase in the risk of SGA (adjusted odds ratio [aOR] 1.13, 95%CI 1.08-1.19), LBW (aOR 1.19, 95%CI 0.61-2.30), preterm birth (aOR 1.36, 95%CI 1.06-1.76), NICU admissions (aOR 1.30, 95%CI 1.08-1.57), LOS infant (aOR 1.18, 95%CI 1.05-1.31), infant mortality (aOR 1.21, 95%CI 1.02-1.44), neonatal mortality (aOR 1.23, 95%CI 1.07-1.43), and PPHTN (aOR 1.38, 95%CI 1.20-1.57). No significant association was observed with neonatal readmissions (aOR 1.10, 95%CI 0.94-1.29), SNM (aOR 1.08, 95%CI 0.81-1.44) and NRDS (aOR 1.06, 95%CI 0.79-1.43) when compared with unexposed pregnant people. Similar significant increased risks were observed among PPWOE. PPWE analysis was underpowered. The findings were consistent between the two sites.

Conclusion
ASM exposure in all pregnant people and PPWOE is associated with a significant increase in specific adverse birth outcomes. ASMs for non-epilepsy indications should be rationalized, especially when alternate treatments may be safer during pregnancy. Larger studies among PPWE are recommended to identify and separate the effect of ASMs from underlying epilepsy.

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Authors

Name	Email	Role	Profession
Alekhya Lavu		Co Author	Graduate
Payam Peymani		Co Author	Research Associate
Silvia Alessi Severini		Co Author	Full Professor
Chelsea Ruth		Co Author	Associate Professor
Jamison Falk		Co Author	Associate Professor
Kaarina Kowalec		Co Author	Assistant Professor
Christine Leong		Co Author	Associate Professor
Shelley Derksen		Co Author	
Roxana Dragan		Co Author	
Marcus C Ng		Co Author	Associate Professor
Brandace Winquist		Co Author	Assistant Professor
Joseph Delaney		Co Author	Full Professor
Sherif Eltonsy		Presenting Author	Assistant Professor