CHRD 2024: Abstract Submission Form

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Presenter Status
PhD Student

Role in the project
Design
Perform Experiments
Analyze Data
Write Abstract

Research Category
Community Health / Policy

Title
Gabapentin Use During Pregnancy and the Risk of Adverse Neonatal Birth Outcomes in two Canadian provinces

Background
Over the last decade, gabapentin has become one of the most utilized antiseizure medications during pregnancy, with its increased off-label use attributed to perceived safety and efficacy in pain reduction.

Objective
We aimed to study the association between in-utero exposure to gabapentin and adverse neonatal outcomes among all pregnant people, pregnant people with epilepsy (PPWE) and pregnant people without epilepsy (PPWOE.), in two Canadian provinces.

Methods
We conducted a multi-site population-based retrospective cohort study of pregnant people in Manitoba (1998-2021) and Saskatchewan (1995-2023). We examined the association between gabapentin 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) (> 3 days), infant mortality (≤27 days), neonatal mortality (≤365 days), 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 model was used to meta-analyze the aggregated data from both sites.

Results
We included a total of 545,121 pregnancies in our analysis including 1,663 (0.31%) pregnancies exposed to gabapentin. We observed a significant increase in the risk of SGA (adjusted odds ratio [aOR] 1.19,95%CI 1.06-1.33), preterm birth (aOR 1.62,95%CI 1.37-1.91), LOS infant (aOR 1.82,95%CI 1.40-2.36), infant mortality (aOR 1.48,95%CI 1.04-2.11), neonatal mortality (aOR 1.56,95%CI 1.04-2.34), neonatal readmissions (aOR 1.29,95%CI 1.02-1.64), SNM (aOR 1.22,95%CI 1.08-1.38). No significant association was observed with LBW (aOR 1.19,95%CI 0.45-3.12), and NICU admissions (aOR 1.57,95%CI 0.97-2.60), when compared with unexposed pregnant people. Similar significant increased risks were observed among PPWOE. The PPWE analysis was underpowered therefore the models didn't converge. The findings were consistent between the two sites.

Conclusion
Gabapentin exposure in all pregnant people and PPWOE were associated with a significant increase in specific adverse birth outcomes among infants. Clinicians should be aware of the benefits and potential risks of prescribing gabapentin during pregnancy. In particular for non-epilepsy indications where use during pregnancy may be avoided. Future studies investigating gabapentin dose and safety are warranted.

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