Perinatal Treatment Patterns in Myasthenia Gravis

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Introduction

- Clinical management of myasthenia gravis (MG) during pregnancy is complex, as both the disease and available treatments may have adverse effects on the mother and/or infant/fetus
- Although clinical guidelines have been established, few studies of real-world medication utilization have been conducted in this population

Objective

- To describe treatment patterns in patients with MG in the preconception, pregnancy, and postpartum periods

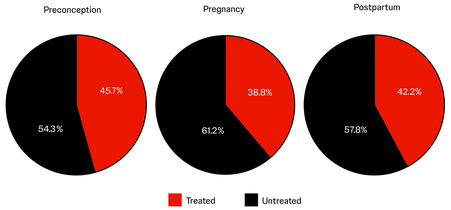
Methods

- Retrospective cohort study using United States Merative® MarketScan® commercial claims and encounters (CCAE) database, a large US-based commercial health insurance claims database
  - Years 2000-2023
- Pregnancies were identified and dated using an algorithm that establishes a hierarchy of routine healthcare encounters in pregnancy[1]
  - Females aged 18-49 years who had ≥6 months of enrollment in the database before estimated pregnancy start and ≥6 months of enrollment in the database after estimated pregnancy end
- MG was defined by ≥1 inpatient or ≥2 outpatient diagnoses using International Classification of Diseases (ICD) codes within a 365-day period, with ≥1 diagnosis required before pregnancy end
- Prescription fills were summarized at the class level in preconception, pregnancy, and postpartum periods and included corticosteroids, rapid-acting immunotherapies, acetylcholinesterase inhibitors, steroid-sparing immunosuppressants, and monoclonal antibodies
- Any medications indicated for MG with known teratogenic ingredients were also assessed as a class
- Time periods of interest:
  - Preconception: 6 months before pregnancy start
  - Pregnancy: from estimated pregnancy start to end
  - Postpartum: 6 months after pregnancy end

Results

- A total of 647 pregnancies with MG were included
- The median age was 33 years (25th, 75th percentile: 30, 36)
- Among these, 54.3% were untreated in the six months before pregnancy, 61.2% during pregnancy (68.8% in the first trimester), and 57.8% in the six months postpartum (**Figure 1**)

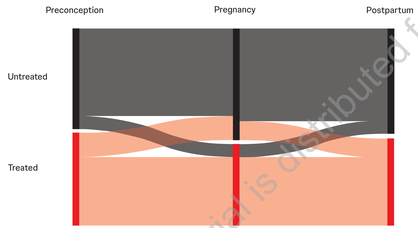
Figure 1: Proportions of MG patients treated over time



MG=Myasthenia gravis.

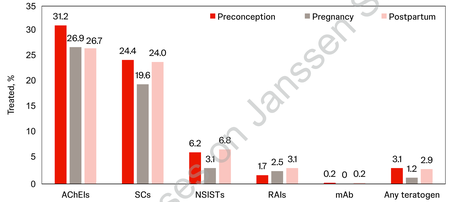
- Most patients were untreated across the perinatal period, especially in pregnancy (**Figure 2**)

Figure 2: Treatment status flow by period



- The most common medication class was acetylcholinesterase inhibitors (AChEIs) (31.2% before pregnancy, 26.9% during pregnancy, and 26.7% in postpartum) followed by systemic corticosteroids (SCs) (24.4%, 19.6%, and 24.0%, respectively) (**Figure 3**)

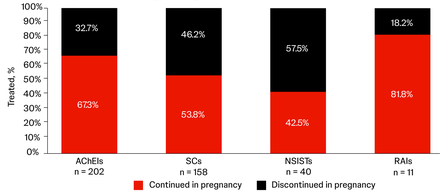
Figure 3: Treatments in preconception, pregnancy, and postpartum among individuals with MG



AChEIs=Acetylcholinesterase inhibitors; mAb=Monoclonal antibodies; NSISTs=Non steroidal immunosuppressants; RAIs=Rapid-acting immunosuppressants; SCs=Systemic corticosteroids.
Each treatment was considered independently; therefore, total will add up to >100%.

- Those taking AChEIs or SCs before pregnancy were more likely to continue a medication in the class during pregnancy (67.3% and 53.8%, respectively) than those taking non steroidal immunosuppressants (NSISTs) before pregnancy (42.5%) (**Figure 4**)

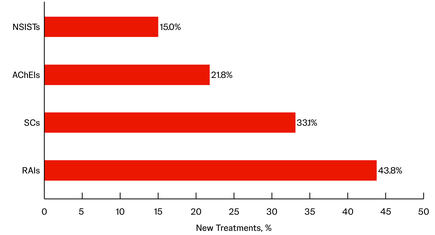
Figure 4: Treatment continuation and discontinuation from preconception to pregnancy in MG



AChEIs=Acetylcholinesterase inhibitors; mAb=Monoclonal antibodies; NSISTs=Non steroidal immunosuppressants; RAIs=Rapid-acting immunosuppressants; SCs=Systemic corticosteroids.
One patient was treated with mAB.

- Among those taking AChEIs or SCs in pregnancy, 21.8% and 33.1% had newly initiated these during pregnancy and not taken them in preconception, respectively (**Figure 5**)

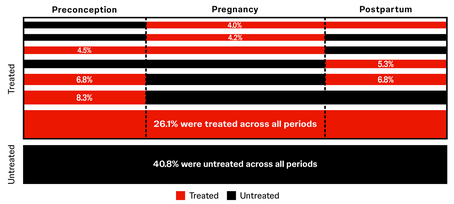
Figure 5: New drug use in pregnancy



AChEIs=Acetylcholinesterase inhibitors; NSISTs=Non steroidal immunosuppressants; RAIs=Rapid-acting immunosuppressants; SCs=Systemic corticosteroids.

- Of those who received treatment, 65-70% were treated with one treatment class, ~25% were treated with two treatment classes, and ~5% were treated with three treatment classes across all time periods
- While some had consistent treatment usage throughout the perinatal period, some patterns were dynamic over time (**Figure 6**)

Figure 6: Distribution of exposure patterns across time periods



Conclusion

Most patients with MG did not receive treatment in the perinatal period, those who did showed dynamic patterns

Strengths and Limitations

- This study used a large US claims database that contains near-complete capture of healthcare encounters over time allowing for comprehensive ascertainment of pharmacy dispensings.
  - However, claims data lacks information on healthcare encounters not billed to insurance, including over the counter medications.
- Claims data also lacks clinical information on disease severity or flares, which could potentially limit the ability to examine how perinatal treatment patterns may impact pregnancy outcomes

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Disclosures

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Autoantibody: MG

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[1]Matcho A, et al. *PLoS One*. 2018 Feb 1;13(2):e0192033. doi: 10.1371/journal.pone.0192033.

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