Adverse Pregnancy Outcomes in Myasthenia Gravis: A Retrospective Cohort Study in a US Health Insurance Claims Database

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Introduction

- Pregnancy is common among individuals with autoantibody conditions and adverse perinatal outcomes have been documented.¹
- However, previous studies in myasthenia gravis (MG) have produced mixed results.

Objective

To determine the burden of adverse perinatal outcomes in MG

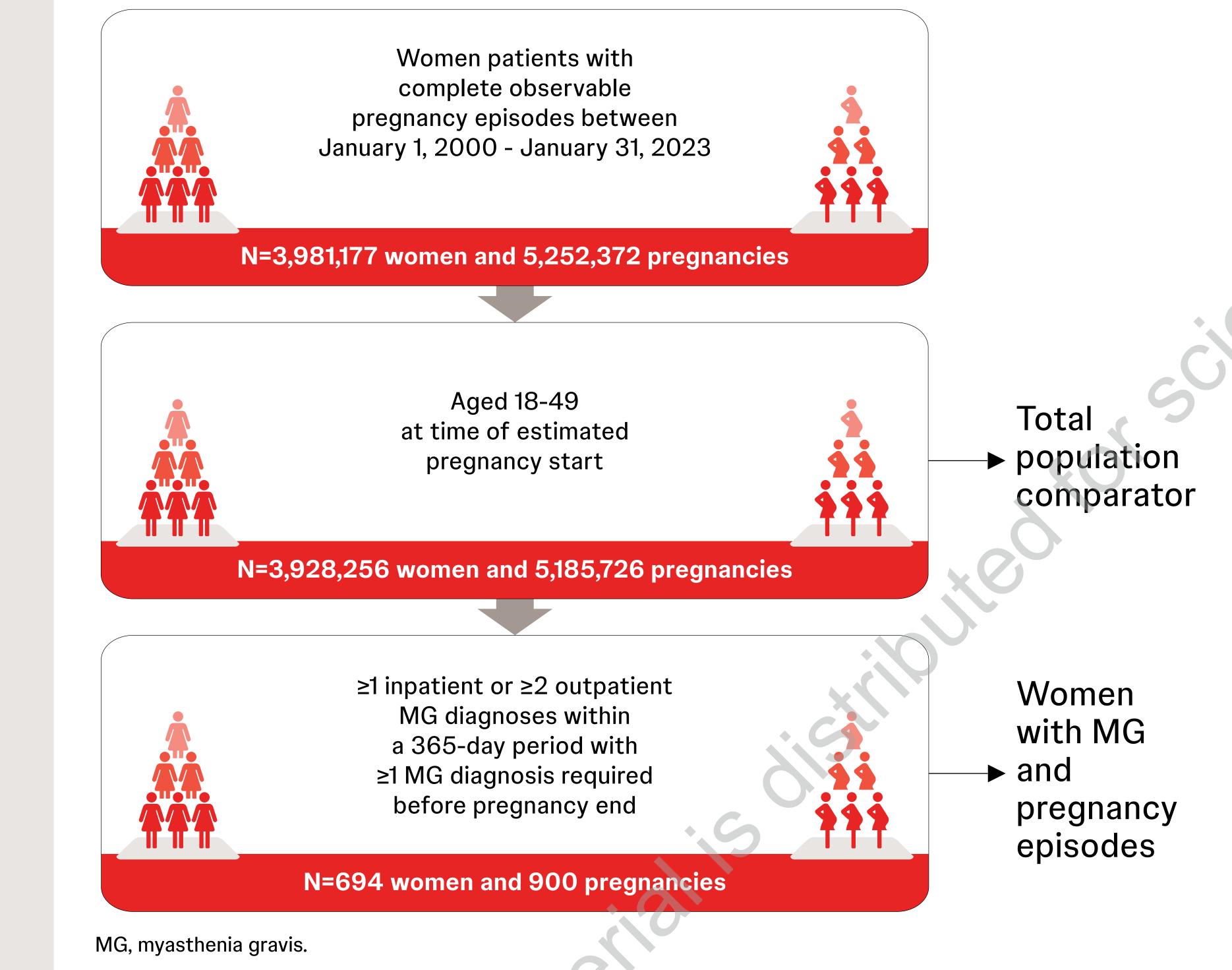
Methods

- We conducted a retrospective cohort study in the United States (US) Merative(R) MarketScan(R) Commercial Database between 2000–2023 (Figure 1).
- Pregnancies in women aged 18-49 years were identified and dated using a validated algorithm that establishes a hierarchy of routine healthcare encounters in pregnancy.¹
- Among live births, maternal and infant records were linked using an algorithm that relies on a shared family insurance identification number.²
- Two cohorts of pregnancies were created: one with evidence of MG diagnosis and one of the total population.
- MG was defined by ≥1 inpatient or ≥2 outpatient diagnoses within a 365-day period, with ≥1 diagnosis required before pregnancy end.
- The prevalence of six perinatal outcomes was calculated in the MG and total populations: live birth, spontaneous abortion, Cesarean (C-) section, preeclampsia, preterm birth, and small for gestational age (SGA). Outcome definitions were based on diagnosis and procedure codes.
- For comparisons, outcome prevalence in the total population was age-standardized to the MG population age distribution.

Results

- A total of 694 individuals with MG had 900 pregnancies and 3,928,256 individuals in the total population had 5,185,726 pregnancies (**Figure 1**).
- The prevalence of live birth (75.0% vs 72.6%, p=0.10) and spontaneous abortion (20.4% vs 22.2%, p=0.20) was similar in the MG and age-adjusted total population, respectively (**Table 1; Figure 2**).
- Preeclampsia (10.7% vs 7.1%, p<0.01) and C-section (42.9% vs. 36.7%, p<0.01) were more frequent among MG than the total population (Table 1; Figure 2).
- The largest relative differences were noted for preterm birth (18.0% vs. 9.9%, p<0.01) and SGA (4.3% vs. 1.7%, p<0.01), which were more prevalent among MG than the total population (**Table 1**; **Figure 2**).

Figure 1. Patient inclusion flow chart



• On average, women with MG were older than those in the total population (mean age: 32 vs 30 years, respectively).

Figure 2. Pregnancy outcomes in MG and the age-standardized total population

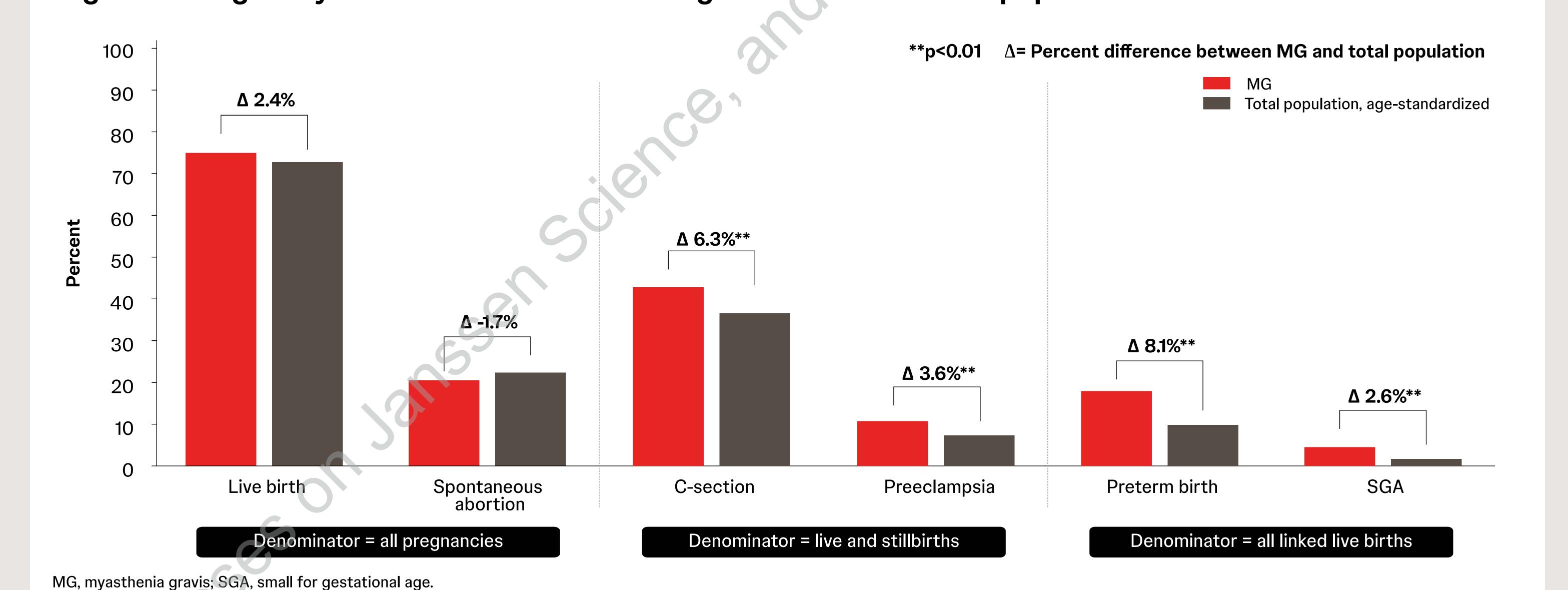


Table 1. Pregnancy outcomes in MG and the age-standardized total population

		MG			opulation	Age-standardized total population	
Pregnancy outcome ^a	N with outcome	N denominator	Percent	N with outcome	N denominator	Percent	p values ^b
Live birth	675	900	75.0	3,832,613	5,185,726	72.6	0.10
Spontaneous abortion	184	900	20.4	1,078,896	5,185,726	22.2	0.20
C-Section	292	680	42.9	1,347,071	3,853,754	36.7	<0.01
Preeclampsia	73	680	10.7	271,997	3,853,754	7.1	< 0.01
Preterm birth	87	483	18.0	264,122	2,713,667	9.9	< 0.01
SGA	21	483	4.3	45,648	2,713,667	1.7	<0.01

^aThe denominator for live birth and spontaneous abortion is all pregnancies. The denominator for C-section and preeclampsia is live births. The denominator for preterm birth and small for gestational age is all linked live births. ^bProportions with pregnancy outcomes were compared using chi-square tests.
C-section, caesarean section; MG, myasthenia gravis; SGA, small for gestational age.

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Conclusions



In this study, MG was associated with a greater burden of certain adverse perinatal outcomes, occurring in both mother and infant



Further research is needed to understand drivers of pregnancy outcomes in MG.

Strengths and Limitations

- This study used a large US claims database spanning 23 years that contains comprehensive, longitudinal capture of patient encounters with the healthcare system.
- We examined a broad suite of outcomes in both the mother and infant.
- Pregnant individuals with MG may be more closely monitored than the total population, potentially leading to larger observed differences in certain pregnancy outcomes.
- Insurance claims databases lack clinical information on disease severity, potentially limiting the ability to identify determinants of adverse pregnancy outcomes.

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Disclosures

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Autoantibody: MG

