Real-world reduction in oral corticosteroid utilization following efgartigimod initiation in patients living with generalized myasthenia gravis

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- CQ, DG, MJ, and GP are employees of argenx.
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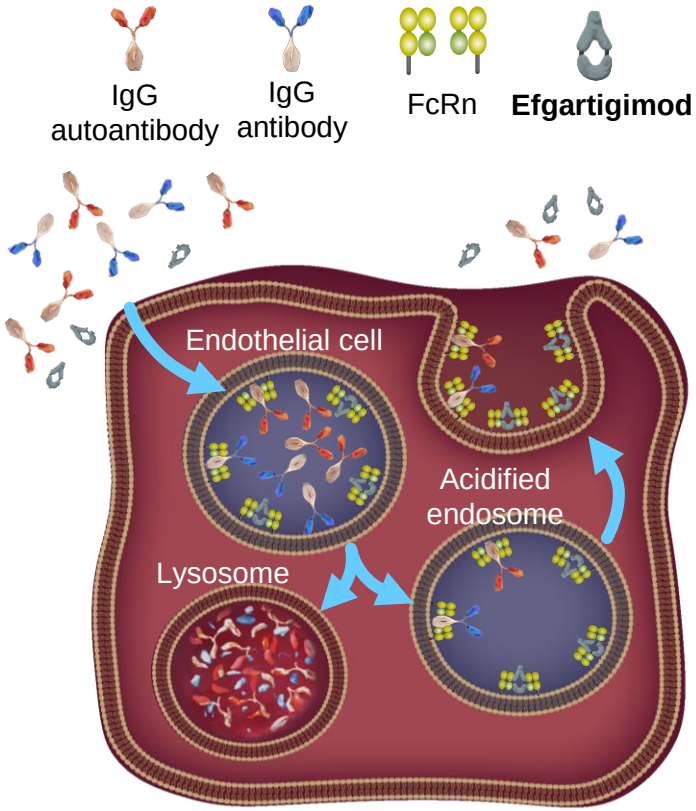
Background

Generalized myasthenia gravis (gMG)

- gMG is a rare antibody-mediated, neuromuscular disorder leading to a failure of NMJ transmission.[1,2]
- Majority of patients (~85%) are found to have autoantibodies against the acetylcholine receptor (AChR).[3]
- gMG is characterized by fluctuating weakness in ocular, facial, bulbar, axial, and limb muscles.[1-3]

Efgartigimod (EFG)

- EFG is a human IgG1 Fc fragment engineered to bind to the FcRn receptor on endothelial cells, leading to increased degradation of IgG (including pathological IgG) in the lysosome.[2]
- EFG was approved for the treatment of anti-AChR antibody-positive gMG in 2021, based on safety and efficacy demonstrated in the ADAPT trial.[2,4]
- EFG is typically dosed with 4 once weekly infusions,[5] followed by a 4 week off-period before initiating a subsequent treatment cycle.



1. Gilhus NE, et al. *Nat Rev Dis Primers*. May 2 2019;5(1):30. 2. Howard JF Jr, et al. *Lancet Neurol.* 2021;20(7):526-536. 3. Gilhus NE, Verschuuren JJ. *Lancet Neurol*. Oct 2015;14(10):1023-36. 4. US Food and Drug Administration. News Release. Accessed January 24, 2024. 5. argenx BV. VYVGART (efgartigimod alfa-fcab) [package insert]. Accessed March 11, 2024.

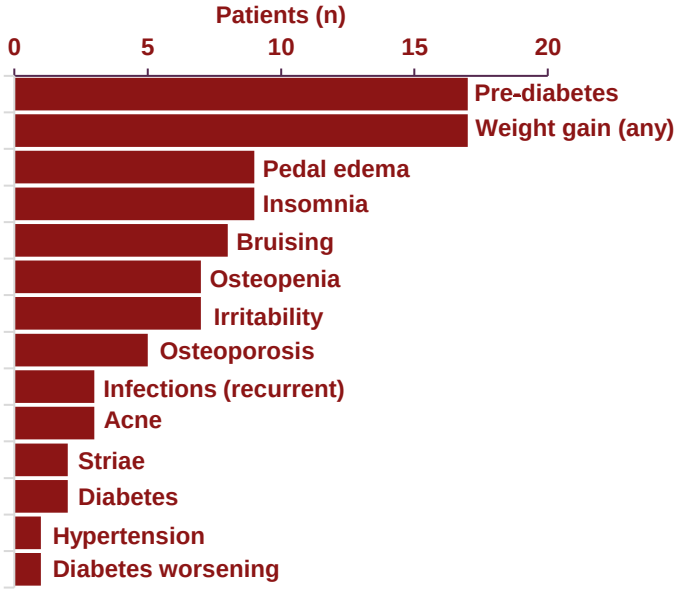
EFG, efgartigimod; FcRn, neonatal Fc receptor; gMG, generalized myasthenia gravis; IgG, immunoglobulin G; NMJ, neuromuscular junction; US, United States.

Background and objective

Oral corticosteroids (OCS)

- OCS are mainstay therapy in the management of many autoimmune conditions, including gMG.[1,2]
- OCS are known to be associated with many short- and long-term side effects, especially when used at higher doses (≥10mg/day).[3,4]
- Recent published case reviews on real world efficacy for EFG note reduction of OCS with the use of EFG.[5]
- There is clinical interest in investigating whether novel gMG treatments can be used as steroid-sparing agents.

Corticosteroid-related adverse side effects reported in patients with gMG (N=39)[4]



Objective of this study:

To use a real-world dataset to evaluate changes in OCS dosing after 6 months of EFG treatment

1. Engel-Nitz NM, et al. *Muscle Nerve*. Feb 27 2018. 2. Sanders DB, et al. *Neurology*. Jul 26 2016;87(4):419-25. 3. Misra UK, et al. *Acta Neurol Belg*. Feb 2020;120(1):59-64.
4. Johnson S, et al. *Med Sci Monit.* Oct 28 2021;27:e933296. 5. Singer M, et al. *Muscle Nerve.* 2024;69(1):87-92.

EFG, efgartigimod; gMG, generalized myasthenia gravis; OCS, oral corticosteroid; US, United States.

Dataset and study type

Dataset

- Insurance open claims-based dataset (IQVIA)* April 2016 – November 2023

Retrospective cohort study

- Inclusion/exclusion criteria:
  - At least 6 months of ongoing EFG usage based on claims captured†
  - First EFG claim between Jan 1 – Dec 31, 2022
  - OCS claims present during the 1 year prior to EFG initiation‡
  - Continuous quarterly claims activity to minimize missing data
  - No concomitant usage of eculizumab, rituximab, or ravulizumab with EFG

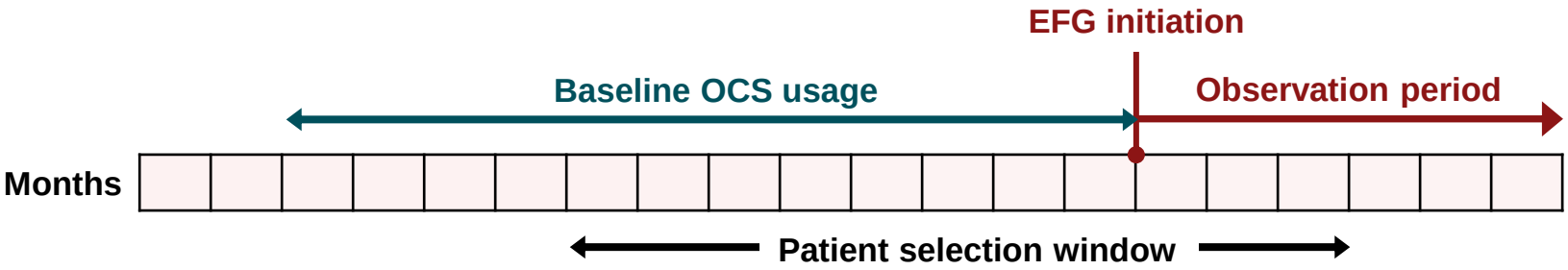
Outcome

- **Average daily dose (ADD)** of OCS at 3 months (60-90 days) and 6 months (150-180 days) from baseline (pre-EFG).
- **Percentage of OCS tapering** by ≥5, 10, or 20 mg reduction in OCS ADD from baseline (pre-EFG).

*Based on information licensed from IQVIA: Longitudinal Access and Adjudication Data (LAAD) for the period April 2016−November 2023, reflecting estimates of real-world activity (all rights reserved). †Patients with a gap of >120 days between consecutive EFG claims were excluded. ‡Baseline OCS usage was defined as any OCS usage present in the 0-30 days immediately prior to EFG initiation, and at least 90 days of cumulative OCS usage during the 1 year prior to EFG initiation.
EFG, efgartigimod; OCS, oral corticosteroid; United States.

Study design and inclusion criteria

Study design



Inclusion criteria

	N (%)
Adults (≥18 years of age) with first EFG claim Jan 1 – Dec 31, 2022	1405 (100)
Continuous quarterly activity*	1233 (88)
Remained on EFG treatment for at least 6 months†	842 (60)
No concomitant usage of eculizumab, rituximab, or ravulizumab with EFG	803 (57)
Evidence of chronic OCS usage prior to EFG initiation‡	**316 (22)**
	Final study cohort

*Continuous quarterly activity was defined as ≥1 record in database every quarter from 1-year pre-EFG to 6 months post-EFG initiation. †Patients with a gap of >120 days between consecutive EFG claims were excluded. ‡Baseline OCS usage was defined as any OCS usage present in the 0-30 days immediately prior to EFG initiation, and at least 90 days of cumulative OCS usage during the 1 year prior to EFG initiation.
EFG, efgartigimod; OCS, oral corticosteroid.

Baseline patient characteristics

Age, years	N = 316
Mean (SD)	61.3 (15.0)
Median (IQR)	65 (52-73)
Gender, n (%)	
Male	173 (54.7)
Female	143 (45.3)
Insurance type for first EFG claim, n (%)*	
Commercial	168 (53.2)
Medicare	139 (44.0)
Medicaid	14 (4.4)
Other / Unknown	4 (1.3)
Common gMG comorbidities, n (%)	
Hypertension	139 (44.0)
Diabetes	94 (29.7)
Obesity	76 (24.1)
Hyperlipidemia	74 (23.4)
Thyroid-related disorders	45 (14.2)
GERD	37 (11.7)
Coronary artery diseases	29 (9.2)
Myocardial infarction	1 (0.3)
Sleep disorder	90 (28.5)
Depression	35 (11.1)
Osteoporosis	19 (6.0)

NSIST/advanced therapy† usage during 1-year period prior to EFG initiation, n (%)	
NSIST only	95 (30.0)
Advanced therapy† only	58 (18.4)
NSIST + advanced therapy	90 (28.5)
No NSIST or advanced therapy†	73 (23.1)

- Largely consistent with previous reports of claims-based studies
- High proportion of comorbidities including hypertension
- >75% of patients used NSIST and/or other advanced gMG therapies† concomitantly with OCS prior to EFG initiation

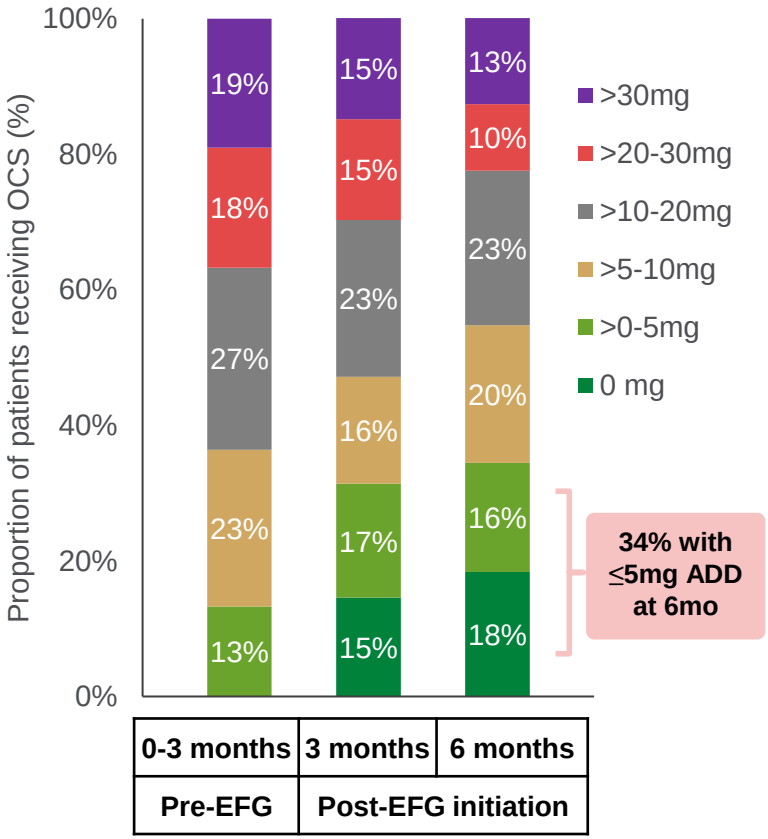
*Percentages may not add up to 100% as patients may be tagged to multiple payer channels. †Advanced therapy included IVIg/SCIg, PLEX, eculizumab, and rituximab.
AChE, acetylcholinesterase; EFG, efgartigimod; GERD, gastroesophageal reflux disease; gMG, generalized myasthenia gravis; IQR, interquartile range; IVIg/SCIg, intravenous or subcutaneous immunoglobulin; NSIST, nonsteroidal immunosuppressive treatment; OCS, oral corticosteroid;
PLEX, plasma exchange; SD, standard deviation.

Results: OCS tapering

Change in OCS daily dose and proportion of patients whose OCS ADD changed or stayed consistent during EFG treatment (N=316)

	Pre-EFG	Post-EFG initiation	
	0-3 months	3 months	6 months
OCS daily dose, mg/day			
Average (SD)	18.6 (15.0)	15.4 (14.9)	13.5 (14.6)
P-value*	-	*P* < 0.001	*P* < 0.001
Proportion of patients whose OCS ADD tapered, increased, or stayed consistent vs. pre-EFG, n (%)			
Tapered ≥5mg	-	125 (40)	144 (46)
≥10mg	-	94 (30)	114 (36)
≥20mg	-	70 (22)	85 (27)
To 0mg	-	46 (15)	58 (18)
Consistent (<±5mg)	-	127 (40)	119 (38)
Increased ≥5mg	-	64 (20)	53 (17)

Change in OCS ADD distribution after EFG initiation over time (N=316)



*P-values for ADD were calculated against the ADD at baseline (pre-EFG) using Wilcoxon signed rank tests. *P* < 0.05 was considered statistically significant.
ADD ,average daily dose; EFG, efgartigimod; IQR, interquartile range; OCS, oral corticosteroid; SD, standard deviation.

Conclusions and future steps

Key conclusions

- Real-world data based on 316 patients suggested that OCS usage was significantly reduced over 6 months post-EFG initiation.
    - 46% of patients reduced OCS usage (by at least ≥5mg/day on average) by 6 months post-EFG initiation.
    - 34% of patients with prior steroid usage had OCS ADD of ≤5mg/day by 6 months post-EFG initiation.

Strengths

- The study enabled inclusion of a large sample size, with results supporting reduction of OCS with the use of EFG observed in a previously published case series.[1]

Limitations

- Claims-based data analyses are subject to several inherent limitations including assumptions, potential coding errors, and risk of missing data.
- Insights into how prescribers are approaching OCS tapering on EFG were not assessed and require alternative datasets to explore.

1. Singer M, et al. *Muscle Nerve.* 2024;69(1):87-92.
ADD, average daily dose; EFG, efgartigimod; OCS, oral corticosteroid.

Thank you!

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