262

Real-World Reduction in Oral Glucocorticoid Utilization at 1-Year Following Efgartigimod Initiation

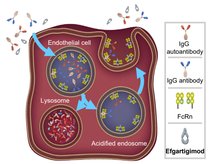
Neelam Goyal,[1] Cynthia Qi,[2] John H. Stone,[3] Tobias Ruck,[4] Deborah Gelinas,[2] Matthew Jefferson,[2] Tharun Balaji Suthagar,[5] Rohit R. Menon,[5] Mai Sato,[6] Glenn Phillips[2]

[1]Department of Neurology & Neurological Sciences, Stanford Medicine, Palo Alto, CA, USA; [2]argenx US Inc., Boston, MA, USA; [3]Department of Clinical Rheumatology, Massachusetts General Hospital, Boston, MA, USA; [4]Department of Neurology, Heinrich Heine University Düsseldorf, Düsseldorf, Germany; [5]ZS Associates, Bengaluru, Karnataka, India; [6]ZS Associates, New York, NY, USA.

INTRODUCTION

Generalized myasthenia gravis (gMG)

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



Efgartigimod

- Efgartigimod 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]
- Efgartigimod was approved for the treatment of anti-AChR antibody–positive gMG in 2021,[2,4] and is typically dosed with 4 once-weekly infusions with subsequent cycles administered according to individualized response.[5]

Oral glucocorticoids (GC)

- GC are a mainstay therapy in the management of many autoimmune conditions including gMG[6,7] but are known to be associated with dose- and duration-dependent toxicities.[8,9]
- Recent published case reviews on real-world efficacy for efgartigimod note reduced GC usage with the use of efgartigimod,[10] and there is clinical interest in investigating whether novel gMG treatments can be used as steroid-sparing agents.

Objective

- The objective of this study was to utilize a large real-world dataset based on US claims to evaluate changes in GC dosing after 1-year of efgartigimod treatment.

METHODS

Study type and dataset

- A retrospective cohort study was conducted using US medical and pharmacy claims (based on information licensed from IQVIA: Longitudinal Access and Adjudication Data for the period April 2016-January 2024, reflecting estimates of real-world activity [all rights reserved]).
- MG-ADL scores obtained in My VYVGART Path, a patient support program, were tokenized and integrated with the primary dataset. No identifiable patient data were obtained by the investigators.

Inclusion/exclusion criteria

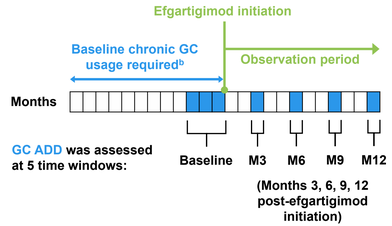
- First efgartigimod claim between January 1 and December 31, 2022, with at least 1 year of ongoing efgartigimod usage based on claims captured[a]; chronic GC usage (based on claims present) during the 1 year prior to efgartigimod initiation[b]; continuous quarterly claims activity with no claim for eculizumab, rituximab, or ravulizumab during the observation period[c]

Outcome

- Average daily dose (ADD) of GC at baseline (Day -90 to 0), 3 months (Day 60 to 90), 6 months (Day 150 to180), 9 months (Day 240 to 270), and 12 months (Day 330 to 356) defined as[11]:

$$\frac{\text{Total OCS dose (strength x quantity)}^{d}}{\text{Total number of days within each time window}}$$

Figure 1. Study design



[a]Patients with a gap of >120 days between consecutive efgartigimod claims were excluded. [b]Chronic GC usage was defined as any GC usage present in the 0-30 days immediately prior to efgartigimod initiation, *and* at least 90 days of cumulative GC usage during the 1 year prior to efgartigimod initiation. [c]Continuous quarterly activity was defined as ≥1 record in the database every quarter from 1-year pre-efgartigimod to 1-year post-efgartigimod initiation. [d]GC claims that occurred within 14 days of one another were considered as part of 1 GC episode and ADD was calculated per episode. GC doses were converted to prednisone-equivalent strengths.

SUMMARY

Consistent with results observed previously at 6-months post-efgartigimod initiation, GC usage continued to reduce significantly over 1-year post-efgartigimod initiation from baseline, while retaining expected MG-ADL response.

- More than half (55%) of patients reduced GC usage by at least ≥5 mg/day on average.
- 42% of patients were using GC ADD of 5 mg/day or less, and 62% were using GC ADD of 10mg/day or less, at 1-year post-efgartigimod initiation.

- **Claims-based data analyses are subject to assumptions, potential coding errors, and risk of missing data.**
- **GC usage was estimated based on prescriptions only. GC tapering strategies not reflected in this dataset require alternative datasets to explore.**

Despite the limitations, this study enabled inclusion of a large sample size, with results supporting reduction of GC use with efgartigimod observed in published case series. Future studies should further evaluate GC tapering approaches following efgartigimod initiation in clinical practice using additional datasets.

RESULTS

Patient cohort selection and baseline demographics and characteristics

- A total of 164 patients fulfilled the criteria and were included in the analysis (Figure 2).
- Comorbidity burden was slightly pronounced compared with general US patients with gMG, with nearly 80% (n=131/164) having been exposed to NSISTs and/or other advanced gMG therapies concomitantly with GC prior to efgartigimod initiation (Table 1).

Figure 2. Patient selection

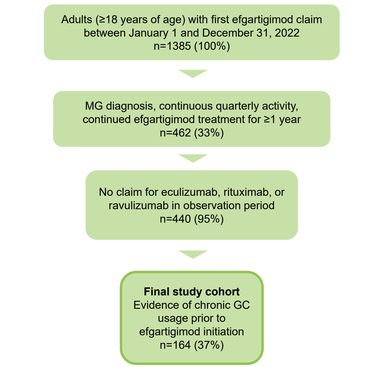


Table 1. Baseline demographics and characteristics

	N=164
Age, years	
Mean (SD)	58.7 (15.3)
Median (IQR)	62 (48-71)
Gender, n (%)	
Female	76 (46.3)
Charlson Comorbidity Index (CCI)	
Mean (SD)	1.3 (1.7)
Common gMG comorbidities, n (%)	
Hypertension	75 (45.7)
Sleep disorder	48 (29.3)
Diabetes	47 (28.7)
Hyperlipidemia	37 (22.6)
Obesity	35 (21.3)
GERD	25 (15.2)
Thyroid-related disorders	21 (12.8)
Insurance type for first efgartigimod claim, n (%)[a]	
Commercial	89 (54.3)
Medicare	69 (42.1)
Medicaid / Other / Unknown	*
NSIST/advanced therapy[b] usage during 1-year period prior to efgartigimod initiation, n (%)[c]	
NSIST only	48 (29.3)
Advanced therapy[b] only	34 (20.7)
NSIST + advanced therapy[b]	49 (29.9)
No NSIST or advanced therapy[b]	33 (20.1)

[a]Patient counts >0, <20 have been masked for privacy.
[b]Percentages may not add up to 100% as patients may be tagged to multiple payer channels.
[c]Advanced therapy included IVIg/SCIg, PLEX, eculizumab, and rituximab. [b]A major proportion of patients in the cohort additionally used AChE inhibitors during the 1-year period prior to efgartigimod initiation (data not shown).

Overall GC dosing post-efgartigimod initiation

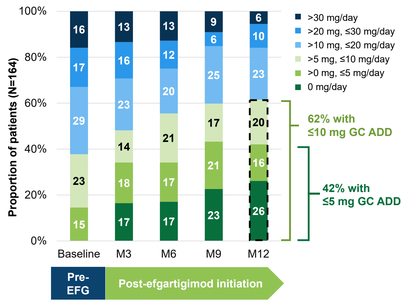
- By 1-year post-efgartigimod initiation, 55% of patients (n=90/164) reduced GC usage by at least ≥5 mg/day on average (Table 2).
- By 1-year post-efgartigimod initiation, 42% of patients (n=69/164) had a GC ADD of 5 mg/day or less, and 62% (n=102/164) had a GC ADD of 10 mg/day or less (Figure 3).
- By 1-year post-efgartigimod initiation, 26% of patients were free of GC usage (Table 2 and Figure 3).

Table 2. Changes in GC ADD post-efgartigimod initiation

N=164	Pre-EFG	Post-EFG initiation			
	Baseline	M3	M6	M9	M12
GC daily dose, mg/day					
Average (95% CI)	17.2 (15.1-19.3)	14.9 (12.7-17.1)	13.4 (11.3-15.6)	11.7 (9.5-13.8)	10.2 (8.3-12.0)
P-value[a]	-	< 0.05	< 0.05	< 0.05	< 0.05
Proportion of patients whose GC ADD tapered, stayed unchanged, or increased vs pre-EFG, n (%)					
Tapered ≥5 mg/day	-	65 (39.6)	72 (43.9)	77 (47.0)	90 (54.9)
≥10 mg/day	-	49 (29.9)	52 (31.7)	60 (36.6)	72 (43.9)
≥20 mg/day	-	35 (21.3)	37 (22.6)	52 (31.7)	57 (34.8)
To 0 mg/day	-	27 (16.5)	28 (17.1)	37 (22.6)	43 (26.2)
Unchanged (<±5 mg/day)	-	60 (36.6)	61 (37.2)	61 (37.2)	54 (32.9)
Increased (≥5 mg/day)	-	39 (23.8)	31 (18.9)	26 (15.9)	20 (12.2)

[a]*P*-values for ADD were calculated against the ADD at baseline (pre-efgartigimod) using Wilcoxon signed-rank tests. *P* < 0.05 was considered statistically significant.

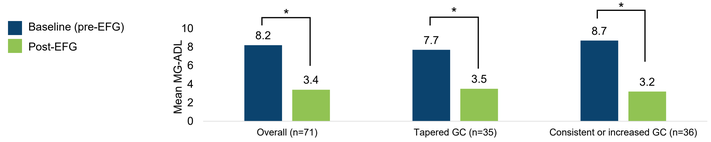
Figure 3. Distribution of GC ADD post-efgartigimod initiation



Changes in MG-ADL post-efgartigimod initiation

- A subset (43.3%) of patients had baseline and at least 1 post-EFG (captured within 12 months post-EFG initiation) MG-ADL score available. Among them, MG-ADL responses were consistent with those expected with EFG treatment. The extent of GC tapering among the subset was comparable that observed overall (Figure 4, Tables 2 and 3).
- Patients with MG-ADL scores available were stratified into those who tapered GC by at least 5mg/day at 1-year post-EFG initiation from baseline (n=35) or not (n=36). Patients who tapered GC had higher baseline GC ADD vs. those who did not taper GC. MG-ADL responses were consistent with that expected with EFG treatment, regardless of GC tapering (Figure 4).

Figure 4. Changes in MG-ADL overall and by GC tapering sub-cohorts



	Overall (n=71)	Tapered GC (n=35)	Consistent or increased GC (n=36)
Total number of patients, n	164	90	74
Subset with MG-ADL available, n (%)	71 (43.3)	35 (38.9)	36 (48.6)
GC ADD (95% CI), mg/day			
Baseline (pre-EFG)	18.9 (15.7-22.1)	23.0 (18.8-27.2)	14.9 (10.4-19.5)
M12 post-EFG initiation	12.7 (9.5-16.0)	8.1 (5.2-11.0)	17.3 (11.8-22.7)
P-value[a]	<0.05	<0.05	0.12
Tapered GC ≥5 mg/day, n (%)	35 (50.0)	35 (100.0)	0
Tapered GC ≥10 mg/day, n (%)	26 (36.6)	26 (74.3)	0

Note: A subset of patients with MG-ADL scores available in the integrated dataset were included in the analysis. Any (or best) available MG-ADL score captured during the 1-year post efgartigimod initiation was used. *[a]*P*-values were calculated using paired t-tests. *P* < 0.05 (denoted by *) was considered statistically significant. [b]*P*-values were calculated using paired t-tests. *P* < 0.05 was considered statistically significant.

ABBREVIATIONS: AChE, acetylcholinesterase; AChR, acetylcholine receptor; ADD, average daily dose; CI, confidence interval; EFG, efgartigimod; Fc, fragment crystallizable region; FcRn, neonatal Fc receptor; GC, glucocorticoid; GERD, gastroesophageal reflux disease; gMG, generalized myasthenia gravis; IgG, immunoglobulin G; IQR, interquartile range; IVIg/SCIg, intravenous or subcutaneous immunoglobulin; MG-ADL, Myasthenia Gravis Activities of Daily Living; NMJ, neuromuscular junction; NSIST, nonsteroidal immunosuppressive treatment; OR, odds ratio; PLEX, plasma exchange; SD, standard deviation; US, United States.

ACKNOWLEDGMENTS AND DISCLOSURES: NG has served as a paid consultant for argenx, UCB Pharma, and Alexion. **JS** has consulted for argenx on glucocorticoid toxicity. **TR** received honoraria and/or research support from Alexion, argenx, Biogen, Merck, Novartis, and Roche. **CQ, DG, MJ, and GP** are employees of argenx. **TBS, RRM, and MS** are employees of ZS Associates and serve as paid consultants for argenx. This study was funded by argenx US, Inc.

REFERENCES: 1. Gilhus NE, et al. *Nat Rev Dis Primers.* 2019;5(1):30. **2.** Howard JF Jr, et al. *Lancet Neurol.* 2021;20(7):526-536. **3.** Gilhus NE, Verschuuren JJ. *Lancet Neurol.* 2015;14(10):1023-1036. **4.** US Food and Drug Administration. News Release. https://www.fda.gov/news-events/press-announcements/fda-approves-new-treatment-myasthenia-gravis. Accessed April 24, 2024. **5.** argenx BV. VYVGART (efgartigimod alfa-fcab) [package insert]. **6.** Engel-Nitz NM, et al. *Muscle Nerve.* 2018;58(1):99-105. **7.** Sanders DB, et al. *Neurology.* 2016;87(4):419-425. **8.** Misra UK, et al. *Acta Neurol Belg.* 2020;120(1):59-64. **9.** Johnson S, et al. *Med Sci Monit.* 2021;27:e933296. **10.** Singer M, et al. *Muscle Nerve.* 2024;69(1):87-92. **11.** DerSarkissian M, et al. *ACR Open Rheumatol.* 2023;5(6):318-328.

Presented at the American Association of Neuromuscular & Electrodiagnostic Medicine (AANEM) Annual Meeting; October 15-18, 2024; Savannah, Georgia