Ocular symptoms in patients with generalized myasthenia gravis receiving rozanolixizumab: *Post hoc* analysis of MycarinG

MDA Conference 2025, Dallas, TX, USA; March 16–19, 2025

Ali A. Habib[1], Robert M. Pascuzzi[2], John Vissing[3], Tuan Vu[4], Thaïs Tarancón[5], Francesca Pannullo[6], Asha Hareendran[6], Vera Bril[7]

[1]ALS & Neuromuscular Center, University of California, Irvine, Orange, CA, USA; [2]Neurology Department, Indiana University School of Medicine, Indiana University Health, Indianapolis, IN, USA; [3]Department of Neurology, Rigshospitalet, University of Copenhagen, Copenhagen, Denmark; [4]Department of Neurology, University of South Florida Morsani College of Medicine, Tampa, FL, USA; [5]UCB, Madrid, Spain; [6]UCB, Slough, UK; [7]University Health Network, Toronto, ON, Canada.

Introduction

- MG is a rare, neuromuscular autoimmune disease that involves weakness of the ocular muscles as well as generalized muscle weakness across the body[1]
- Ocular symptoms pose a substantial burden for patients with MG, impacting their QoL and daily activities; these symptoms may respond differently to treatment than generalized symptoms[1–3]
- Rozanolixizumab is a humanized IgG4 mAb FcRn inhibitor approved for the treatment of adults with AChR Ab+ or MuSK Ab+ gMG[4,5]
- In the randomized, double-blind, placebo-controlled, Phase 3, MycarinG study (NCT03971422), rozanolixizumab significantly improved MG-specific outcomes versus placebo in patients with gMG and was well tolerated with an acceptable safety profile[1]
  - The rozanolixizumab treatment groups experienced a greater reduction from BL in MG-ADL score at Day 43 than the placebo group (primary outcome; $p<0.0001$)[4]
- This *post hoc* analysis evaluated the effect of rozanolixizumab treatment on the ocular domains of the MG-ADL, QMG, MGII, and MGSPRO instruments in patients with gMG

Methods

- Patients enrolled in MycarinG study were aged ≥18 years with AChR Ab+ or MuSK Ab+ gMG, MGFA Disease Class II–IVa, with an MG-ADL score ≥3 (for non-ocular symptoms) and a QMG score ≥11[4]
  - Patients were randomized 1:1:1 to receive weekly subcutaneous rozanolixizumab 7 mg/kg, rozanolixizumab 10 mg/kg, or placebo for 6 weeks, followed by an 8-week observation period[4]

Methods (cont.)

- In this *post hoc* analysis, CFB of the ocular subdomain scores for MG-ADL, QMG, MGII, and MGSPRO were calculated to evaluate specific ocular symptoms. For all instruments, higher scores indicate greater severity of symptoms (**Table 1**)

Results

- Overall, 200 patients received rozanolixizumab 7 mg/kg (n=66), 10 mg/kg (n=67), or placebo (n=67)
- Baseline demographics and disease characteristics were balanced across treatment groups, and patients had a broad range of disease severity (**Table 2**)
- For all ocular subdomains assessed, rozanolixizumab treatment groups showed greater mean improvements from BL at Day 43 than placebo groups (**Figures 1–4**)
- Rozanolixizumab treatment was generally well tolerated at both doses, and most adverse events were mild or moderate
  - Overall, 67.2%, 81.3%, and 82.6% of patients in the placebo, rozanolixizumab 7 mg/kg, and 10 mg/kg groups, respectively, experienced TEAEs
  - The most frequent TEAEs occurring overall were headache, diarrhea, and pyrexia

Summary and conclusions

Ocular symptoms in MG pose a substantial burden for patients, impacting QoL and daily activities including driving and working,[1] and may respond differently to treatment than generalized symptoms[2,3]

In the Phase 3, randomized, placebo-controlled, double-blind, MycarinG study, patients with gMG received one 6-week cycle of rozanolixizumab 7 mg/kg or 10 mg/kg

Greater improvements in the ocular scale scores for MG-ADL, QMG, MGII and MGSPRO were observed at Day 43 with rozanolixizumab than with placebo

Rozanolixizumab was generally well tolerated and most TEAEs were mild or moderate

The findings from *post hoc* analyses further support rozanolixizumab as a treatment option for patients with gMG, including those with ocular signs and symptoms

Table 1 Overview of ocular assessment by gMG instruments[1,6]

Instrument and subdomain	Underlying concepts	Recall period	Evaluated by
MGSPRO – Ocular Muscle Weakness scale	Severity of: • Diplopia • Ptosis • Blurry vision • Difficulty moving eyes side to side • Difficulty moving eyes up and down	7 days	Patient
MGII – ocular subdomain	Timing/duration, time to fatigability and severity of: • Diplopia • Ptosis	14 days	Patient
	Severity of: • Diplopia • Ptosis	Current	Clinician
MG-ADL – ocular subdomain	Frequency of: • Diplopia • Ptosis	7 days	Patient
QMG – ocular subdomain	Severity of: • Diplopia • Ptosis	Current	Clinician

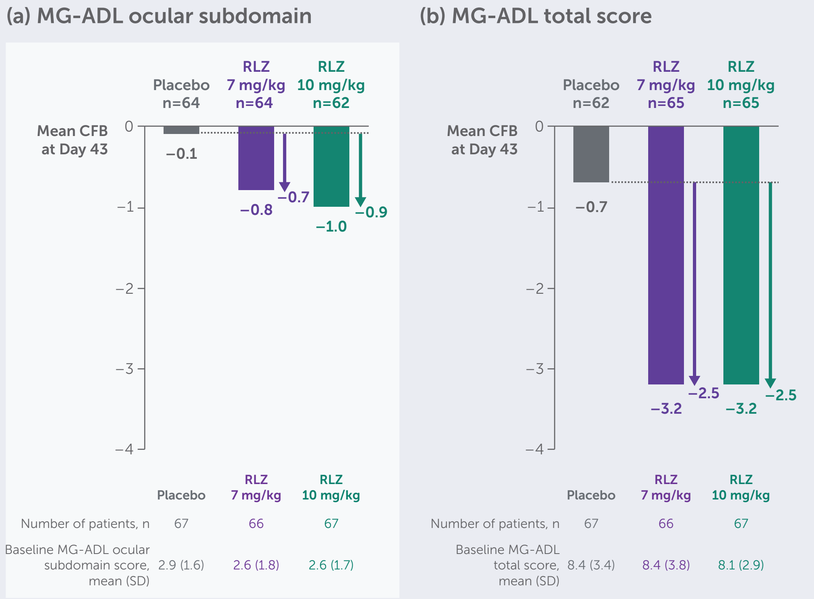
Range of response options for MGSPRO Ocular Muscle Weakness scale and QMG ocular subdomain scale: "none", "mild", "moderate" or "severe"; MGII ocular PRO scale: "none", "only evenings/after >1 hour/mild", "starting in the afternoon/after <1 hour/it affects my vision, but don't need to cover one eye, lift eyelid or tilt head" or "constant/starts immediately/I need to cover one eye/lift eyelid/tilt head to see"; MG-ADL ocular subdomain scale: "none", "occurs, but not daily", "daily, but not constant" and "constant". All items were measured on a 4-point scale.

Table 2 Baseline demographic and disease characteristics

		Placebo (n=67)	RLZ 7 mg/kg (n=66)	RLZ 10 mg/kg (n=67)
Age, years, mean (SD)		50.4 (17.7)	53.2 (14.7)	51.9 (16.5)
Sex, female, n (%)		47 (70.1)	39 (59.1)	35 (52.2)
Duration of disease, years, mean (SD)		9.4 (9.3)	6.9 (6.8)	9.6 (9.9)
MG-ADL total score at baseline, mean (SD)		8.4 (3.4)	8.4 (3.8)	8.1 (2.9)
MG-ADL ocular score at baseline, mean (SD)		2.9 (1.6)	2.6 (1.8)	2.6 (1.7)
Patients with MG-ADL ocular subdomain score >0, n (%)		62 (92.5)	57 (86.4)	59 (88.1)
QMG total score at baseline, mean (SD)		15.8 (3.5)	15.4 (3.7)	15.6 (3.7)
MGFA Disease Class at baseline, n (%)	II	23 (34.3)	29 (43.9)	26 (38.8)
	III	41 (61.2)	34 (51.5)	39 (58.2)
	IVa/b*	3 (4.5)	3 (4.5)	2 (3.0)

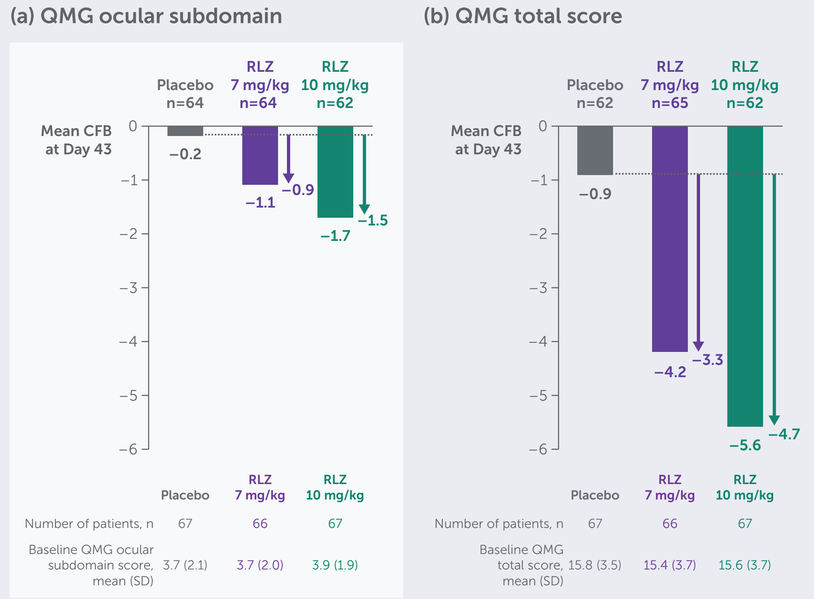
Randomized set. *Only one patient, who was randomized to the placebo group, had Class IVb disease.

Figure 1 Mean CFB at Day 43 for MG-ADL (a) ocular subdomain and (b) total score



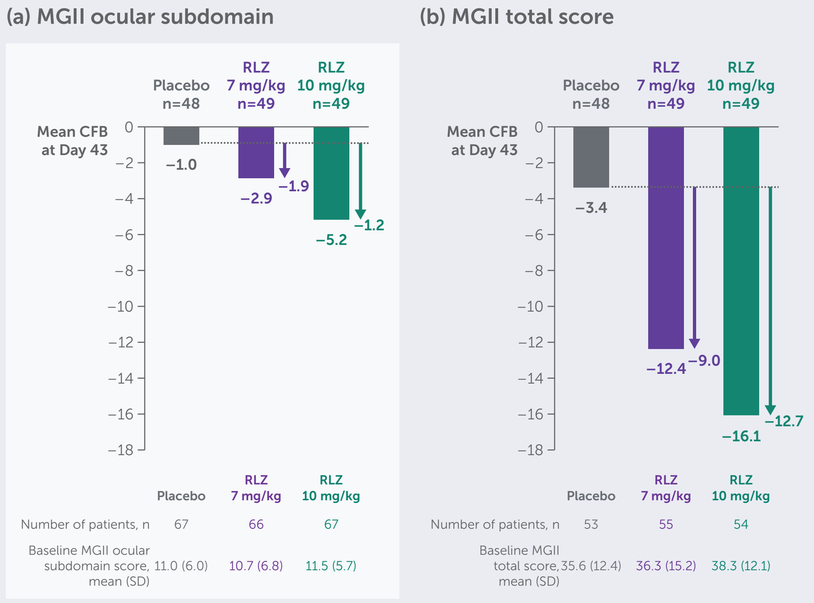
Randomized set. Higher score = more severe symptoms (0–6 for ocular subdomain, 0–24 for total scores). Ocular subdomain scores are *post hoc* change from baseline values whereas the total scores are primary and secondary analyses using the hypothetical and treatment policy strategy. Questionnaire completion rates at Day 43 were 92.5–97.0% for the MG-ADL ocular items.

Figure 2 Mean CFB at Day 43 for QMG (a) ocular subdomain and (b) total score



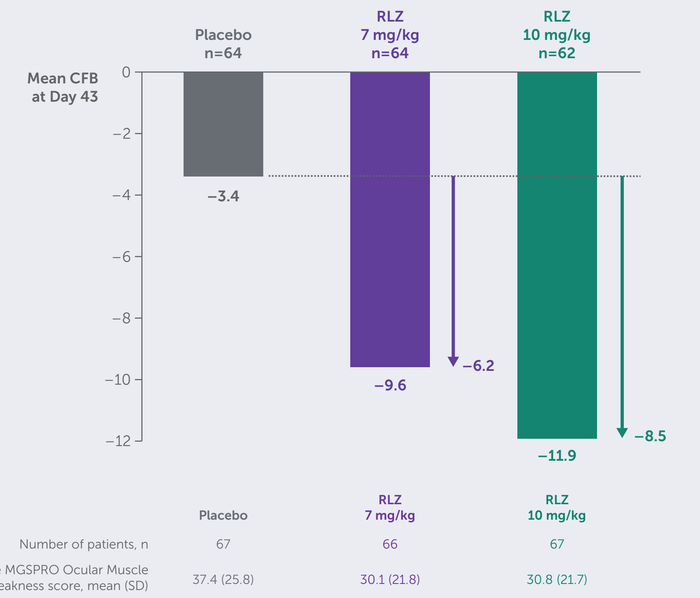
Randomized set. Higher score = more severe symptoms (0–6 for ocular subdomain, 0–39 for total score). Ocular subdomain scores are *post hoc* change from baseline values whereas the total scores are primary and secondary analyses using the hypothetical and treatment policy strategy. Questionnaire completion rates at Day 43 were 92.5–97.0% for the QMG ocular scale.

Figure 3 Mean CFB at Day 43 for MGII* (a) ocular subdomain and (b) total score



Randomized set. Higher score = more severe symptoms (0–24 for ocular subdomain, 0–84 for total scores). Questionnaire completion rates at Day 43 were 71.6–74.2% for the optional MGII ocular scale.
*Completion of MGII was optional.

Figure 4 Mean CFB at Day 43 for MGSPRO Ocular Muscle Weakness Scale score



Randomized set. Higher score = more severe symptoms (0–100 for each scale). No total score is available for MGSPRO. Questionnaire completion rates at Day 43 were 92.5–97.0% for the MGSPRO Ocular Muscle Weakness scale. The sum of responses to the items composing each scale undergoes linear transformation to generate a score of 0–100.[7]

Abbreviations: Ab+, autoantibody positive; AChR, acetylcholine receptor; BL, baseline; CFB, change from baseline; FcRn, neonatal Fc receptor; FV, final visit; (g)MG, (generalized) myasthenia gravis; IgG4, immunoglobulin G4; mAb, monoclonal antibody; MG-ADL, Myasthenia Gravis Activities of Daily Living; MGFA, Myasthenia Gravis Foundation of America; MGII, Myasthenia Gravis Impairment Index; MGSPRO, Myasthenia Gravis Symptoms Patient-Reported Outcomes; MuSK, muscle-specific tyrosine kinase; QMG, Quantitative Myasthenia Gravis; QoL, quality of life; RLZ, rozanolixizumab; SD, standard deviation; SE, standard error; TEAE, treatment-emergent adverse event.

Acknowledgements: This study was funded by UCB. The authors acknowledge Lighthouse Medical Communications, New York, US, for editorial support in the form of writing and editorial assistance, which was funded by UCB. The authors acknowledge Aimee Jones, DPhil, and Veronica Porkess, PhD, of UCB, Slough, UK, for publication coordination. The authors thank the patients and their caregivers, in addition to the investigators and their teams who contributed to this study.

Author disclosures: Ali A. Habib has received research support from Alexion Pharmaceuticals, argenx, Cabaletta Bio, Genentech/Roche, Immunovant, Regeneron Pharmaceuticals, UCB and Viela Bio (now Amgen). He has received honoraria from Alexion Pharmaceuticals, Alpine Immune Sciences, argenx, Genentech/Roche, Immunovant, Inhibrx, Regeneron Pharmaceuticals, NMD Pharma, and UCB. Robert M. Pascuzzi is Professor Emeritus of Neurology at Indiana University and receives compensation for his professional work from Indiana University Health. He has no financial relationship with any pharmaceutical company and receives no compensation from any pharmaceutical company (present or past). He speaks at educational seminars on a broad variety of general neurology topics for primary care physicians through the organization Medical Education Resources (an educational organization with no links or ties to any pharmaceutical or healthcare business company). Therefore, he has no conflicts of interest related to his research, manuscript, presentation, or publication. John Vissing has been a consultant on advisory boards for Amicus Therapeutics, Arvinas, Biogen, Fulcrum Therapeutics, Genethon, Horizon Therapeutics (now Amgen), Lupin, ML Biopharma, Novartis Pharma AG, Regeneron, Roche, Sanofi Genzyme (now Sanofi), Sarepta Therapeutics and UCB. He has received research, travel support and/or speaker honoraria from Alexion Pharmaceuticals, argenx, Biogen, Edgewise Therapeutics, Fulcrum Therapeutics, Lupin, Sanofi Genzyme (now Sanofi) and UCB. He is a Principal Investigator in clinical trials for Alexion Pharmaceuticals, argenx, Genethon, Horizon Therapeutics (now Amgen), Janssen Pharmaceuticals, ML Biopharma, Novartis Pharma, Regeneron, Roche, Sanofi Genzyme (now Sanofi), and UCB. Tuan Vu is the USF Site Principal Investigator for MG clinical trials sponsored by Alexion Pharmaceuticals, Amgen, argenx, Cartesian Therapeutics, Dianthus, Immunovant, Johnson and Johnson, Regeneron Pharmaceuticals, RemeGen and UCB and has served as a speaker for Alexion Pharmaceuticals, Allergan/AbbVie, argenx and CSL Behring. He performed consulting work for Alexion Pharmaceuticals, argenx, Dianthus, ImmunAbs, RemeGen, and UCB. Thaïs Tarancón is an employee and shareholder of UCB. Francesca Pannullo is a contractor for UCB. Asha Hareendran is an employee and shareholder of UCB. Vera Bril is a consultant for Akcea, Alexion Pharmaceuticals, Alnylam, argenx, CSL, Grifols, Ionis, Immunovant, Janssen Pharmaceuticals, Momenta (now Johnson and Johnson), Novo Nordisk, Octapharma, Pfizer, Powell Mansfield, Roche, Sanofi, Takeda and UCB. She has received research support from Akcea, Alexion Pharmaceuticals, argenx, CSL, Grifols, Immunovant, Ionis, Momenta (now Johnson and Johnson), Octapharma, Takeda, UCB, and Viela Bio (now Amgen).

References: 1. Meisel A, et al. *Eur J Neurol*. 2024;31(7):e16280. 2. Akaishi T, et al. *BMC Neurol*. 2016;16(1):225. 3. Barnett C, et al. *Neurology*. 2017;89(23):2357–64. 4. Bril V, et al. *Lancet Neurol*. 2023;22(5):383–94. 5. Rozanolixizumab US PI. https://www.accessdata.fda.gov/drugsatfda_docs/label/2024/761286s001lbl.pdf. Accessed January 2025. 6. Barohn RJ, et al. *Ann N Y Acad Sci*. 1998;841(1):769–72. 7. Regnault A, et al. *Front. Neurol*. 15:1368525.

These data were previously presented at the International Congress on Neuromuscular Disease in Perth, Australia; October 25–29, 2024.

Please use this QR code to download a PDF of the poster.