Consistent Efficacy and Safety of Erenumab Over Time in Patients with Episodic Migraine Who Completed a 5-year, Open-label Extension Study

Messoud Ashina,[1] Peter J Goadsby,[2] Uwe Reuter,[3] Stephen Silberstein,[4] David W Dodick,[5] Feng Zhang,[6] Fei Xue,[6] Sunfa Cheng,[6] Denise E Chou,[6] Gabriel Paiva da Silva Lima[6]

[1]Dept Neurology, Danish Headache Center, Rigshospitalet Glostrup, Faculty of Health and Medical Sciences, University of Copenhagen, Denmark; [2]NIHR-Wellcome Trust King's Clinical Research Facility, King's College London, London, UK and Dept of Neurology, University of California, Los Angeles, CA, USA; [3]Dept Neurology, Charité Universitätsmedizin Berlin, Berlin, Germany; [4]Jefferson Headache Center, Thomas Jefferson University, Philadelphia, PA, USA; [5]Dept of Neurology, Mayo Clinic, Scottsdale, AZ, USA; [6]Amgen Inc., Thousand Oaks, CA, USA

Objective

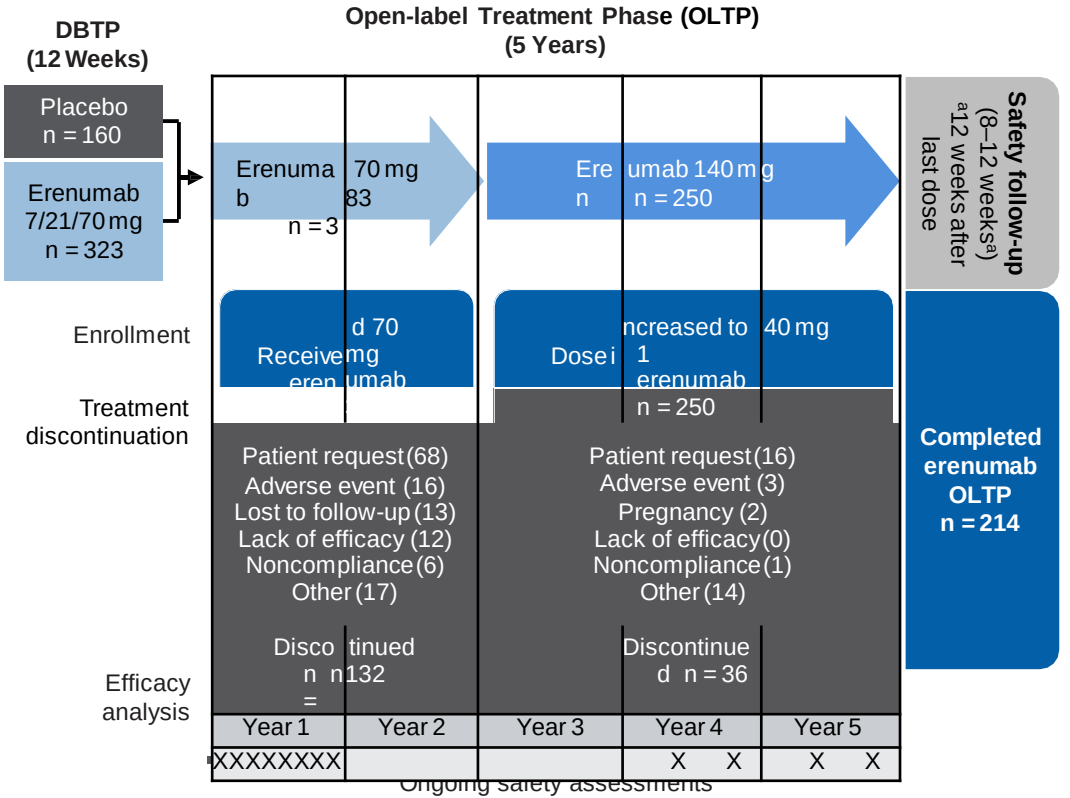
To evaluate the long-term efficacy and safety of erenumab in patients with episodic migraine who completed a 5-year treatment

Clinicaltrials.gov NCT01952574

Methods

- Patients included in the completer analysis set if they had received the last scheduled erenumab 140 mg at week 264
- Baseline defined as 4-week period prior to the double-blind treatment phase (DBTP)
- DBTP safety assessed using data pooled from 4 pivotal studies in episodic and chronic migraine (12 weeks) (Ashina et al, Cephalalgia, 2019;39(14):1798-1808)

Study design and disposition



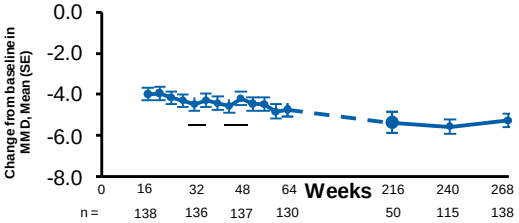
Results

Baseline characteristics	All patients (n = 383)	Completers (n = 214)
Demographics		
Age, years	41.3 (10.9)	42.3 (10.8)
Sex, female, n (%)	303 (79.1)	171 (79.9)
Race, white, n (%)	354 (92.4)	201 (93.9)
Baseline disease characteristics		
Age at migraine onset, years	20.9 (11.3)	21.8 (12.0)
Duration of disease, years	20.9 (11.9)	21.1 (11.7)
History of migraine with aura, n (%)	137 (35.8)	81 (37.9)
Monthly migraine days	8.7 (2.7)	8.6 (2.7)
Monthly acute migraine-specific medication days[a]	4.3 (3.7)	4.5 (3.6)
Prior preventive therapy, n (%)		
Prior use	169 (44.1)	94 (43.9)
≥1 Treatment failure[b]	138 (36.0)	76 (35.5)

[a]Migraine-specific medications were triptans and ergotamine derivatives.
[b]Included discontinuation due to lack of efficacy and/or side effects.
Data represent mean (SD) unless otherwise indicated.

Erenumab demonstrated **consistent and sustained** clinical responses in patients who completed **5 years** of treatment

Change in monthly migraine days

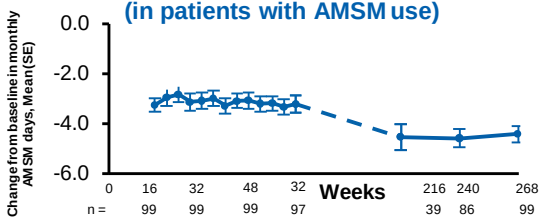


Baseline monthly migraine days: **8.5 (0.2) days**

Mean (SE) change from baseline to year 5: **–5.3 (0.3) days**

Change in acute migraine-specific medication days

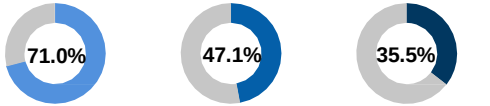
(in patients with AMSM use)



Baseline monthly AMSM days: **6.2 (0.3) days**

Mean (SE) change from baseline to year 5: **–4.4 (0.3) days**

Monthly migraine day response rate at year 5



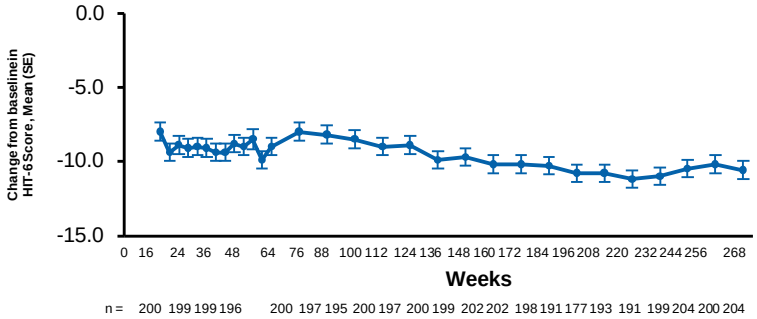
≥ 50% response	≥ 75% response	100% response

AMSM, acute migraine-specific medication; MMD, monthly migraine day.

Results (Contd.)

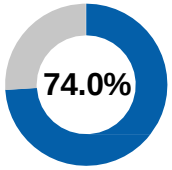
Erenumab demonstrated **consistent and sustained** clinically meaningful **improvements** in **patient reported outcomes** and increased **consecutive days free** of moderate/severe **headache** in patients who completed **5 years** of treatment

Change in HIT-6 score



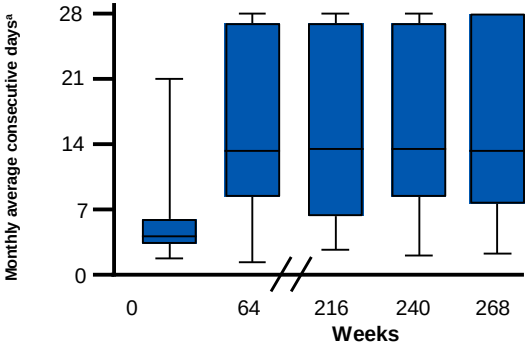
Baseline HIT-6 total score:
59.9 (0.4) days

Mean (SE) change from baseline to year 5:
–10.6 (0.6) days

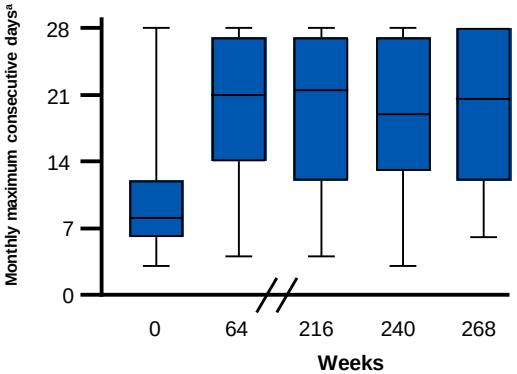


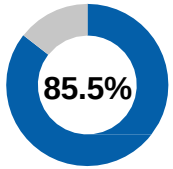
Proportion of patients achieving ≥5-point reduction

Average consecutive days free of moderate/severe headache per month



Maximum consecutive days free of moderate/severe headache per month





Proportion of patients with ≥1 interval of ≥14 consecutive days free of moderate/severe headache at week 216, 240, 264, or 268

[a]Maximum 28 days possible during 4-week evaluation period.

Results (Contd.)

There was **no increased** emergence of adverse events **over time** in patients who completed **5 years** of treatment

Exposure-adjusted adverse events
n [r]

	Pooled DBTP[a]		OLTP
	Placebo (N=1043)	Erenumab 70/140 mg (N=1400)	Erenumab 70/140 mg (N=214)
All AEs	280.2 / 100 PY (n=551)	249.0 / 100 PY (n=727)	108.6 / 100 PY (n=203)
Grade ≥ 2	126.5 / 100 PY (n=321)	105.4 / 100 PY (n=405)	54.0 / 100 PY (n=186)
Grade ≥ 3	12.8 / 100 PY (n=40)	12.4 / 100 PY (n=58)	6.2 / 100 PY (n=57)

	Pooled DBTP		OLTP
	Placebo (N=1043)	Erenumab 70/140 mg (N=1400)	Erenumab 70/140 mg (N=214)
SAEs	6.3 / 100 PY (n=20)	5.9 / 100 PY (n=28)	3.1 / 100 PY (n=31)
Fatal AEs	0.0 / 100 PY (n=0)	0.0 / 100 PY (n=0)	<0.1 / 100 PY (n=1)[b]

Most frequent AEs (OLTP):

- Nasopharyngitis (n=80 [9.7/100 PY])
- upper respiratory tract infection (n=59 [6.5/100 PY])
- influenza (n=48 [5.0/100 PY])

SAEs reported by >1 patient each (OLTP):

Osteoarthritis (n=2), uterine leiomyoma (n=2), ligament rupture (n=2), appendicitis (n=2)

[a]Ashina et al, Cephalalgia, 2019;39(14):1798-1808

[b]One fatality ("death unattended") occurred during the safety follow-up when no erenumab was administered; considered unrelated to study drug by the investigator. PY, patient year

Conclusions

- Erenumab demonstrated consistent and sustained clinical responses in patients who completed 5 years of treatment
  - Maintained reductions in monthly migraine days and AMSM days
  - Maintained clinically meaningful improvements in HIT-6
  - Majority of patients achieved ≥50% reduction in monthly migraine days from baseline
  - Increased average and maximum monthly headache-free intervals
- Demographics and baseline characteristics were similar between completers and the full study population
- No new safety signals were detected in patients who completed the 5-year extended erenumab treatment period
  - Exposure-adjusted AEs and SAEs during OLTP were lower than that observed for placebo during DBTP

Disclosures

This study was funded by **Amgen Inc**. Erenumab is codeveloped in partnership with **Amgen Inc. and Novartis**.

Messoud Ashina — Consultant, speaker, or scientific advisor: Alder, Allergan, Amgen, Eli Lilly, Lundbeck, Novartis, and Teva; primary investigator: Alder, Allergan, Amgen, Eli Lilly, Novartis, and Teva; associate editor: Cephalalgia, Headache, and Journal of Headache and Pain; President: International Headache Society;**Peter J. Goadsby** — Consulting fee, speaking/teaching fee, and/or research grants: Akita Biomedical, Alder Biopharmaceuticals, Allergan, Allergan, Amgen, Autonomic Technologies, Avanir Pharmaceuticals, Cipla Ltd, CoLucid Pharmaceuticals, Inc., Dr. Reddy's Laboratories, electroCore, Inc., Eli Lilly, eNeura, Inc., Journal Watch, Massachusetts Medical Society, Medico-Legal Journal, Novartis, Oxford University Press, Pfizer, Promius Pharma, Quest Diagnostics, Scion, Teva Pharmaceuticals, Trigemina, Inc., UpToDate, and Wolters Kluwer;**Uwe Reuter** — Personal compensation: Allergan, Amgen, Eli Lilly, Medscape, StreaMedUp, Novartis, and Teva for scientific presentations and participation in advisory board meetings; **Stephen Silberstein** — Consultant and/or advisory board member for and honoraria: Abide Therapeutics, Alder, Allergan, Amgen, Avanir, Biohaven, Cefaly, Curelator, Dr. Reddy's, Egalet, Eli Lilly, GlaxoSmithKline Consumer Health Holdings, eNeura, electroCore, Impel NeuroPharma, Medscape, Novartis, Satsuma, Supernus, Teva, Theranica, and Trigemina; **David W Dodick** — Consulting fees: AEON, Alder, Allergan, Amgen, Amzak Health, Association of Translational Medicine, Autonomic Technologies, Axsome, Biohaven, Charleston Labs, Clexio, Daniel Edelman Inc., Dr Reddy's Laboratories (Promius), ElectroCore, Eli Lilly, eNeura, Equinox, Foresite Capital, Impel, Ipsen, Neurolief, Nocira, Novartis, Oppenheimer, Pieris, PSL Group Services, Revance, Salvia, Satsuma, Sun Pharma (India), Supernus, Teva, Theranica, University Health Network, Upjohn (Division of Pfizer), Vedanta, WL Gore, XoC, Zosano, and ZP Opco; personal fees to develop/deliver educational content for continuing medical education projects: Academy for Continued Healthcare Learning, Catamount, Chameleon, Global Access Meetings, Global Life Sciences, Global Scientific Communications, Haymarket, HealthLogix, Medicom Worldwide, MedLogix Communications, Mednet, Miller Medical, PeerView, Universal Meeting Management, UpToDate (Elsevier), and WebMD Health/Medscape; personal fees, royalties: Cambridge University Press, Oxford University Press, and Wolters Kluwer Health; board of directors, received stock options: Aural Analytics, Epien, Healint, King-Devick Technologies, Matterhorn, Nocira, Ontologics, Precon Health, Second Opinion/Mobile Health, and Theranica; no personal fees or royalties from Allergan for Patent 17189376.1-1466:vTitle: Botulinum Toxin Dosage Regimen for Chronic Migraine Prophylaxis; research funding to institution for salary support: American Migraine Foundation, Henry Jackson Foundation, PCORI, and US Department of Defense; reimbursement for travel: American Academy of Neurology, American Brain Foundation, American Headache Society, American Migraine Foundation, Canadian Headache Society, and International Headache Society; personal fees, speaking (not speakers bureau): Amgen, Lilly, Lundbeck, and Novartis; **Feng Zhang, Sunfa Cheng, Denise E. Chou, and Gabriel Paiva da Silva Lima** — Employees of and stockholders in Amgen. **Fei Xue** — Was an employee of and stockholders in Amgen at the time of the study.

The authors acknowledge that assistance in preparing this presentation was provided by Jon Nilsen, PhD (Amgen Inc.) and Allison Gillies (ICON, North Wales, PA), whose work was funded by Amgen Inc. The final responsibility for the content lies with the authors.

(MLR ID: 119037)