Effect of erenumab in converting chronic migraine to episodic migraine in a Botulinum toxin-refractory chronic migraine population: Real-world data from a UK secondary care headache clinic

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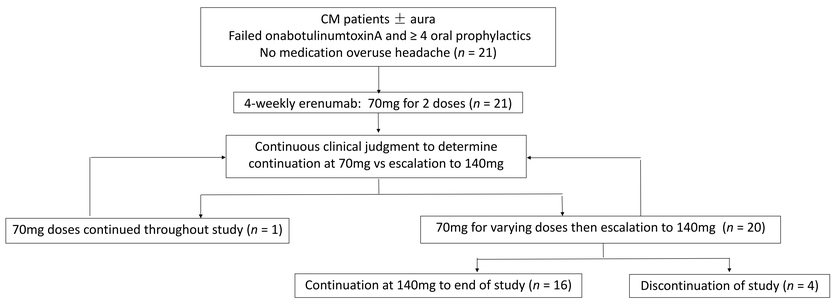
Introduction

- Erenumab, an anti-calcitonin gene-related peptide (CGRP) receptor monoclonal antibody, is an efficacious novel chronic migraine (CM) preventative in clinical trials (1, 2).
- Erenumab converts CM to episodic migraine (EM) over 12–64 weeks in a recent clinical trial open-label extension study (3). However, long-term real-world EM conversion data is lacking.
- Few studies have analysed erenumab responses in onabotulinumtoxinA-refractory CM. None were conducted in secondary care, where significant numbers of CM patients are managed.
- We investigate long-term real-world erenumab efficacy in converting onabotulinumtoxinA-refractory CM to EM over 21 months in a UK secondary care headache clinic.

Methods

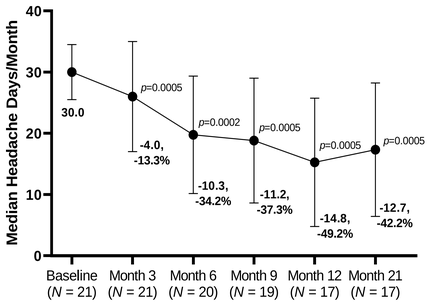
- Prospective case series: 21 CM patients refractory to onabotulinumtoxinA and ≥4 oral prophylactics, without medication overuse headache (MOH), received 4-weekly subcutaneous erenumab for 21 months (Mar 2019 – Nov 2020).
- Monthly headache days (MHD), migraine days (MMD) and headache-free days (HFD) assessed.
- Mean MHD <15 days/month responses assessed conversion to EM.
- Mean MMD <8 days/month responses assessed migraine frequency reduction to one manageable with acute analgesia without risk of MOH.
- >30%, >50% and >75% mean MMD reduction from baseline assessed.
- MHD and MMD responses compared for those with and without baseline HFD.

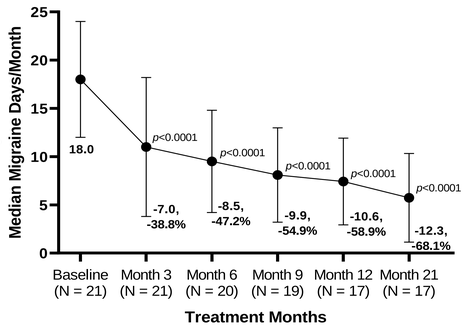


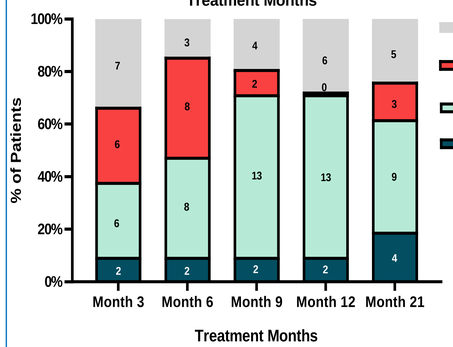
Results

- **Patient characteristics**
  - Gender: Male 1 (4.8%), Female 20 (95.2%). Mean age (years): 41.2 ± 9.5
  - Number of oral prophylactics failed per patient: 5.5 ± 1.3 (range 4 – 9)
  - Commonest prophylactics tried (%): amitriptyline 100%, topiramate 81.0%, propranolol 61.9%, candesartan 61.9%
  - Number of onabotulinumtoxinA cycles failed per patient: 6.0 ± 2.4
- **Erenumab administration**
  - Number of 70mg doses per patient (median): 6.0. Number of 140mg doses per patient (median): 13.0
- **Baseline headache characteristics (median, mean ± SD)**
  - MHD: 30.0, 27.3 ± 4.5; MMD: 18.0, 20.0 ± 6.0. 61.9% had 0 baseline HFD

Results- MHD and MMD improvement



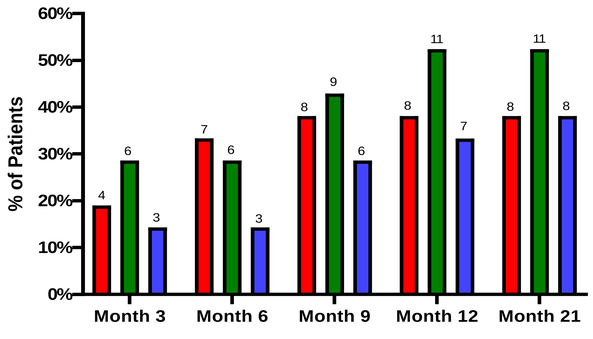




Month 21:
- ❖MHD reduction (days): -12.7 (-42.2%), p<0.0001
- ❖MMD reduction (days): -12.3 (-68.1%), p<0.0001

% MMD reduction:
- ❖ Month 3: 66.7%, 38.1%, 9.5% achieved >30%, >50%, >75% responses
- ❖ Month 12: 71.4%, 71.4%, 9.5% achieved >30%, >50%, >75% responses
- ❖ Month 21: 76.2%, 61.9%, 19.0% achieved >30%, >50%, >75% responses

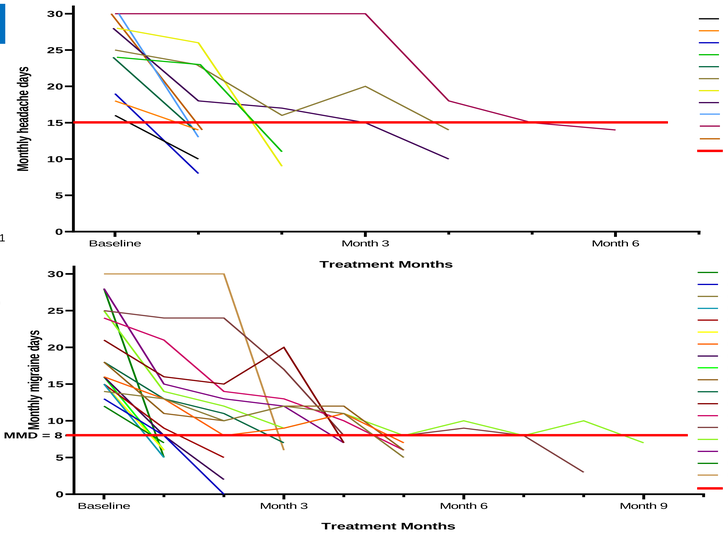
Results- Conversion to EM



Conversion to EM and MMD < 8 responses:
- ❖ Month 3: 14.3%
- ❖ Month 6: 14.3%
- ❖ Month 12: 33.3%
- ❖ Month 21: 38.1%

Conversion to EM (mean MHD < 15 responses):
- ❖ Month 3: 19.0%,
- ❖ Month 6: 33.3%,
- ❖ Month 12: 38.1%,
- ❖ Month 21: 38.1%

Mean MMD < 8 responses:
- ❖ Month 3: 28.6%,
- ❖ Month 6: 28.6%,
- ❖ Month 12: 52.4%,
- ❖ Month 21: 52.4%



- ❖ 52.4% achieved MHD<15 in any month, within 2.2±1.7 months (range 1–6 months)
- ❖ 85.7% achieved MMD<8 in any month, within 3.4±2.4 months (range 1–9 months)
- ❖ 52.4% achieved both MHD<15 and MMD<8 in any month, within 3.1±1.8 months (range 1–6 months)
- ❖ 100% patients who achieved MHD<15 in any month also achieved MMD<8 in any month
- ❖ 33% achieved MMD<8 in any month only, without achieving MHD<15 in any month

Results- Baseline headache-freedom and treatment response

- ❖ 38.5% with 0 baseline HFD achieved ≥1 HFD in any treatment month
- ❖ Patients with ≥1 versus 0 baseline HFD:
  - More achieved mean MHD<15 at Month 12 (75.0% vs 7.7%, p=0.003) and Month 21 (75.0% vs 15.4%, p=0.018)
  - More achieved >50% MMD reduction at Month 12 (100% vs 53.8%, p=0.046)
  - Greater HFD gain at Month 12 (+13.0 vs +4.5 days, p=0.021)

Conclusion

- ❖ In onabotulinumtoxinA-refractory CM patients, erenumab shows long-term efficacy with 38.1% converting to EM at 21 months. 52.4% achieved mean MMD<8, indicating migraine frequency reduction to one manageable with analgesia without causing MOH.
- ❖ Percentage of EM converters increased between 3–12 months and was sustained at 21 months.
- ❖ 52.4% achieved MHD<15 in any month, within 6 months. 33.3% achieved MMD<8 in any month without converting to EM.
- ❖ Those with ≥1 baseline HFD had superior erenumab responses than those without.

References

1. Tepper S, Ashina M, Reuter U, *et al.* Safety and efficacy of erenumab for preventive treatment of chronic migraine: a randomised, double-blind, placebo-controlled phase 2 trial. *Lancet Neurology* 2017;16(6):425–434.
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