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Impact of anti-CGRP monoclonal antibodies on treatment satisfaction and quality of life in patients with resistant migraine: a retrospective real-world study

Laura Cardona-Roca[1*], Carlos Seguí-Solanes[1], Manuel Cano-Alonso[1], Alba Sosa-Pons[1], Nuria Almendros-Abad[1] and Nuria Rudi Sola[1]

Abstract

Background Several studies have demonstrated that calcitonin gene-related peptide receptor antagonist monoclonal antibodies (anti-CGRP mAbs) are a safe and effective treatment for migraine prevention. Patients' perceptions, however, do not always match clinical findings. Numerous studies have evaluated the effects of anti-CGRP mAbs on quality of life, but few have studied treatment satisfaction. This study collected data on patient-reported satisfaction and quality of life after 1 year of anti-CGRP mAb therapy and analyzed effectiveness, safety, and adherence in routine practice.

Methods Single-center retrospective study of patients with high-frequency episodic migraine (HFEM) and chronic migraine (CM) treated for at least 1 year with the same anti-CGRP mAb. Patients were assessed using the Treatment Satisfaction Questionnaire for Medication (TSQM) at week 52 and the EuroQol 5-Dimension, 5-Level questionnaire (EQ-5D-5 L) and 6-Item Headache Impact Test (HIT-6) at weeks 0, 12, 24, and 52. Effectiveness was assessed through monthly migraine days (MMDs) and HIT-6 results, safety through reports of adverse events (AEs) and reasons for treatment discontinuation, and treatment adherence through the Medication Possession Ratio.

Results Eighty patients (95% women, mean ± SD age, 50 ± 9.9 years) with migraine (70% CM, 30% HFEM) treated with fremanezumab (88.8%), erenumab (6.2%), or galcanezumab (5%) were included. Mean global satisfaction on the TSQM was 77.2 ± 20.8 points. Treatment satisfaction was correlated with a reduction in HIT-6 score ($r = 0.372$, $p < 0.001$). At 1 year, significant improvements were observed in the EQ-5D-5L index score and visual analog scale. MMDs decreased significantly by 8.7 ± 7.4 days from baseline to week 52; 52 patients (65%) achieved a ≥ 50% reduction in MMDs. Fifty-three patients (66%) achieved a ≥ 6-point reduction on the HIT-6 (mean reduction, 12.1 ± 9.8 points); the improvement was significant ($p < 0.0001$) from week 12 onwards. Eighteen patients (22.5%) reported mild AEs and treatment adherence was 100%.

*Correspondence:
Laura Cardona-Roca
laura.cardona95@gmail.com

Full list of author information is available at the end of the article

Conclusions Patient satisfaction with anti-CGRP mAb therapy was high in this real-world study and correlated with effectiveness measured by the HIT-6 and significantly improved quality of life. Anti-CGRP mAbs are effective and safe for resistant migraine; they have a quick onset of action and provide lasting relief.

Keywords Migraine disorders, Patient satisfaction, Calcitonin gene-related peptide receptor antagonists, Patient reported outcome measures, Quality of life

Background

Migraine is a chronic neurological condition marked by recurrent headaches and other neurological symptoms. It is a disabling condition with significant social, personal, and economic consequences [1]. According to the 2019 Global Burden of Disease study, the estimated incidence of migraine in Spain is 1088 cases per 100,000 inhabitants; the disease has a prevalence of 18.5% in the general population and is twice as likely to affect women [2]. The estimated prevalence of chronic migraine, defined as ≥ 15 monthly migraine days, is 1–2%; episodic migraine progresses to CM in approximately 2.5% of cases [3].

Most preventive treatments for migraine are nonspecific, and adherence often declines over time due to adverse events (AEs) or lack of efficacy [1, 4]. In a retrospective analysis of patients with chronic migraine, persistence to initial oral migraine preventive therapies was low, with most patients discontinuing within 2–3 months; continuation rates declined to 25% at 6 months and 14% at 12 months [4].

The development of calcitonin gene-related peptide (CGRP) pathway antagonists marked a paradigm shift in migraine prevention, as they were the first pharmacological agents specifically target the disease's underlying mechanisms [5]. Although the pathogenesis of migraine remains unclear, it is considered to involve the trigeminovascular system, leading to the release of signaling molecules such as CGRP, which plays a crucial role in vasodilatation, neurogenic inflammation and modulation of pain [6, 7]. The blockade of the CGRP cascade results in the improvement of migraine symptoms [8]. Recent advances in migraine treatment have focused on targeting the CGRP pathway through injectable monoclonal antibodies which have demonstrated efficacy in reducing attack frequency and headache-related disability, as well as improving health-related quality of life, with favorable safety and tolerability profiles [5, 9, 10]. These monoclonal antibodies target the CGRP ligand (fremanezumab, galcanezumab, eptinezumab) or its receptor (erenumab) [10].

According to the latest International Headache Society guidelines, the use of monoclonal antibodies in high-frequency episodic migraine (HFEM) and chronic migraine (CM) is strongly recommended, with a moderate-to-high quality of evidence depending on the specific agent. When selecting a preventive treatment, it is reasonable to choose a drug with superior efficacy. Currently, the only head-to-head trial including monoclonal antibodies has shown that erenumab is more effective than topiramate [11]. However, in Europe, regulatory restrictions limit their use to patients for whom other preventive treatments have failed or are contraindicated [12]. Specifically, the Spanish National Healthcare System reimburses anti-CGRP monoclonal antibody therapy for patients with HFEM and CM (≥ 8 monthly migraine days) who have not responded to at least three previous preventive treatments administered at adequate doses for a minimum of three months; in the case of CM, one of these treatments must include botulinum toxin [13]. Consequently, its use is restricted to patients with resistant migraine, as defined by the European Headache Federation (EHF) [14].

Migraine significantly impacts quality of life, disrupting daily functioning and having long-term effects. Measuring this burden is essential to guide treatment and reimbursement decisions [14]. Clinical practice should shift from focusing solely on percentage reductions to assessing residual migraine burden during treatment, evaluating individual's quality of life to provide a more patient-centered measure of success. Patient satisfaction adds valuable insight into the challenges of evaluating treatment effectiveness beyond clinical benchmarks [15]. Although quality of life has been evaluated in clinical trials and multiple real-world studies assessing the effects of anti-CGRP mAb therapy in patients with difficult-to-treat migraine [9, 16–19], patient-reported satisfaction with therapy has been explored in only a limited number of cases [16–18].

The main objective of this study was to assess patient-reported satisfaction and quality of life after 12 months of anti-CGRP mAb therapy in a real-world clinical setting. Secondary aims were to analyze treatment effectiveness, safety, and adherence. To our knowledge, this is the first real-world study to provide a comprehensive assessment of both patient-reported treatment satisfaction and quality of life outcomes over a long-term period.

Methods

We conducted a single-center, retrospective, observational study to evaluate the impact of anti-CGRP mAb therapy on patients with resistant migraine according to EHF definition in routine clinical practice. The primary outcomes were overall treatment satisfaction and quality of life assessed through patient-reported outcome

measures (PROMs). Secondary outcomes were treatment effectiveness, safety, and adherence.

We included patients with HFEM or CM who received the same anti-CGRP mAb (fremanezumab, galcanezumab, or erenumab) for at least 1 year between December 2020 and February 2024. Eptinezumab was not available in Spain at the time of data collection. Patients without PROM data (due to comprehension difficulties or unavailability) were excluded.

Three PROM questionnaires were self-administered by the patients either in person during pharmacy visits or remotely via the hospital's mobile application: the Treatment Satisfaction Questionnaire for Medication (TSQM) version 1.4 [20] at week 52; the Spanish version of the EuroQol 5-Dimension, 5-Level questionnaire (EQ-5D-5 L) v2 [21] at weeks 0, 12, 24, and 52; and the 6-Item Headache Impact Test (HIT-6) [22], also at weeks 0, 12, 24, and 52 (Fig. 1). Questionnaires were completed prospectively following a structured approach, in accordance with the agreements established by the hospital's Pharmacy and Therapeutics Committee after the drug evaluation for its inclusion in the hospital formulary.

Clinical data such as monthly migraine days (MMDs) were obtained from medical chart records. A migraine day was defined as a calendar day recorded in the headache diary on which a migraine or probable migraine occurred, or a day on which acute migraine-specific medication (triptans or ergots) was used to treat a headache of any duration.

Study variables

Treatment satisfaction was assessed using the 14-item TSQM questionnaire, which assesses four domains—global satisfaction, effectiveness, side effects, and convenience— on a scale of 0 to 100, with higher scores indicating greater patient satisfaction. In this study, patients who scored > 80 points in the global satisfaction domain were considered satisfied with their treatment.

Quality of life was assessed using the EQ-5D-5L, which provides a generic measure of health-related quality of life. The questionnaire has two parts: a descriptive system covering five dimensions (mobility, self-care, usual activities, pain/discomfort, and anxiety/depression) and a visual analog scale (VAS) where patients rate their health from 0 (worst imaginable health) to 100 (best imaginable health).

In this current study, representative demographic data for Spain were used to generate a single health index score (EQ-5D-5 L index score) from the five dimensions using the EQ-5D-5L Crosswalk Index Value Calculator [23]. A score of 1.0 indicates perfect health.

Treatment effectiveness was evaluated by analyzing changes from baseline in mean MMDs, 50% response rates (≥ 50% reduction in MMDs), and achievement of a ≥ 6-point reduction on the HIT-6 scale. TSQM effectiveness domain scores were also considered.

The HIT-6 uses six questions to assess the impact of headache on a person's ability to function at work, school, home, and in social settings (headache-related disability). Scores range from 36 to 78 and are categorized into four levels of severity: severe impact (≥ 60), substantial impact (56–59), some impact (50–55), and little or no impact (≤ 49).

Safety outcomes included reported adverse events (AEs) and treatment-related discontinuations. Side effect domain scores on the TSQM were also taken into account.

Treatment adherence was assessed using the Medication Possession Ratio (MPR, %), calculated from pharmacy dispensing records as the total number of units dispensed divided by the number of theoretical units prescribed for the measurement period × 100.

Statistical analysis

Descriptive statistics were used to summarize the findings. Continuous variables are expressed as the number of cases or mean ± standard deviation for normally

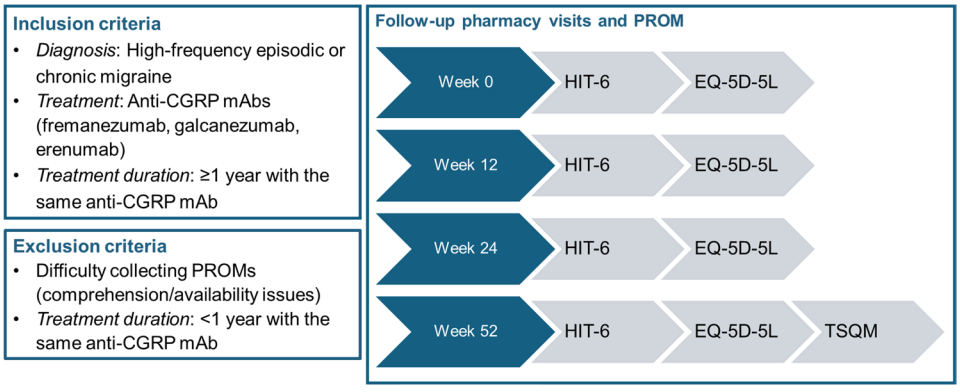


Fig. 1 Inclusion and exclusion criteria and timing of patient-reported outcomes measures

distributed variables (parametric tests) and as median and interquartile range for non-normally distributed variables (non-parametric tests). Categorical variables are expressed as absolute and relative frequencies. Groups were compared using the t-test, the Chi-square test, or analysis of variance (ANOVA), as appropriate. Univariate analyses were performed to explore associations between patient characteristics and treatment satisfaction outcomes. For continuous variables, Pearson correlation coefficients were calculated to assess linear relationships with the Treatment Satisfaction Questionnaire for Medication (TSQM) domain scores.

Statistical tests accounted for repeated measures where applicable, using appropriate models to handle within-subject correlations over time. No corrections for multiple comparisons were applied, given the exploratory nature of the analysis.

All analyses were performed on the available data following the Full Analysis Set (FAS) principle. All statistical tests were two-tailed, and p-values < 0.05 were considered statistically significant. Statistical analysis adhered to the ICH E9 statistical principles and Good Clinical Practice guidelines, and were conducted using Statistical Analysis System (SAS) version 9.4.

Results

Demographic and baseline characteristics

Eighty-eight patients with HFEM or CM were treated with the same anti-CGRP mAb for at least 1 year during the study period. Of these, eight were excluded due

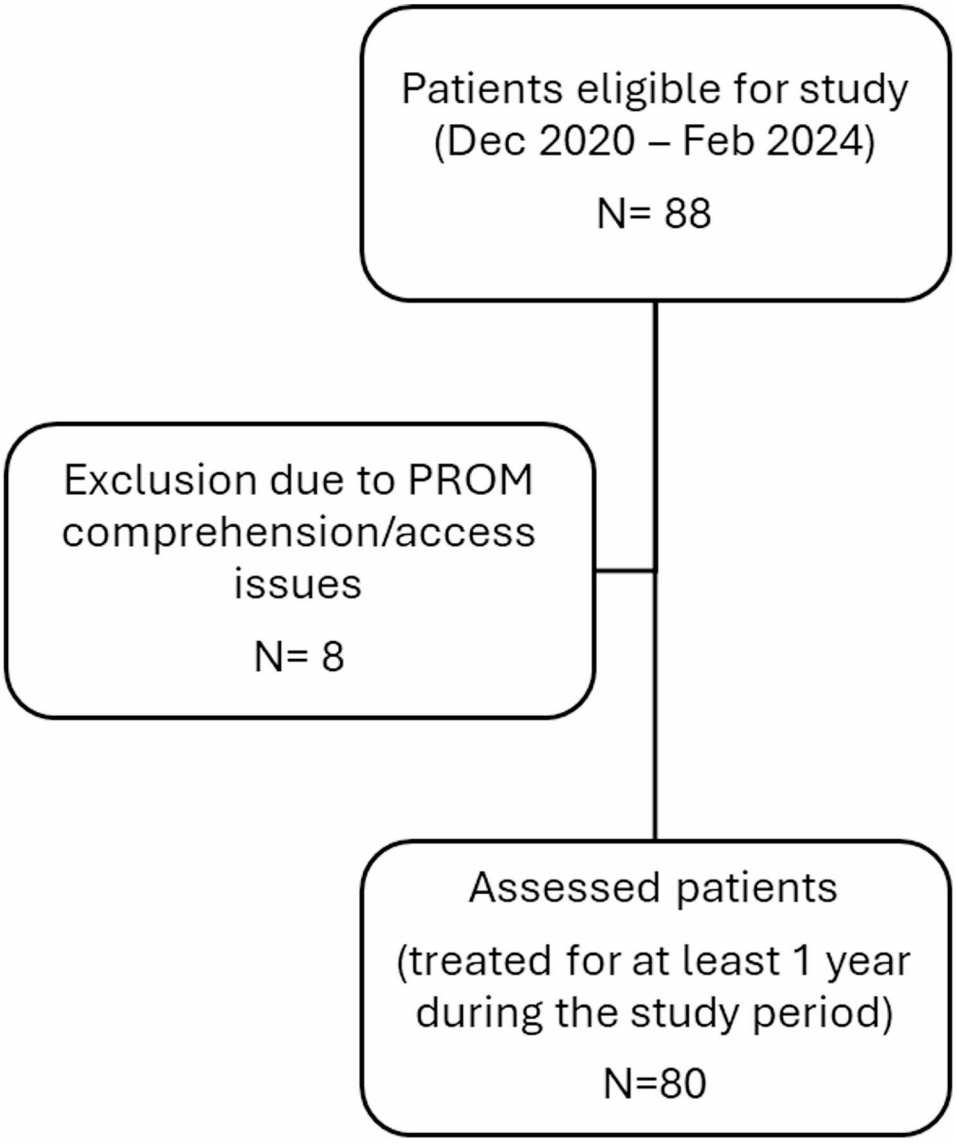


Fig. 2 Patient flow chart

Table 1 Demographics and baseline characteristics

Characteristics	*N* = 80
Age (years), mean (SD)	50 (9.9)
Sex, *n* (%) Women	76 (95.0)
Body mass index (Kg/m^2), mean (SD)	26.4 (5.8)
Active smoker, *n* (%)	22 (27.5)
Type of migraine, *n* (%)	56 (70.0)
Chronic migraine	24 (30.0)
High-frequency episodic migraine	
Previous preventive treatments (including botulinum toxin[1]), mean ± SD	3.8 (1.1)
Type and dose of anti-CGRP mAb, *n* (%)	71 (88.8)
Fremanezumab 225 mg once monthly	5 (6.2)
Erenumab	4 (5.0)
140 mg every 4 weeks	1 (1.2)
70 mg every 4 weeks	4 (5.0)
Galcanezumab 120 mg monthly (with a 240 mg loading dose)	
Current line of anti-CGRP mAb treatment[2], *n* (%)	75 (93.8)
First-line	4 (5.0)
Second-line	1 (1.2)
Third-line	
Baseline MMDs, mean (SD)	15 (6.2)
Baseline HIT-6 score, mean (SD)	69.7 (5.0)
Baseline VAS score, mean (SD)	55.5 (25.1)
Baseline EQ-5D-5 L index value, mean (SD)	0.61 (0.26)

[1]All patients with chronic migraine had been treated with botulinum toxin before receiving biologic therapy. [2]The current line of anti-CGRP monoclonal antibody treatment refers to prior switches between different anti-CGRP mAbs that were discontinued due to lack of efficacy or adverse events

Table 2 Patient satisfaction with anti-CGRP mAb therapy after 52 weeks as measured by the TSQM

TSQM total domain scores (total possible score, 100)	Mean ± SD
Effectiveness	75.8 ± 19.3
Side effects	91.1 ± 20.8
Convenience	78.0 ± 17.8
Global satisfaction	77.2 ± 20.8

Table 3 Univariate analysis for patients with a global satisfaction score > 80 points on the TSQM

	r	*p*-value
Sex	−0.217	0.055
Age	0.054	0.636
Body mass index	−0.026	0.821
Smoker	−0.187	0.099
Previous lines of treatment	−0.034	0.764
MMDs S0-S52	0.105	0.359
HIT-6 S0-S52	0.372	**0.001**
EQ-5D-5 L index value week 0-week 52	−0.167	0.163
VAS score week 0-week 52	−0.101	0.400

r: Pearson correlation coefficient. Statistical significant results ($p < 0.05$) are shown in bold

to difficulties in obtaining or comprehending the PROM (Fig. 2).

The demographic and baseline characteristics of the remaining 80 patients are summarized in Table 1.

Patient-reported treatment satisfaction: TSQM results

Mean scores for the four TSQM domains are presented in Table 2. An additional table provides more details on TSQM answers [see Additional file 1]. The side effects domain received the highest score, followed by convenience, global satisfaction, and effectiveness. Thirty-eight patients (47.5%) scored > 80 in the global satisfaction domain.

Univariate analysis of factors potentially correlated with greater treatment satisfaction showed a significant correlation between a TSQM global satisfaction score > 80 and a reduction in HIT-6 score from baseline to week 52 ($r = 0.372$, $p < 0.001$). None of the other factors were statistically significant (Table 3).

Patient-Reported quality of life: EQ-5D-5 L results

The results of the EQ-5D-5 L questionnaire are summarized in Fig. 3. An additional table shows EQ-5D-5L data in more detail [see Additional file 2]. Quality of life improvements from baseline to week 52 were significant for self-care, usual activities, pain/discomfort, the EQ-5D-5L index score, and the VAS score. Improvements in the last four variables were significant from week 12 onwards (self-care was significant only at week 52).

Treatment effectiveness

a. Clinical data: monthly migraine days (MMDs)

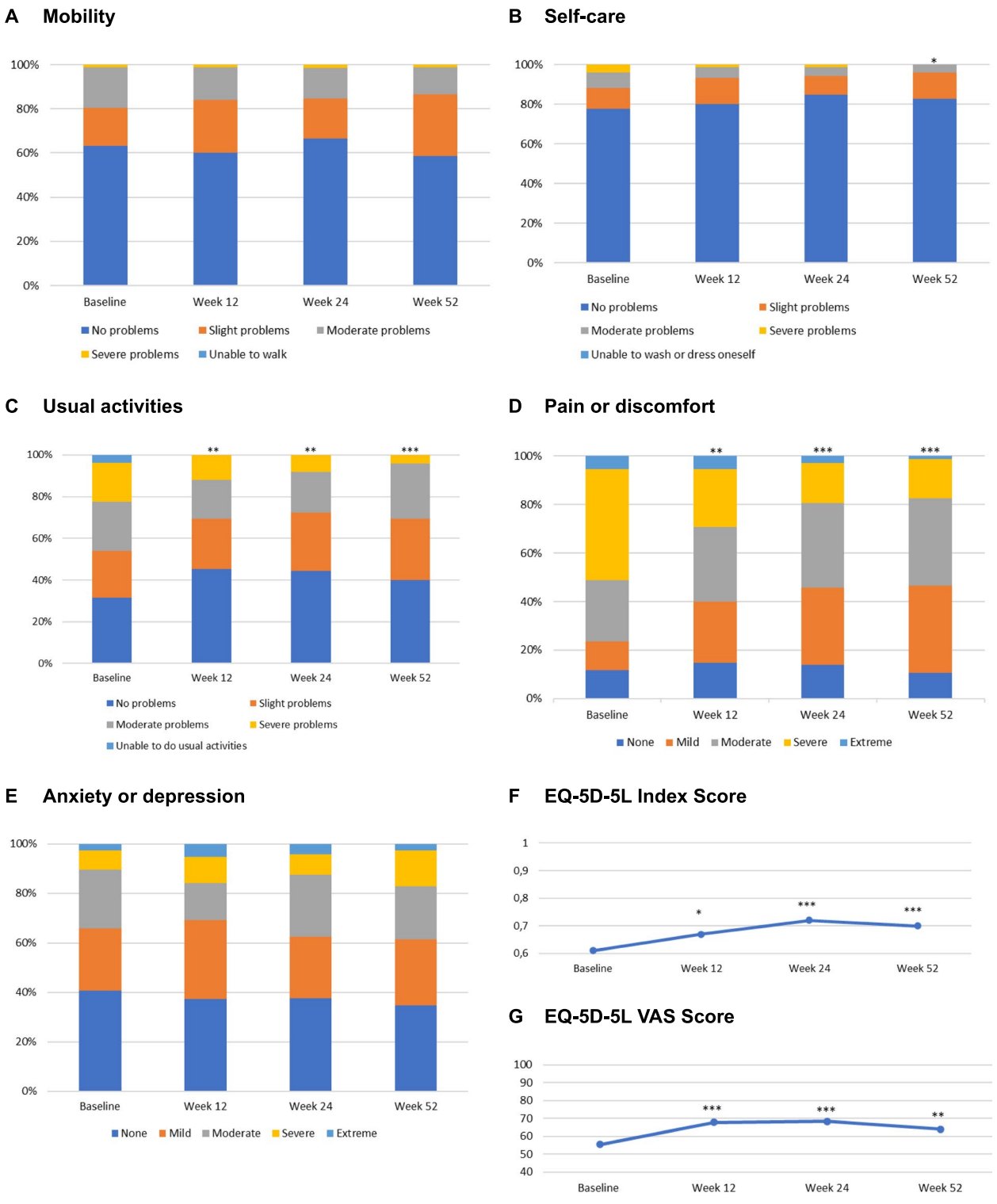
The overall mean reduction in MMDs from baseline to week 52 was 8.7 ± 7.4 days ($p < 0.0001$), with respective reductions of 5.6 ± 5.4 days for high-frequency episodic migraine and 10 ± 7.7 days for chronic migraine. Fifty-two patients (65%) were classified as responders (≥ 50% reduction in MMDs), and 15 of these (29%) achieved an MMD reduction of > 90%.

b. Patient-Reported outcomes: HIT-6 results

The mean reduction in HIT-6 scores from baseline to week 52 was 12.1 ± 9.8 points; the change was significant ($p < 0.0001$) from week 12 onwards. Fifty-three patients (66%) achieved a reduction of ≥ 6 points. Changes in headache-related disability, as measured by the HIT-6, are shown in Fig. 4.

Safety outcomes

Eighteen patients (22.5%) reported at least one adverse effect during the year of anti-CGRP mAb therapy. All the events were mild and none led to treatment discontinuation. The most common AEs were injection-site reactions (pain, erythema, and/or pruritus) ($n = 10$) and



Statistically significant differences: $p < 0.05$ (*), $p < 0.01$ (**), $p < 0.001$ (***).

Fig. 3 EQ-5D-5L results from baseline to week 52 of treatment

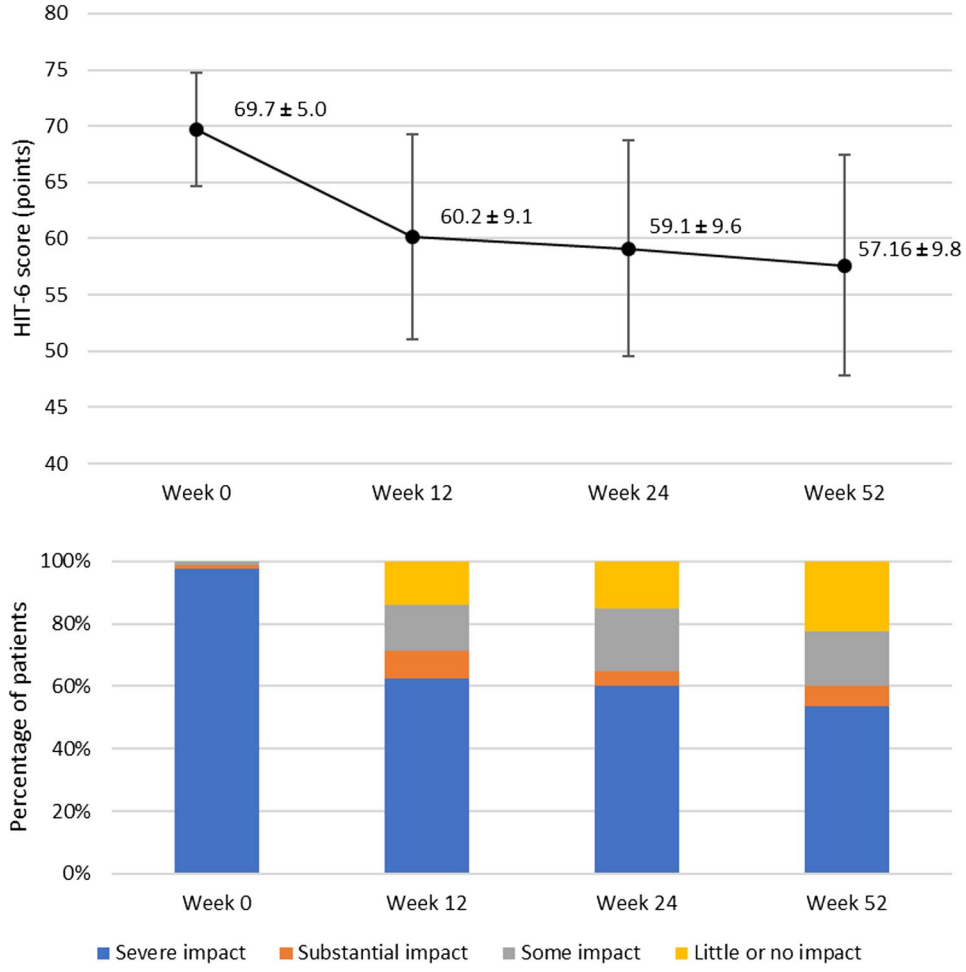


Fig. 4 Changes in headache-related disability according to the HIT-6. HIT-6 impact severity: severe impact, ≥ 60 points; substantial impact, 56–59 points; some impact, 50–55 points; little or no impact, ≤ 49 points

constipation ($n = 4$). Less common AEs included menstrual irregularities ($n = 2$), vertigo ($n = 2$), eyelid edema ($n = 1$), and visual disturbances ($n = 1$). Injection-site reactions ($n = 4$) were the most common AE in the 14 patients who scored < 90 in the TSQM side effects domain.

Treatment adherence

All the patients had an MMR of 100%, indicating full adherence.

DISCUSSION

Satisfaction with anti-CGRP monoclonal antibodies therapy was high (> 75%) across all domains of the TSQM in this real-world study of patients with resistant migraine. The mean TSQM global satisfaction score of 77.2 points is similar to previous reports, although comparisons are limited due to differences in follow-up periods and treatments. In our series, 88.8% of patients received fremanezumab and results were evaluated over 52 weeks. López-Bravo et al. [24, 25] reported in two studies a TSQM global satisfaction score of 85.7 points after 6 months of treatment with galcanezumab and anti-CGRP mAb therapy, while Gantenbein et al. [26] reported a score of 72.4 points after 6 months of erenumab in the real-world SQUARE study.

The only factor significantly associated with treatment satisfaction (TSQM global satisfaction score > 80) in our series was a reduction in HIT-6 score. This finding coincides with that of López-Bravo et al. [24] and highlights the potential of the HIT-6 as a tool for monitoring treatment response. This study also identified a lack of statistically significant correlation between high patient satisfaction and reduction in MMDs. While it might be expected that greater clinical improvement would directly translate into higher satisfaction, this was not observed in our data. The chosen satisfaction threshold could be a contributing factor. In our study, an 80-point cut-off on the TSQM global satisfaction scale was used to define "high satisfaction". However, satisfaction measures are not standardized and rely on subjective considerations [15], which means thresholds like this are somewhat arbitrary and may not fully capture the variability

in patient perceptions, especially in populations characterized by high adherence and generally positive attitudes toward treatment.

Several factors may help explain the absence of correlation between high satisfaction and MMD reduction. First, patient satisfaction is a multidimensional concept influenced not only by clinical efficacy but also by factors such as baseline migraine burden, personal goals and values, and specific quality-of-life concerns [14]. Treatment convenience, side effects, and the quality of the patient–physician relationship may also contribute. Some patients may perceive even modest improvements in MMD as meaningful if the treatment is well tolerated or easier to manage than previous options, while others may report lower satisfaction despite substantial MMD reduction if their expectations were higher or if adverse effects occurred. Although inherently subjective, treatment satisfaction can still provide meaningful insight into perceived benefit, particularly in patients who do not achieve "ideal" clinical outcomes; in such cases, satisfaction measures may help guide decisions about whether to continue or adjust treatment based on individual preferences and perceived value [15].

Second, a ceiling effect in TSQM scoring may have limited the variability required to detect associations. The high adherence and satisfaction levels observed in our sample likely reflect a particularly selected and motivated patient population, as noted in the limitations section, reducing the likelihood of capturing dissatisfaction or modest outcomes.

Multiple clinical trials and real-world studies have demonstrated that anti-CGRP monoclonal antibodies significantly improve quality of life among patients with episodic and chronic migraine by reducing monthly migraine days, decrease migraine-related disability as measured by the Migraine Disability Assessment Scale (MIDAS), and reduce the reliance on acute medications. Such improvements translate into enhanced functional capacity and emotional well-being, as reflected in disease-specific instruments like the Migraine-Specific Quality of Life Questionnaire (MSQ) [9, 16–19].

Although pivotal trials investigating the use of anti-CGRP mAbs in migraine typically use disease-specific quality of life scales, such as the MSQ [9], we decided to use a more generic PROM, the EQ-5D-5L, to assess perceived improvements in overall health, as difficult-to-treat migraine can be triggered or exacerbated by comorbidities and lifestyle factors [27]. The EQ-5D-5L has not been widely used in patients with migraine. However, the use of generic health-related quality of life questionnaires, particularly the EQ-5D-5L, allows for comparisons between patient populations and the general population, and facilitates the objective assessment of disease burden. Compared to the general population, individuals with migraine exhibit a lower health-related quality of life, as reflected in the EQ-5D-5L Index (0.89 ± 0.15 in migraine patients compared to 0.96 ± 0.03 in the general population) [14].

While a minimally clinically important difference threshold has not been established for the EQ-5D-5L in migraine, in other chronic conditions, it ranges between 0.04 and 0.32 [28]. The changes observed in the EQ-5D-5L index score during the year of follow-up in our series fall within this range (0.06–0.11). The 12.4-point improvement in the EQ-5D-5L VAS score from baseline to week 12 was considerably higher than the improvements reported after 4 weeks of fremanezumab in the double-blind, placebo-controlled FOCUS [29] and HALO CM [30] trials (respective improvements of 7.2 and 4.8 points).

Baseline EQ-5D-5L scores indicate a slightly lower quality of life in our series compared with data from a real-world analysis of patients eligible for preventive migraine treatment in the United States and Europe [31] (index score of 0.61 vs. 0.84 and VAS score of 55.5 vs. 76.1). This difference may reflect the more complex profiles of patients eligible for anti-CGRP mAb therapy, who tend to have a longer disease duration, a history of multiple prior treatments (with inadequate responses and tolerability issues), and greater levels of disability. In this context, the quality-of-life improvements observed after 12 months of anti-CGRP mAb therapy are particularly notable.

No significant improvements were observed in the mobility or anxiety/depression domains of the EQ-5D-5 L during follow-up. The lack of improvement in mobility should be investigated further considering that certain types of migraine can negatively affect balance and mobility [32]. To better evaluate the effects of treatment on anxiety or depression, we believe it necessary to study additional factors, such as comorbidities, employment status, and social relationships. Future studies should consider using tools such as the Hospital Anxiety and Depression Scale to gain deeper insights into the emotional impact of migraine [33].

Pivotal trials have demonstrated the short-term efficacy of anti-CGRP mAbs, with significant improvements in MMDs (mean reduction, 4.3 days) and response rates of 28–62% [9]. Trials with longer follow-up have also shown efficacy at 1 year, with a mean reduction of 7.5 MMDs and response rates of 24–68% [34–36]. This real-world study showed a mean reduction of 8.7 MMDs and a response rate of 65% after 1 year of treatment. Consistent with previous findings, patients with CM experienced the greatest improvements [9]. Headache-related disability, as measured by the HIT-6, showed clinically meaningful improvements from week 12 onwards according to the $\geq$6-point reduction threshold established by Houts

et al. [37]. Overall, our findings show that anti-CGRP mAbs are an effective treatment for HFEM or CM in routine clinical practice. They demonstrated a rapid onset of therapeutic effect and continued to provide relief at 1 year of follow-up.

No significant safety concerns were identified during the 52-week follow-up period. As expected, the most common adverse effects were injection-site reactions, but they were all mild and none led to treatment discontinuation. In addition, treatment satisfaction was highest in the side effects domain of the TSQM (mean score, 90/100). This is a notable finding considering that conventional prophylactic migraine treatments, such as topiramate, are associated with a higher risk of adverse events and worse tolerability [38]. Although upper respiratory tract infections have been frequently reported in patients treated with galcanezumab and erenumab [9], none were observed in our series, probably due to the small number of patients treated with these drugs and the retrospective design of the study.

Adherence to treatment, as measured by the MPR, was 100% at 1 year for all patients. This is much higher than rates reported for oral prophylactics (17%–20%) [39], but is consistent with the high satisfaction scores (> 75%) assigned to all four TSQM domains (global satisfaction, effectiveness, convenience, and side effects). However, this seemingly high adherence is likely influenced by the study design, as only patients who completed one year of treatment and had complete PROMs data were included. Therefore, while adherence was considered an important outcome to evaluate, it was not assessed as a meaningful outcome and cannot be reliably interpreted in this context due to the inherent selection bias.

This study has some limitations inherent to its retrospective, single-center design. The findings are also limited by the exclusion of patients treated for less than one year and the predominance of individuals receiving fremanezumab. This approach may have preferentially included patients who were more adherent and responsive to treatment, potentially leading to an overestimation of both treatment effectiveness and patient satisfaction outcomes.

Nonetheless, the study offers novel and clinically meaningful insights into the real-world data on the long-term effectiveness and tolerability of anti-CGRP therapies from the patient's perspective. To our knowledge, this is the first study to evaluate both treatment satisfaction and quality of life after one year of therapy initiation. These findings contribute to a more comprehensive understanding of treatment benefits and may help inform therapeutic decision-making for individuals with difficult-to-treat migraine.

CONCLUSIONS

Patients with high-frequency episodic migraine and chronic migraine reported high satisfaction with anti-CGRP monoclonal antibody therapy, with this satisfaction appearing to be largely driven by the self-perceived effectiveness of the treatment. Significant improvements in quality of life were observed, particularly in the domains of pain/discomfort, self-care, and usual activities. Anti-CGRP monoclonal antibodies are effective and safe for resistant migraine; they have a quick onset of action and provide lasting relief.

The findings of this real-world study show that clinical decisions should be guided by both objective and patient-reported outcomes. Pharmacy visits, for example, offer a valuable opportunity to collect PROMs and analyze aspects such as treatment satisfaction and quality of life from the perspective of the patient.

Further research with patients' perceptions as a primary endpoint is needed to confirm our findings.

Abbreviations

AE	Adverse event
CGRP	Calcitonin gene-related peptide
CM	Chronic migraine
EHF	European Headache Federation
EQ-5D-5L	EuroQol 5-Dimension 5-Level questionnaire
HFEM	High-frequency episodic migraine
HIT-6	6-Item Headache Impact Test
mAb	Monoclonal antibody
MMDs	Monthly migraine days
MPR	Medication Possession Ratio
MSQ	Migraine-Specific Quality of Life Questionnaire
PROM	Patient-reported outcome measures
TSQM	Treatment Satisfaction Questionnaire for Medication
VAS	Visual analog scale

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12883-025-04384-1.

Supplementary Material 1.

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None.

Authors' contributions

LCR, CSS and NRS participated in the conception and design of the study, and in the analysis and interpretation of the data. MCA, ASP and NAA also participated in the acquisition of data. LCR and CSS wrote the first draft of the manuscript. All authors have read and approved the final manuscript.

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Data availability

Raw data inquiries are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate

This study was approved by the Ethics Committee for Medicinal Research (CEIm) of *Fundació Privada Hospital Asil de Granollers* and adhered to the

requirements of Spain's Organic Law 3/2018 on the Protection of Personal Data and Guarantee of Digital Rights, the Principles of the Declaration of Helsinki, and Good Clinical Practice guidelines. In accordance with Royal Decree 957/2020, published on November 3, 2020, and the ethical principles governing medical research involving human subjects, the committee granted an exemption from obtaining informed consent, based on the study's significant social value, exclusive use of anonymized secondary data, no impact on routine clinical practice, and minimal risk to participants.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

Author details
[1]Pharmacy Department, Hospital General de Granollers, Granollers (Barcelona), Spain

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