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Anti-CGRP monoclonal antibodies in migraine prevention: a systematic review

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Introduction
Migraine is a disabling neurological condition with a significant impact on quality of life. Preventive treatment is essential for patients with frequent attacks or greater disability, although traditional therapies may be limited by insufficient response, poor tolerability, and low adherence. In this context, anti-CGRP monoclonal antibodies have emerged as specific therapeutic alternatives. Among them, erenumab, fremanezumab, galcanezumab, and eptinezumab stand out.

Objective
To evaluate the efficacy and safety of anti-CGRP monoclonal antibodies in the prevention of episodic and chronic migraine.

Methods
This is a systematic review conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, aiming to gather evidence on anti-CGRP monoclonal antibodies in migraine prevention. The search was performed in PubMed/MEDLINE, Embase, Cochrane Central Register of Controlled Trials (CENTRAL), Scopus, and Web of Science. Controlled descriptors, free terms, and Boolean operators were used, including "migraine", "prevention", "CGRP", "monoclonal antibodies", "erenumab", "fremanezumab", "galcanezumab", and "eptinezumab". Studies published in English between 2017 and 2024 were included, prioritizing systematic reviews, meta-analyses, and phase 3 randomized clinical trials. The outcomes considered were reduction in monthly migraine days, clinical response of at least 50%, use of acute medication, and adverse events.

Results
The systematic review and network meta-analysis included 19 phase 3 randomized clinical trials on CGRP-targeted therapies. Erenumab, fremanezumab, galcanezumab, and eptinezumab reduced monthly migraine days compared with placebo. From a pathophysiological perspective, erenumab blocks the CGRP receptor, while fremanezumab, galcanezumab, and eptinezumab bind to CGRP itself, reducing trigeminovascular activation related to migraine pain. Fremanezumab showed consistent efficacy, with a reduction of 2.36 days in the quarterly 675 mg regimen and 2.06 days in the monthly 225 mg regimen, in addition to a higher probability of achieving a clinical response of at least 50%. In a phase 3 clinical trial involving 1,130 patients with chronic migraine, fremanezumab was also superior to placebo. The mean reduction in monthly headache days was 4.3 days in the quarterly regimen, 4.6 days in the monthly regimen, and 2.5 days in the placebo group. A response of at least 50% occurred in 38%, 41%, and 18% of patients, respectively. There was also a reduction in monthly migraine days, lower use of acute medication, and functional improvement. Adverse events were generally mild to moderate, with injection-site reactions predominating.

Conclusion
Anti-CGRP monoclonal antibodies represent an effective and well-tolerated strategy for migraine prevention. Fremanezumab stands out as a relevant alternative, as it reduces attack frequency, decreases the use of acute medication, and supports individualized preventive management.

Keywords:
Migraine
Fremanezumab
Monoclonal antibodies
CGRP
Prevention

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