Headache Medicine 2026, Supplement ▪ p-ISSN 2178-7468, e-ISSN 2763-6178

Headache Medicine

ID: 298

Bibliometric analysis of oral preventive treatments for chronic migraine: focusing on topiramate, amitriptyline, and propranolol

Arthur Ferreira Cavalcanti, Gabriel da Costa Kuhn, Clarissa da Paixão Barboza Salgado, Alberto de Faria Santana, Miguel Antônio de Sá Mafra e Aragão, Ana Clara Oliveira Lima, Lívian Gabrielle Fontes Barreto, Luis Antônio Gabriel Boaventura, Maria do Carmo Santos Neta, Eduardo Santana Fernandes Filho, Breno Silva Fonseca Costa, Newton Vital Figueiredo Neto, Maria Eduarda Silva Guimarães, Ronisson Nascimento Lima Carvalho, Rafael Reis e Silva

Tiradentes University, Aracaju, Sergipe, Brazil

Arthur Ferreira Cavalcanti
arthur.fcavalcanti@souunit.com.br

Introduction
Chronic migraine is a highly debilitating neurological condition that imposes a substantial socioeconomic and personal burden. Although oral preventive medications remain the primary therapeutic strategy, a comprehensive mapping of their recent scientific production, clinical efficacy, and safety profile is essential to guide evidence-based clinical decisions.

Objective
To analyze the scientific evidence on the effectiveness and safety of topiramate, amitriptyline, and propranolol in chronic migraine prevention through a bibliometric analysis of recent scientific publications.

Methods
This is a bibliometric study conducted in the PubMed and Cochrane databases, using the descriptors "Migraine", "Topiramate", "Amitriptyline" and "Propranolol", combined by the Boolean operators AND and OR. Articles published between 2021 and 2026, in English and Portuguese, available in full text, involving clinical studies, randomized controlled trials, and meta-analyses related to these preventive treatments were included. Duplicate studies, letters to the editor, and papers outside the theme were excluded. In the bibliometric stage, variables such as the annual number of publications, predominant methodological types, and thematic trends related to pharmacological prevention were analyzed.

Results
A total of 78 articles were initially identified, of which 24 met the eligibility criteria. The bibliometric analysis showed a stable annual publication volume, with randomized controlled trials and observational studies emerging as the predominant methodological types. Regarding clinical evidence, topiramate demonstrated robust efficacy in reducing monthly headache days (MHD) but was associated with the highest rate of adverse event-related discontinuation (ranging from 20% to 25% across the analyzed data), primarily driven by paresthesia and cognitive complaints. Amitriptyline and propranolol showed comparable effectiveness in reducing migraine frequency but featured significantly lower discontinuation rates, with side effects predominantly characterized by weight gain/somnolence and fatigue, respectively.

Conclusion
Oral preventive treatments with topiramate, amitriptyline, and propranolol demonstrate established therapeutic value in managing chronic migraine. The steady scientific production observed in the bibliometric analysis reinforces the ongoing clinical relevance of these classic pharmacological options. Despite favorable efficacy results, significant differences in tolerability profiles persist, making individual tailoring essential to optimize long-term treatment adherence and minimize adverse event-related withdrawals.

Keywords:
Chronic migraine
Preventive treatment
Bibliometric analysis
Data mapping
Tolerability

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