

PREDICTIVE VALUE OF CLINICAL AND NEUROPSYCHOLOGICAL INDICATORS FOR THE EFFECTIVENESS OF PREVENTIVE THERAPY IN MIGRAINE

Djamilova Jamila Sattorovna

Bukhara City Family Polyclinic No. 2, Bukhara, Uzbekistan

E-mail: djamilovajamila.1998@gmail.com | ORCID: 0009-0008-2868-8202

Abstract. Response to preventive migraine therapy varies considerably among patients. This thesis summarizes the predictive significance of clinical phenotype, disease burden, psychoemotional status, and cognitive-executive functioning for treatment outcomes. Current evidence suggests that unilateral pain, cranial autonomic symptoms, good response to triptans, and a relatively lower baseline disease burden may be associated with a favorable response to selected CGRP-targeted therapies. In contrast, chronic migraine, high MIDAS/HIT-6 scores, obesity, depressive and anxiety symptoms, and multiple previous preventive treatment failures are associated with less favorable outcomes. A multidimensional assessment may therefore improve individualized preventive treatment planning.

Keywords: migraine, preventive therapy, predictors, CGRP, neuropsychology, depression, anxiety, MIDAS, HIT-6.

Introduction

Migraine is a complex neurobiological disorder characterized by recurrent headache attacks, sensory hypersensitivity, and a broad spectrum of neurological and psychoemotional symptoms. The principal goals of preventive treatment are to reduce monthly migraine days, attack severity, and the need for acute medication, while preventing chronification and improving quality of life. However, patients with the same diagnosis may respond differently to the same preventive drug, making the identification of clinically useful predictors an important component of personalized management [1,2].

Objective

To systematize clinical and neuropsychological indicators associated with the effectiveness of preventive migraine therapy and to identify the most relevant favorable and unfavorable predictors for routine clinical practice.

Materials and Methods

The thesis was prepared as an analytical synthesis of contemporary literature. International guidelines, systematic reviews, meta-analyses, and real-world studies published between 2018 and 2025 were considered. Monthly migraine days, MIDAS and HIT-6 scores, cranial autonomic symptoms, allodynia, depression, anxiety, stress, cognitive-executive functioning, and previous preventive treatment history were evaluated as the principal clinical domains.

Results and Discussion

Prospective multicenter studies have shown that unilateral pain and cranial autonomic symptoms are associated with a higher likelihood of response to anti-CGRP monoclonal antibodies. In some patients, a trigeminovascular phenotype characterized by unilateral pain in combination with allodynia or autonomic features also appears to be linked to a better response [3]. Real-world data further indicate that a lower baseline migraine burden and a lower MIDAS score are associated with more favorable treatment outcomes [4].

Psychoemotional comorbidity can influence migraine severity, adherence, expectations, and the patient's perception of treatment benefit. High anxiety, depressive symptoms, and substantial psychosocial stress may be associated with a poorer outcome. Consequently, brief screening instruments such as HADS, PHQ-9, or GAD-7 can complement neurological assessment. Neuropsychological studies also indicate that patients with migraine may show mild-to-moderate impairment in complex attention, working memory, and executive functioning during interictal

periods [5,6]. Although these abnormalities are not yet validated as independent biomarkers of treatment response, they provide useful information about adherence, self-management, and functional disease burden.

No single clinical feature can reliably predict preventive treatment response in all patients or across all drug classes. A multidimensional approach that combines clinical phenotype, migraine burden, comorbidities, psychoemotional status, and previous treatment history is therefore more informative. Predictive factors should be used to guide the intensity of monitoring and the need for adjunctive behavioral or psychological interventions rather than to exclude patients from potentially effective treatment.

Conclusion

Comprehensive assessment of clinical and neuropsychological characteristics can support personalized migraine prevention. Unilateral pain, cranial autonomic symptoms, and a relatively lower disease burden may be associated with a favorable response to selected CGRP-targeted therapies, whereas chronification, high MIDAS/HIT-6 scores, depression, anxiety, obesity, and multiple previous preventive failures indicate a need for closer monitoring and a multimodal strategy. In clinical practice, headache diaries, MIDAS/HIT-6, and brief psychometric screening may provide a practical framework for individualized follow-up.

References

1. Charles AC, Digre KB, Goadsby PJ, et al. Calcitonin gene-related peptide-targeting therapies are a first-line option for the prevention of migraine: an American Headache Society position statement update. *Headache*. 2024;64(4):333-341. doi:10.1111/head.14692.
2. Sacco S, Amin FM, Ashina M, et al. European Headache Federation guideline on the use of monoclonal antibodies targeting the calcitonin gene related peptide pathway for migraine prevention - 2022 update. *J Headache Pain*. 2022;23:67. doi:10.1186/s10194-022-01431-x.
3. Barbanti P, Egeo G, Aurilia C, et al. Predictors of response to anti-CGRP monoclonal antibodies: a 24-week, multicenter, prospective study on 864 migraine patients. *J Headache Pain*. 2022;23:138. doi:10.1186/s10194-022-01498-6.
4. Caronna E, Gallardo VJ, Egeo G, et al. Redefining migraine prevention: early treatment with anti-CGRP monoclonal antibodies enhances response in the real world. *J Neurol Neurosurg Psychiatry*. 2024;95(10):927-937. doi:10.1136/jnnp-2023-333295.
5. Braganza DL, Fitzpatrick LE, Nguyen ML, Crowe SF. Interictal cognitive deficits in migraine sufferers: a meta-analysis. *Neuropsychol Rev*. 2022;32(4):736-757. doi:10.1007/s11065-021-09516-1.
6. Pinotti LK, Castro AS, Garcia GHO, et al. Executive functions in migraine patients: a systematic review with meta-analysis. *Cogn Neuropsychiatry*. 2023;28(1):52-66. doi:10.1080/13546805.2022.2149390.