

MIGRAINE SUBGROUPS DEFINED BY ASSOCIATED SYMPTOMS AND ALLEVIATING STRATEGIES: A CROSS-SECTIONAL STUDY OF 3275 PATIENTS WITH EPISODIC MIGRAINE

G. Sebastianelli[1], D. Secci[2], C. Di Lorenzo[1], A. Perrotta[3], G. Coppola[1], A. Ambrosini[3]

[1]Department of Medico-Surgical Sciences and Biotechnologies, Polo Pontino, Sapienza University of Rome, Latina, Italy; [2]Department of Engineering and Architecture, University of Parma, Italy; [3]Headache Clinic - IRCCS NEUROMED, Pozzilli, Italy

Background. Migraine still lacks an objective biomarker. We explored potential subgroups of migraine based on phenotypic characterisation of symptoms (premonitory, ictal, and postdromal), pediatric prodromes and alleviating strategies.

Methods. Data were collected cross-sectionally across 15 years (2008-2023) from a specialized tertiary headache center. Patients with episodic migraine, with or without aura, were included. Premonitory (8 symptoms), ictal (12 symptoms) and postdromal (3 symptoms) symptoms, as well as alleviating strategies during attacks (7 strategies) and pediatric prodromes (2 symptoms) were collected through a semi-structured interview. Latent class analysis (LCA) was performed to identify subgroups, using sex, migraine diagnosis and age groups as covariates.

Results. A total of 3275 patients (77% female; mean age 38.4±12.1) with episodic migraine were included. LCA identified 4 latent classes. Class 1 was characterized by premonitory cervical stiffness and irritability, multiple ictal symptoms (including asthenia, yawning, dizziness and unilateral autonomic signs) and postdromal asthenia, with attacks relieved by application of heat or sleep. Class 2 had a symptom profile similar to Class 1 but was distinguished by relief with application of cold. Class 3 had a milder ictal symptom profile and low frequency of premonitory symptoms and postdromal asthenia. Class 4 exhibited marked sensory hypersensitivity, with severe ictal photophobia and phonophobia, fewer non-headache ictal symptoms and relieving strategies. Male sex and age >55 years were strongly associated with Class 3 (male sex: OR 2.90, 95% CI 2.30–3.65; $P < 0.001$; age >55 years: OR 1.58, 95% CI 1.05–2.38; $P = 0.029$).

Conclusions. This study identified 4 latent classes representing distinct phenotypic profiles of migraine based on associated symptoms and attack-relieving strategies. Two classes showed a similar multisymptom profile but were distinguished by different alleviating strategies (application of heat or sleep versus application of cold), suggesting potentially distinct underlying mechanisms in pain control. In contrast, one phenotype was characterized by a low overall symptom burden, whereas another was dominated by severe sensory hypersensitivity despite relatively few other associated non-headache symptoms. These findings highlight the clinical heterogeneity of migraine and provide a framework for future biomarker discovery and precision medicine.