

BEYOND WORDS: MIGRAINE PHENOTYPE IN CHILDREN AND ADOLESCENTS WITH AUTISM SPECTRUM DISORDER

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Background. Migraine is increasingly recognized as a relevant comorbidity in Autism Spectrum Disorder (ASD), yet its clinical phenotype in autistic children and adolescents remains poorly characterized. Shared neurobiological mechanisms, including neuroimmune dysregulation and altered excitatory-inhibitory neurotransmission involving GABAergic and glutamatergic pathways, have been proposed. In addition, communication difficulties, atypical pain behaviors, and sensory hyper-responsiveness may contribute to underrecognition of migraine in this population. We aimed to characterize the phenotype of migraine without aura and explore treatment response patterns in children and adolescents with ASD.

Methods. We conducted a retrospective observational study at the Headache Center of Bambino Gesù Children's Hospital, Rome. Clinical and demographic data collected between July 2011 and May 2026 were reviewed. Variables of interest included headache characteristics, associated symptoms, migraine equivalents, family history of migraine, sleep disturbances, and treatment response. Inclusion criteria were ASD diagnosis, age 5–18 years, and negative neuroradiological investigations.

Results. Twenty patients were included (65% males), with a mean age of 9.8 years at first headache assessment. Migraine attacks were equally distributed between moderate and severe intensity. Pain quality was undefined in 45%, constrictive in 30%, and pulsating in 25%, whereas pain location was unilateral in 35%, undefined in 35%, bilateral in 20%, and holocranial in 10%.Combined photophobia and phonophobia were documented in 55% of patients and, in some additional cases, could be inferred from behavioral manifestations during attacks. Nausea and/or vomiting occurred in 25% and vertigo in 15%. Sleep disturbances were present in 55% and were associated with a higher monthly headache burden (6.6 vs 4.2 attacks/month). Positive family history of migraine and migraine equivalents were documented in 85% and 80% of patients, respectively. Acute treatment (ibuprofen) was effective in 85% of cases.Preventive treatment was prescribed in 55% of patients (11/20), requiring a mean of 1.9 treatment attempts per patient. Preventive strategies included nutraceuticals, amitriptyline, flunarizine and topiramate. Nutraceuticals were the most frequently used first-line option (45.5%) but showed limited effectiveness, whereas topiramate was associated with clinical improvement in all treated patients (3/3).

Conclusions. Children and adolescents with ASD exhibit a distinctive migraine phenotype characterized by poorly defined pain descriptors, prominent sensory manifestations, frequent sleep disturbances, and strong familial aggregation. Behavioral manifestations may provide important clues for recognizing migraine-associated sensory symptoms and reducing underdiagnosis. Improved phenotypic characterization may facilitate earlier recognition and more individualized management in this understudied population.