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# Irritable Bowel syndrome and migraine: a gut–brain axis-mediated comorbidity

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**Introduction**
Irritable Bowel Syndrome (IBS) is a functional gastrointestinal disorder characterized by recurrent abdominal pain associated with changes in bowel habits, without identifiable structural abnormalities. It is currently recognized as a disorder of gut-brain interaction involving visceral hypersensitivity, intestinal dysbiosis, altered gastrointestinal motility, immune activation, and psychosocial factors. Migraine, in turn, is a chronic and disabling neurological disease frequently associated with gastrointestinal manifestations. Recent evidence has demonstrated a high coexistence between these conditions, suggesting shared pathophysiological mechanisms mediated by the gut-brain axis, including serotonergic dysfunction, neuroinflammation, increased intestinal permeability, and alterations in the gut microbiota. Furthermore, emotional factors such as anxiety and stress appear to contribute to symptom modulation in both disorders.

**Objective**
To analyze the association between irritable bowel syndrome and migraine, highlighting the shared pathophysiological mechanisms related to the gut-brain axis.

**Methods**
A systematic literature review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and guided by the PICO strategy. Searches were performed in the PubMed, SciELO, and UpToDate databases using the descriptors "Irritable Bowel Syndrome", "Migraine", "Gut-Brain Axis" and "Brain-Gut Interaction Disorders", combined with the Boolean operator AND. Studies published between 2022 and 2026, available in full text, in English or Portuguese, and addressing the clinical and pathophysiological relationship between IBS and migraine were included. Duplicate, incomplete, or unrelated studies were excluded. After applying the eligibility criteria, 18 articles were selected for analysis.

**Results**
The reviewed studies demonstrated a higher prevalence of migraine among individuals with IBS compared with the general population. Shared mechanisms involving the gut-brain axis were consistently identified, including alterations in gut microbiota composition, visceral hypersensitivity, serotonergic dysfunction, increased intestinal permeability, and systemic inflammatory activation. The involvement of the autonomic nervous system and psychosocial factors, such as anxiety, depression, and chronic stress, was also observed, contributing to the exacerbation of both gastrointestinal and neurological symptoms. Additionally, a negative impact on quality of life was reported, characterized by a higher frequency of chronic pain, sleep disturbances, and functional impairment.

**Conclusion**
The literature demonstrates a consistent association between IBS and migraine through shared gut-brain axis mechanisms. These findings highlight the importance of multidisciplinary management addressing neuroimmune, emotional, and microbiological factors. Targeted therapies may improve symptom control and quality of life in affected patients.

**Keywords:**
Migraine
Gut-brain axis
Irritable Bowel syndrome

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