International Journal of Research in Medical Sciences
Chaudhuri S. Int J Res Med Sci. 2024 Oct;12(10):3989-3996
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012

DOI: https://dx.doi.org/10.18203/2320-6012.ijrms20242976

Review Article

Irritable bowel syndrome: expert guidance on diagnosis and management of challenging cases

Sujit Chaudhuri*

Manipal Hospital, Broadway, Salt Lake, Kolkata, West Bengal, India

Received: 14 August 2024
Accepted: 24 September 2024

***Correspondence:**
Dr. Sujit Chaudhuri,
E-mail: sourjya_c@yahoo.com

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ABSTRACT

Irritable bowel syndrome (IBS) is a common functional gastrointestinal condition that affects a large proportion of the world's population. The diagnostic complications caused by the lack of unambiguous biomarkers, symptom overlap with other gastrointestinal illnesses, and heterogeneity within IBS subtypes are discussed. The article delves into the diverse pathophysiology of IBS and associated conditions such as small intestinal bacterial overgrowth (SIBO), mental disorders, and inflammatory bowel disease (IBD), highlighting the importance of the gut-brain axis and microbiome dysbiosis. Pain management options for IBS are discussed, including biofeedback therapy, dietary changes, antispasmodic medicines, and new therapies. Experts from India provided their recommendations on the need for a multidisciplinary approach towards management of IBS, with a view to achieving improvement in quality of life for individuals grappling with this complex disorder.

Keywords: IBS, IBD, Rome criteria, biomarkers for IBS, antispasmodics in IBS, new therapies for IBS

INTRODUCTION

Irritable bowel syndrome (IBS) is a common functional gastrointestinal illness characterized by symptoms such as abdominal pain, bloating, and abnormal bowel patterns.[1] It represents a persistent and incapacitating functional gastrointestinal ailment impacting approximately 9%-23% of the global population with geographical variances ranging from 7% in South Asia to as high as 21% in South America, suggesting a global impact driven by a variety of variables.[2]

Primary care physicians in India see a high proportion of patients with IBS. Gastroenterologists manage 30% to 50% of patients with IBS on an average, whereas a specific subset of healthcare experts handle the most severe and complicated cases, exemplifying the wide range of IBS presentations.[3] IBS diagnosis is challenging because of lack of biomarkers, symptom overlap with other disorders, and diverse subtypes; therefore, treating physicians must rely on subjective patient-reported symptoms. The lack of standardized criteria and understanding of IBS mechanisms, compounded by dynamic gut micro biota, contributes to diagnostic variability. Ongoing research is essential for improved accuracy and reliability of diagnostic criteria in IBS.[1]

Meetings with Indian specialists were conducted to improve understanding of the IBS burden in India, the diagnostic criteria for IBS, pathophysiology of IBS and management of IBS. This review provides an overview of relevant literature and summarizes the perspectives of Indian specialists on the diagnosis and management of challenging IBS cases, with a view to gauge a holistic view on the disorder.

IBS DIAGNOSIS AND COMPARISON OF VARIOUS CRITERIA

IBS diagnostic criteria, evolving from Rome I to Rome IV, illustrate changes in requirements. For instance, Rome II criteria needed 12 weeks of pain in the prior year with specific features like relief with defecation, onset

associated with a change in stool frequency and onset associated with a change in stool appearance, while Rome III criteria required recurrent discomfort for at least three days per month for the past three months along with specific symptoms like improvement following defecation, onset associated with a change in frequency of stool, and onset associated with a change in form (appearance) of stool.[4] The American college of gastroenterology task force defines IBS as abdominal discomfort combined with abnormal bowel patterns for three months. This approach aligns with the development of pharmacotherapy that targets known pathophysiological processes.[2] Because of the intricate nature of IBS, which encompasses factors like altered motility and gut microflora, the diagnosis of IBS is dependent largely on individual symptoms. According to Manning, Kruis, and Rome criteria, a combination of symptoms should be used for definitive diagnosis of IBS. Rome II and III criteria, despite slight differences, share high concordance.[2] In a single-center secondary care study comparing specificity and sensitivity of Rome III and IV criteria, Rome IV criteria were found to have 82.4% sensitivity and 82.9% specificity in diagnosing IBS, while Rome III criteria were found to have 85.8% sensitivity and 65.0% specificity.[6]

The Asian diagnostic criteria were developed considering IBS occurrence across diverse sociocultural contexts, including Asian populations. These criteria include recurrent abdominal pain, bloating, or discomfort with specific stool-related changes as key symptoms for IBS diagnosis. In an Indian multicenter study, the Manning criteria exhibited higher sensitivity than Rome and Asian criteria in the diagnosis of IBS in Indian patients.[7]

Diagnosis and classification of IBS solely on the basis of symptoms may be inadequate because many criteria are derived from Western populations, which may not be universally applicable across diverse demographic groups.[7]

Expert opinion

During expert discussions, the evolution of IBS diagnostic criteria from Manning's to Rome 4 was noted. Rome III criteria were considered to be the most suitable for IBS diagnosis in Indian patients, whereas concerns were raised about strict duration of pain in Rome IV criteria. According to the experts, diagnosis should rely on symptoms criteria, absence of alarm symptoms, and basic investigations. IBS prevalence, particularly the diarrhea variety, may be on the rise due to stress and lifestyle changes, including post-COVID-19 reset. Stool frequency and patterns vary across diets and countries, suggesting the need for tailored criteria for Indian patients with IBS. Pain location in IBS is diverse, with Southeast Asian data indicating meal-related upper and lower abdominal symptoms. Results from the multicentric Indian IBS (MIIBS) study support the use of Manning criteria for diagnosis of Indian patients with IBS, and the use of Bristol stool scale and patient perception for classification into various IBS subtypes. Manning criteria do not exclude other organic diseases, and Asian criteria need validation.[7] For patients with abdominal discomfort without pain, Rome IV criteria may be restrictive; therefore, such patients should be classified as having IBS with functional diarrhea/constipation. Common Indian IBS symptoms include lower abdominal pain/discomfort, fullness, and incomplete evacuation. Red flag signs and laboratory investigations should be performed to rule out organic causes before an IBS diagnosis is made. Colonoscopy should be considered depending on age and fecal calprotectin (FC) levels.

UNDERSTANDING THE PATHOPHYSIOLOGY OF CONDITIONS LINKED TO IBS AND THE SIGNIFICANCE OF THE BRAIN-GUT AXIS AND MANAGEMENT

IBS and SIBO

Despite significant advancements in uncovering potential causes and pathogenic processes, our comprehension of the pathophysiology of functional gastrointestinal illnesses remains limited. Given the diverse characteristics observed in many patients, a multi-factorial model appears to be the most effective strategy for investigation.[8]

IBS is a complex disorder characterized by limited understanding, given the absence of clear clinical abnormalities and biomarkers. Diverse factors such as genetic predisposition, immunological response, psychological influences, micro biota changes, visceral sensory alterations, and gastrointestinal motility variations contribute to its pathophysiology. Identifying the primary trigger for the onset of IBS remains challenging.[9] Recent findings suggest that a change in gut bacterial ecosystems, known as "dysbiosis," may contribute to the pathophysiological mechanisms underlying IBS.[10]

The gut microbiota, comprising bacteria, viruses, and eukaryotes, plays a vital role in maintaining host well-being and significantly influences disease onset and overall health. Gut microbes interact with each other and the host's immune system, thereby shaping the progression of illness.[11] Dysbiosis in the gut microbiome can lead to various physiological disruptions in individuals with IBS, such as increased intestinal permeability, altered motility, chronic inflammation, autoimmune responses, impaired bile salt absorption, and changes in neuronal activity. Post-infectious IBS (PI-IBS) may arise from infections like gastroenteritis, causing chronic inflammation, increased permeability, and autoimmune responses leading to IBS symptoms. SIBO and malabsorption, linked to bile salt deconjugation and lithocholic acid formation, are thought to cause IBS-D.[12]

In patients with IBS, the presence of SIBO activates pathways leading to increased intestinal permeability, dysmotility, chronic inflammation, immunological reactions, reduced bile salt absorption, and changes in neuronal activity, thus collectively causing IBS symptoms. Pathogenic organisms like *Enterococcus*, *Escherichia coli*, and *Klebsiella* can proliferate in patients with SIBO and IBS, thereby worsening symptoms. Presence of *Methanobrevibactersmithii* species is particularly associated with constipation-predominant IBS (IBS-C) and can contribute to constipation-related symptoms. Dysbiosis and SIBO may decrease bile salt absorption thereby inducing the production of the enterotoxin lithocholic acid, which is known to be associated with diarrhea in IBS. Evidence also suggests a role of autoimmunity and increased production of antibodies targeting bacterial toxins in IBS development. Thus, immunological dysregulation may also contribute to the pathogenesis of IBS.[12]

In a study by Ghoshal et al assessing SIBO prevalence using the glucose hydrogen breath test, it was found that SIBO was present in 21.9% of patients with CNSD, 8.5% of patients with IBS, and 2% of healthy control participants. Notably, patients with CNSD, including those with IBS-D exhibited a higher SIBO frequency than those with other IBS subtypes and the healthy control group.[13]

Panic disorder and IBS

Prevalence of IBS symptoms in patients with panic disorder ranges from 25% to 44%.[14] The prevalence of psychiatric comorbidities such as generalized anxiety disorder (GAD), panic disorder, major depressive disorder (MDD), bipolar disorder, and schizophrenia tends to be high in patients with IBS. The development of IBS symptomatology is influenced by a complex interplay of psychological, social, and genetic factors. Women with IBS, notably, exhibit elevated tryptophan breakdown via the kynurenine pathway, which could explain the increased presence of comorbidities such depressive and anxiety disorders in women. Polymorphisms in the serotonergic, adrenergic, and opioidergic systems may also contribute to IBS pathogenesis.[14]

Gastrointestinal-specific anxiety affects autonomic functioning, increases pain sensitivity, and disrupts cognitive processes, thereby perpetuating IBS symptoms. A complex interplay of psychological, genetic, chronic intestinal inflammation, and altered signaling in the central nervous system and gut neuroendocrine system contributes to IBS etiology, especially when accompanied by psychiatric comorbidities. Neuroimaging studies show abnormalities in brain networks related to attention, emotion, and pain regulation in IBS. A hyperactive hypothalamic-pituitary-adrenal axis in IBS alters the levels of corticotrophin-releasing hormone, adrenocorticotropic hormone, cortisol, and catecholamine. Moreover, polymorphisms in the serotonin transporter gene (SERT) and in those of neurotrophins like nerve growth factor (NGF) and brain-derived neurotrophic factor (BDNF) are implicated in the pathophysiology of both IBS and anxiety. In a study, 32% of individuals with IBS exhibited symptoms associated with GAD, and visceral sensitivity score was found to be a robust predictor of gastrointestinal-specific anxiety severity.[15]

Studies indicate a connection between post-traumatic stress disorder (PTSD) and IBS, which could possibly be linked to common processes like hyperarousal, stress response, and heightened awareness of physiological sensations. Stress, a known IBS trigger, can exacerbate symptoms in individuals with PTSD. The gut-brain axis, which facilitates communication between the stomach and brain, is crucial in understanding this relationship. A meta-analysis of 8 studies involving 648,375 subjects found that individuals with PTSD are 2.8 times more likely to develop IBS compared with individuals without PTSD. This suggests that early life stress, particularly PTSD, may induce enduring epigenetic alterations and disrupted neuroendocrine pathways, which are observations in common with IBS diagnosed patients. Further investigation is needed to uncover the underlying mechanisms common to neurological conditions and IBS.[16]

Numerous studies have shown a high prevalence of MDD in individuals with IBS, irrespective of its association with the onset or recurrence of depressive episodes. A cross-sectional study revealed a higher prevalence of IBS symptoms in individuals with depression compared to healthy controls, but no significant difference in gastrointestinal symptoms among patients with MDD in remission and healthy controls. Coexistence of MDD and IBS, could potentially be influenced by mechanisms related to tryptophan degradation and the presence of proinflammatory cytokines.[14]

IBS-IBD overlap

IBS and IBD share some symptomatic and demographic similarities, but they differ fundamentally in pathophysiology, natural history, and treatment options. Clinical presentation, along with laboratory findings, imaging, and endoscopic data, helps differentiate active IBD from IBS. Tools like the FC test can aid in identifying persistent inflammation, even in individuals with IBD who seem to be in remission.[17]

IBS-like symptoms in patients with IBD raise questions about whether IBS is a prodromal stage of IBD or if both conditions lie on the same disease spectrum. Recent research suggests that ambiguity and overlap between IBS and IBD may be because of the relatively narrow range of gastrointestinal symptoms common to both conditions.[17]

A systematic approach is essential for individuals with IBS-like symptoms in the context of IBD. This involves a comprehensive clinical examination, including a review of presentation, laboratory data, imaging, and endoscopic findings. Evaluation of FC levels can help diagnose persistent inflammation in patients with IBD and IBS-like symptoms and guide appropriate treatment initiation to avoid missing active IBD. The possibility of mild or low-level IBD activity causing IBS-like symptoms that current diagnostic might overlook should not be ruled out. Persistent symptoms in such patients should not be dismissed as they may indicate underlying issues requiring attention.[17]

Data linking the microbiome and the human immune response in the pathogenesis of IBS-like symptoms suggest that IBS and IBD may share the same illness spectrum. However, studies on the microbiome and immune response in IBS have been inconsistent, unlike the more consistent patterns seen in IBD. Although there is significant family clustering of IBS and IBD, no clear genetic linkages have been found, except for PI-IBS. Changes in barrier function may be a sensitive indicator of disease activity in IBD, implying that the epithelium in IBD patients in remission may be primed by low-level inflammation. The occurrence of IBS-like symptoms in patients with IBD necessitates further research into the involvement of the microbiome and immune response in IBS.[1]

Expert opinion

IBS-IBD overlap: Experts noted a potential overlap between IBS and IBD, suggesting that it could result from the initial misdiagnosis of early microscopic inflammation as IBS that is later identified as IBD. The observed higher overlap rate may be influenced by bias.

Follow-up in patients with IBD: For patients with IBD in remission, C-reactive protein (CRP) levels should be assessed at follow up. Elevated CRP levels may prompt additional investigation with FC measurement, sigmoidoscopy, or both.

FC is a valuable tool for distinguishing between IBS and IBD, especially in patients not suitable for colonoscopy. It can also assist in diagnosing small bowel IBD, which can be potentially missed by colonoscopy.

SIBO and proton pump inhibitor abuse: SIBO is associated with PPI abuse, and it is more frequently observed in women and in patients with IBS-D subtype, both of which are often characterized by bloating as the predominant symptom.

Diagnostic tests for SIBO: Glucose breath tests are the preferred method for diagnosing SIBO, while hydrogen breath tests are recommended for detecting methanogenic bacteria, especially in patients with constipation.

Ileocecal tuberculosis and FC: Indian patients with ileocecal tuberculosis may exhibit FC values between 100 and 150 µg/g, which could potentially complicate the diagnosis of ileocecal tuberculosis.

Differentiating chronic idiopathic constipation and IBS-C: Presence of pain helps differentiate CIC from IBS-C. Furthermore, diagnostic tests like colonic transit studies, anorectal manometry, and defecography can help assess fecal evacuation disorders in patients with IBS-C.

Melatonin-probiotic combination: Combining melatonin and probiotics can improve sleep quality in anxiety-prone patients. To optimize results, melatonin, which is known for its anxiety-reducing effects, should be administered in the evening.

Treatment options for associated conditions like depression: Experts suggested the following specific antidepressants according to various IBS subtypes. Amitriptyline (10 mg every night at bedtime for IBS-D, selective serotonin reuptake inhibitors like escitalopram (5 mg) for IBS-C, and mirtazapine (7.5 mg HS) for symptoms like dyspepsia, nausea, or bloating.

PAIN MANAGEMENT IN IBS

Visceral hypersensitivity, a key IBS feature, causes stomach pain. It is characterized by hyperalgesia, increased reaction to painful stimuli, and allodynia, i.e., pain from non-painful stimuli. This sensitivity results from peripheral and central mechanisms involving sensory neurons, spinal cord, and brain areas governing sensory perception and emotions.[18]

Patients with IBS, especially those with IBS-D and mixed (IBS-M) subtypes, often have reduced pain thresholds; therefore, they exhibit heightened sensitivity to stomach pain. In such patients, treatment methods focusing on the brain-gut-microbiome axis and cognitive neurosciences have shown promise. Techniques like relaxation training, cognitive reframing, and behavioral experimentation help modify pain perception and enhance psychological flexibility. Anorectal physiology testing has identified anomalies like dyssynergia, and biofeedback therapy has proven useful in relieving gastrointestinal discomfort and bloating in patients with IBS.[19]

Biofeedback therapy is a viable treatment option for patients with IBS experiencing stomach discomfort and bloating. Testing of anorectal physiology can reveal anomalies like dyssynergia that contribute to discomfort. Biofeedback provides real-time input on physiological processes and helps patients control muscle tension and heart rate via relaxation techniques and mental exercises. This enables better symptom control, reduced discomfort, and improved ability to relax muscles and regulate physiological reactions.[19]

Lifestyle adjustments are crucial for reducing IBS-related pain. Dietary changes, especially use of a low FODMAP diet, have proven particularly successful. FODMAP diet, which is restricted in certain carbohydrates, has demonstrated significant benefits in lowering overall IBS symptoms such as bloating, and discomfort, especially in individuals with IBS-D.[20] Antispasmodic medications are a well-established therapeutic approach for managing IBS; these medications target key elements in IBS pathophysiology, such as disrupted intestinal motility and heightened visceral sensitivity.[21] Antispasmodics can act via diverse mechanisms: Anticholinergic drugs (e.g., hyoscine and dicyclomine) regulate cholinergic pathways, calcium channel inhibitors prevent calcium transfer, and direct smooth muscle relaxants inhibit sodium and calcium transport. Thus, different antispasmodics may be tailored based on individual symptoms and underlying pathophysiology.[21]

Dicyclomine, an anticholinergic/antimuscarinic agent used to relieve abdominal pain, has shown clinical efficacy in a randomized, double-blind, placebo-controlled study, where it significantly reduced the intensity of abdominal pain versus placebo. In another study, dicyclomine was effective in reducing the frequency of pain in individuals with recurrent abdominal pain. However, the efficacy of dicyclomine may vary among patients based on individual factors and the specific underlying causes of their abdominal pain.[21]Dicyclomine may cause anticholinergic side effects like dry mouth and blurring of vision.

Otilonium is another type of antispasmodic that has shown reduced abdominal pain frequency in three studies, with mild nausea reported in one study and prostate disturbance and dizziness leading to withdrawal in another. A dose-ranging study showed decreased pain and bloating with Otilonium, but no significant difference from placebo. Overall, treatment-related adverse events were similar to the placebo-treated group.[21]

Mebeverine is used to treat stomach discomfort from intestinal smooth muscle spasms and functional impairments in IBS. A systematic review of 22 studies, including 19 randomized trials, found that Mebeverine significantly reduced stomach discomfort with improvements in various IBS symptoms like bloating and bowel frequency. Adverse events were rare and often linked to IBS symptoms. Overall, a comprehensive literature analysis suggests Mebeverine is an effective and safe therapy for IBS.[22]

Pinaverium bromide, a gastrointestinal-selective calcium channel antagonist, has shown promise as a spasmolytic therapy for anxiety and abdominal pain in functional intestinal diseases like IBS. A meta-analysis by Bor et al covering 8randomized controlled studies confirmed the efficacy of pinaverium bromide versus placebo in alleviating IBS symptoms, including abdominal pain, stool changes, and bloating.[23]

MANAGEMENT OF IBS-D

Management of IBS-D involves various approaches.[24] Traditional antidiarrheal medications, such as loperamide, can be considered, although some Gastroenterology societies caution against their use due to limited evidence. Because of their anticholinergic effects, tricyclic antidepressants may help alleviate pain and reduce diarrhea in patients with IBS-D. Bile acid sequestrants like cholestyramine, colesevelam, or colestipol can address diarrhea resulting from bile acid malabsorption in patients with IBS-D.A comprehensive approach tailored to individual patient needs that involves allergists, psychologists, psychiatrists, nutritionists, and physical therapists can provide holistic care for patients with IBS-D. Non-pharmacological approaches other than dietary changes are also pivotal in managing IBS-D.[22] Lifestyle adjustments, such as stress reduction methods, regular physical activity, and sufficient sleep, can contribute to symptom amelioration in IBS-D. Behavioral therapies like cognitive-behavioral therapy and gut-directed hypnotherapy show promise in symptom control and quality of life enhancement. Patients should be advised to recognize and avoid trigger foods or beverages, such as caffeine, alcohol, and spicy items, in order to mitigate symptom exacerbations. Maintaining a food diary and monitoring symptoms can aid in identifying specific triggers and guiding dietary modifications.

MANAGEMENT OF IBS-C

Individualized therapy plans for patients with IBS-C should be implemented by considering patients' unique pathophysiological features and symptom profiles to improve bowel function and quality of life. Antispasmodics like Mebeverine effectively alleviates abdominal pain, while soluble fiber, especially ispaghula, regulates bowel movements. Stimulant laxatives can be given to patients not responding to fibers. Visceral neuromodulators like SSRIs may also offer relief from pain symptoms in individuals with IBS-C. Biofeedback therapy can be beneficial for those with dys-synergic defecation that often coexists with IBS-C by helping alleviate symptoms like abdominal pain, constipation, and bloating. Dietary interventions tailored to the underlying pathophysiologic mechanisms of IBS-C as part of a comprehensive management approach should be considered.[24]

In summary, the management of IBS utilizes a comprehensive, multidisciplinary approach. Non-pharmacological methods include mind-body therapies, dietary adjustments, exercise, and complementary treatments. Pharmacological interventions follow, with various agents tailored to IBS subtypes. Psychological interventions, including cognitive behavioral therapy, interpersonal psychotherapy, and hypnotherapy, demonstrate beneficial effects in managing IBS symptoms.[26]

Expert recommendations

Low FODMAP diet: This diet should be typically implemented for 4-6 weeks to gauge effectiveness but maintaining it in India can be challenging and may lead to nutrient deficiencies.

Antispasmodic dosage and duration: Mebeverine is often prescribed at 200 mg twice daily (sustained release) and is preferred for patients with IBS-D as well as IBS-C. Peppermint oil is an option, but it has tolerability concerns. Treatment duration typically spans a few weeks to 2 months.

Safety profile of antispasmodics: Direct-acting musculotropic antispasmodics like Mebeverine are favored because they do not exhibit side effects such as dry mouth and blurred vision. Mebeverine has been found to be effective for both IBS-D and IBS-C and does not cause constipation. Chlordiazepoxide can be used for IBS-D with anxiety. Duration of antispasmodic use: Antispasmodic treatment typically lasts for 3 to 6 months, with gradual tapering.

NEW THERAPIES AND NOVEL COMBINATIONS

New compounds under development as shown in table 1 show promise in addressing the multifaceted nature of IBS, with potential beyond current therapies. This exploration highlights their mechanisms and clinical progress, suggesting a revolutionary impact on IBS management.

Table 1: Promising new compounds and combinations.

Drug	Description
Prokinetics in IBS	Stimulate gastrointestinal tract movement. Beneficial for constipation-predominant IBS-C Examples: 5-HT4 receptor agonists like prucalopride.[29]
Drugs acting on bile acid pathway	Chenodeoxycholate and elobixibat deconjugate bile acids, thereby potentially easing constipation in IBS-C Plecanatide affects bile acid route, but more research on its safety and effectiveness is needed. [29]
Opioids	Opioid receptor antagonists like loperamide are used to treat IBS-D and IBS-M They help manage symptoms but may cause constipation. Eluxadoline, a distinctive opioid receptor modulator, has been shown to be effective in IBS-D[30,31]
Ramosetron	A 5-HT3 antagonist used for IBS-D in Asia, promising in improving symptoms without causing constipation[29]
ONO-2952T	Translocator protein (TSPO) antagonist with potential in reducing visceral hypersensitivity in animal models but requires clinical research[29]
Lanreotide	Somatostatin analogue approved for IBS-C Inhibits gastrointestinal motility and reduces diarrhea symptoms[29]

Expert recommendations

Treatment for IBS-D: Rifaximin is FDA-approved for IBS-D, it provides persistent symptom relief lasting beyond 10 weeks, and it has the potential to normalize breath test results in up to 50% of patients. Loperamide primarily helps alleviate pain and improve quality of life in patients with IBS-D. Antidepressants, including tricyclic antidepressants and SSRIs, alleviate pain and discomfort in IBS. Serotonin-norepinephrine reuptake inhibitors are preferred for reducing visceral hypersensitivity. Probiotics, particularly *Bifidobacterium longum* W11, combined with rifaximin, have shown promise in improving symptoms, especially in IBS patients with SIBO.

Treatment for IBS-C: Lubiprostone is FDA-approved for IBS-C in women. PEG aids in alleviating constipation, but evidence regarding its impact on overall symptomatic improvement is limited. Prucalopride is a prokinetic agent with proven benefits in chronic idiopathic constipation. However, there is insufficient evidence of its effectiveness in constipation-predominant IBS.

Psychological interventions: Cognitive-behavioral therapy and hypnotherapy could be viable treatment options for managing IBS symptoms.

Enhanced gastrocolic reflex: Patients with an enhanced gastrocolic reflex can be treated using a combination of antispasmodic drugs, anxiolytic agents, or SSRIs.

Common first-line treatments: Mebeverine is commonly prescribed as a first-line agent for managing pain in all subtypes of IBS. In constipation-predominant IBS, Ispaghula or osmotic laxatives like PEG/lactulose are often recommended, while agents like Loperamide or Diphenoxylate are preferred in diarrhea predominant IBS.

CONCLUSION

This review describes the complexities associated with diagnosis and management of IBS, with emphasis on the diagnostic challenges, diverse subtypes, and associated conditions like SIBO, psychiatric disorders, and IBD overlap. It explores the role of the gut-brain axis, microbiome dysbiosis, and offers expert insights into management of IBS-related pain via strategies like

biofeedback, dietary adjustments, and emerging treatments. The need for a multidisciplinary approach towards management, including non-pharmacological methods and novel therapies, is highlighted as crucial for addressing IBS complexities and enhancing patients' quality of life.

ACKNOWLEDGEMENTS

Author would like to thank to Parv enterprise (Indyte).

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Pittayanon R, Lau JT, Yuan Y, Leontiadis GI, Tse F, Surette M, et al. Gut microbiota in patients with irritable bowel syndrome-A systematic review. Gastroenterology 2019;157(1):97-108.
2. Saha L. Irritable bowel syndrome: pathogenesis, diagnosis, treatment, and evidence-based medicine. World J Gastroenterol 2014;20(22):6759-73.
3. Nagaonkar SN, Singh VS, Kangule DT, Sadhanala S. A study of prevalence and determinants of irritable bowel syndrome in an urban slum community in Mumbai. J Datta Meghe Inst Med Sci Univ 2018;13:87-90.
4. Occhipinti K, Smith JW. Irritable bowel syndrome: a review and update. Clin Colon Rectal Surg 2012;25(1):46-52.
5. Black CJ, Craig O, Gracie DJ, Ford AC. Comparison of the Rome IV criteria with the Rome III criteria for the diagnosis of irritable bowel syndrome in secondary care. Gut. 2021;70(6):1110-6.
6. Ghoshal UC, Abraham P, Bhatia SJ, Misra SP, Choudhuri G, Biswas KD, et al. Comparison of Manning, Rome I, II, and III, and Asian diagnostic criteria: report of the Multicentric Indian Irritable Bowel Syndrome (MIIBS) study. Indian J Gastroenterol. 2013;32(6):369-75.
7. Delvaux M. Role of visceral sensitivity in the pathophysiology of irritable bowel syndrome. Gut. 2002;51(1):i67-71.
8. Marynowski M, Likońska A, Zatorski H, Fichna J. Role of environmental pollution in irritable bowel syndrome. World J Gastroenterol. 2015;21(40):11371-8.
9. Menees S, Chey W. The gut microbiome and irritable bowel syndrome. F1000Res. 2018;7:F1000.
10. Clemente JC, Ursell LK, Parfrey LW, Knight R. The impact of the gut microbiota on human health: an integrative view. Cell. 2012;148(6):1258-70.
11. Takakura W, Pimentel M. Small intestinal bacterial overgrowth and irritable bowel syndrome - An update. Front Psychiatry. 2020;11:664.
12. Ghoshal UC, Kumar S, Mehrotra M, Lakshmi C, Misra A. Frequency of small intestinal bacterial overgrowth in patients with irritable bowel syndrome and chronic non-specific diarrhea. J Neurogastroenterol Motil. 2010;16(1):40-6.
13. Fadgyas-Stanculete M, Buga AM, Popa-Wagner A, Dumitrascu DL. The relationship between irritable bowel syndrome and psychiatric disorders: from molecular changes to clinical manifestations. J Mol Psychiatry. 2014;2(1):4.
14. Mayer EA, Craske MG, Naliboff BD. Depression, anxiety and the gastrointestinal system. J Clin Psychiatr. 2001;62(8):28-36.
15. Ng QX, Soh AYS, Loke W, Venkatanarayanan N, Lim DY, Yeo WS. Systematic review with meta-analysis: The association between post-traumatic stress disorder and irritable bowel syndrome. J Gastroenterol Hepatol. 2019;34(1):68-73.
16. Quigley EM. Overlapping irritable bowel syndrome and inflammatory bowel disease: less to this than meets the eye? Therap Adv Gastroenterol. 2016;9(2):199-212.
17. Deiteren A, De Wit A, Van der Linden L, De Man JG, Pelckmans PA, De Winter BY. Irritable bowel syndrome and visceral hypersensitivity: Risk factors and pathophysiological mechanisms. Acta Gastroenterol Belg. 2016;79(1):29-38.
18. Lacy BE, Pimentel M, Brenner DM, Chey WD, Keefer LA, Long MD, et al. ACG clinical guideline: Management of irritable bowel syndrome. Am J Gastroenterol. 2021;116(1):17-44.
19. Camilleri M. Management options for irritable bowel syndrome. Mayo Clin Proc. 2018;93(12):1858-72.
20. Annaházi A, Róka R, Rosztóczy A, Wittmann T. Role of antispasmodics in the treatment of irritable bowel syndrome. World J Gastroenterol. 2014;20(20):6031-43.
21. Daniluk J, Malecka-Wojciesko E, Skrzydlo-Radomanska B, Rydzewska G. The efficacy of mebeverine in the treatment of irritable bowel syndrome-A systematic review. J Clin Med. 2022;11(4):1044.
22. Bor S, Lehert P, Chalbaud A, Tack J. Efficacy of pinaverium bromide in the treatment of irritable bowel syndrome: a systematic review and meta-analysis. Therap Adv Gastroenterol 2021;14:17562848211033740.
23. Kingsley M, Moshiree B. Irritable bowel syndrome in Rao S, Lee Y and Ghoshal U, editors. Clinical and Basic Neurogastroenterology and Motility. UK: Academic press. 2020;421-34.
24. Kurin M, Cooper G. Irritable bowel syndrome with diarrhea: Treatment is a work in progress. Cleve Clin J Med. 2020;87(8):501-11.
25. Weaver KR, Melkus GD, Henderson WA. Irritable bowel syndrome. Am J Nurs. 2017;117(6):48-55.
26. Bharucha AE, Wouters MM, Tack J. Existing and emerging therapies for managing constipation and diarrhea. Curr Opin Pharmacol. 2017;37:158-66.
27. Khanna R, MacDonald JK, Levesque BG. Peppermint oil for the treatment of irritable bowel syndrome: a systematic review and meta-analysis. J Clin Gastroenterol. 2014;48(6):505-12.

28. Jadallah KA, Kullab SM, Sanders DS. Constipation-predominant irritable bowel syndrome: a review of current and emerging drug therapies. World J Gastroenterol. 2014;20(27):8898-909.
29. Nam Y, Min YS, Sohn UD. Recent advances in pharmacological research on the management of irritable bowel syndrome. Arch Pharm Res. 2018;41(40):955-66.
30. Corsetti M, Pannemans J, Whorwell P. Targeting mu opioid receptors to modulate gastrointestinal function: what have we learnt so far from the studies in functional bowel disorders? F1000Res. 2019;8:F1000.
31. Sharma A, Herekar AA, Bhagatwala J, Rao SS. Profile of plecanatide in the treatment of chronic idiopathic constipation: design, development, and place in therapy. Clin Exp Gastroenterol. 2019;12:31-6.

Cite this article as: Chaudhuri S. Irritable bowel syndrome: expert guidance on diagnosis and management of challenging cases. Int J Res Med Sci 2024;12:3989-96.