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DIAGNOSIS AND MANAGEMENT OF IRRITABLE BOWEL SYNDROME: A PRACTICAL OVERVIEW FOR PRIMARY CARE PROVIDERS

Introduction

Irritable bowel syndrome (IBS) is a common gastrointestinal (GI) disorder estimated to affect 10% of the Canadian population.[1] Despite its high prevalence, IBS remains a challenging condition to diagnose and manage due to its varied clinical presentations. Patients with IBS often experience a range of distressing symptoms, including abdominal pain, bloating, disordered bowel habits and psychological distress, which significantly impact their quality of life (QOL).[2] As a result, patients with IBS are more likely to be high-frequency medical consulters, leading to an increased burden on healthcare systems.[1] This article aims to provide a practical overview of IBS, including its diagnostic criteria, workup and management strategies.

Clinical Presentation

IBS is considered a manifestation of bidirectional disordered communication within the brain-gut axis that influences GI motility, secretion and sensation. Contributing factors such as genetics, personality traits, alterations in stress-responsive physiologic systems, changes in the microbiota, and sequelae of enteric infections may also play a role in the pathogenesis of IBS.[3]

Due to its complexity, patients with IBS can present with a multitude of varying symptoms. The hallmark characteristic of IBS is recurrent abdominal pain with altered bowel habits. Bloating, nausea and dyspepsia may also be present, and can be seen in up to two-thirds of patients with IBS.[4, 5] In addition, IBS is correlated with other pain syndromes and, therefore, symptoms such as dysuria, widespread musculoskeletal pain, dysmenorrhea, fatigue, anxiety, depression, and headaches may be observed as well.[3,6]

Diagnostic Criteria

The recommended diagnostic criteria for IBS are the Rome IV criteria, which were published in 2016:

Recurrent abdominal pain, on average, at least one day per week in the last three months, associated with two or more of the following criteria:

1. *Related to defecation*
2. *Associated with a change in frequency of stool*
3. *Associated with a change in form (appearance) of stool*

The Rome IV criteria represent a departure from the historic belief that IBS is a diagnosis of exclusion, and allow clinicians to make a positive diagnosis of IBS based on symptoms and limited testing. The Rome IV criteria also reflect some notable changes from the Rome III criteria, such as removing the term "discomfort" from the diagnostic criteria due to its ambiguity, and modifying the phrase "improvement with defecation" to "related to defecation" to better reflect the experiences of patients with IBS.[2]

IBS Subtypes

IBS can be further classified into four subtypes based on the patient's predominant bowel habits:

1. IBS with predominant constipation (IBS-C): More than 25% of bowel movements are Bristol stool form Types 1 or 2, and less than 25% of bowel movements with Bristol stool form Types 6 or 7.
2. IBS with predominant diarrhea (IBS-D): More than 25% of bowel movements are Bristol stool form Types 6 or 7, and less than 25% of bowel movements with Bristol stool form Types 1 or 2.
3. IBS with mixed bowel habits (IBS-M): more than 25% of bowel movements with Bristol stool form Types 1 or 2, and more than 25% of bowel movements with Bristol stool form Types 6 or 7.
4. IBS unclassified (IBS-U): Patients who meet the diagnostic criteria for IBS, but whose bowel habits cannot be accurately categorized into the above three groups.

It is important to recognize that IBS subtypes can only be established when patients are evaluated in the absence of any medications that can affect bowel habits.[2] The prevalence of IBS-C, IBS-D, IBS-M, and IBS-U are 20.0%, 27.8%, 33.8%, and 14.1% respectively.[7]

IBS Workup

The diagnosis of IBS requires a comprehensive medical history, physical examination and limited diagnostic tests. Clinicians should take a thorough medical history to understand the frequency, severity and localization of a patient's abdominal pain. It is also important to identify whether or not a patient has a history of disordered bowel habits and to determine the temporal association with episodes of abdominal pain. IBS is a chronic pain disorder, and the presence of disordered bowel movements in the absence of abdominal pain is inconsistent with IBS. Identifying a patient's predominant symptom (pain, constipation or diarrhea) is critical as it will impact treatment selection. Clinicians should carefully review the patient's medication and diet to identify triggers that may mimic or exacerbate IBS symptoms. A brief

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psychosocial assessment should be performed in patients with suspected IBS, as stress can be a contributor to IBS symptomatology. A pertinent family history for GI disorders, such as celiac disease, should also be obtained. Finally, clinicians should identify any alarm features that require further investigation or referrals to rule out more insidious conditions. These alarm features may include a family history of colorectal cancer or inflammatory bowel disease (IBD), new onset of symptoms after the age of 50, unintended weight loss, GI bleeding, constitutional symptoms, or iron deficiency anemia.

A physical examination should be performed in all patients being evaluated for IBS to exclude any organic etiologies of symptoms which may warrant further investigations or referrals (e.g., the presence of ascites, organomegaly, masses or cachexia).

A complete blood count (CBC) should be ordered for patients with suspected IBS, as the presence of anemia or leukocytosis may warrant further investigation.[2] The Canadian Association of Gastroenterology (CAG) also recommends that IBS patients have serological testing to exclude celiac disease, given the frequent overlap between celiac disease and IBS (GRADE: Conditional recommendation, low-quality evidence).[8] Routine thyroid tests are not indicated, but can be performed if clinically warranted. Infectious stool studies for bacteria, parasites and ova may be useful if diarrhea is the primary symptom, or if the patient has recently travelled/lived in an area where infectious diarrhea is prevalent.[2] The CAG recommends against routine c-reactive protein (CRP) and fecal calprotectin testing unless there is high suspicion for IBD (GRADE: Strong recommendation, very low-quality evidence). Routine use of food allergy testing, lactose hydrogen breath tests and glucose hydrogen breath tests in evaluating IBS patients is also not recommended (GRADE: Strong recommendation, very low-quality evidence). Patients who experience new-onset IBS symptoms after the age of 50 are recommended to have a colonoscopy to exclude alternative diagnoses (GRADE: Strong recommendation, very low-quality evidence) , while routine colonoscopy is not recommended for IBS patients under age 50 in the absence of alarm symptoms (GRADE: Strong recommendation, very low-quality evidence). Full recommendations from the CAG, including a concise algorithm summarizing consensus-guided approach to management of IBS patients, can be found in the "Canadian Association of Gastroenterology Clinical Practice Guideline for the Management of Irritable Bowel Syndrome (IBS)", published in 2019.[8]

General Principles of IBS Treatment

Clinicians should provide education and reassurance to patients regarding the benign natural history of IBS, while also establishing realistic treatment goals. Lifestyle modifications, such as exercise, stress reduction and attention to impaired sleep, should be recommended to all patients.[2] In addition to lifestyle modifications, the CAG recommends offering IBS patients a low FODMAP (fermentable oligosaccharides, disaccharides, monosaccharides, polyols) diet based on evidence from four randomized controlled trials (RCTs) demonstrating its efficacy.[8-12] Increased dietary intake of soluble fibre (such as psyllium) also has a significant effect on the treatment of IBS symptoms.[8]

Probiotics should be offered to patients with IBS, as clinical studies have shown the superior efficacy of combination probiotics vs placebo. However, there is significant heterogeneity between studies and insufficient evidence to support any particular species of probiotics.[8] In contrast, a systematic review of three eligible RCTs failed to demonstrate any clear benefit of prebiotics in the treatment of IBS.[13] In addition to these interventions, the CAG recommends considering peppermint oil, cognitive-behavioral therapy (CBT) and hypnotherapy as alternative treatment options for IBS patients.[8]

Treatment of Abdominal Pain in IBS

It is important to consider that while disordered bowel movements can be treated with medications, IBS is a chronic pain disorder and clinicians should place an equal emphasis on treating patients' pain. Antispasmodics, low-dose tricyclic antidepressants (TCAs), and selective serotonin receptor inhibitors (SSRIs) are commonly used to treat abdominal pain in IBS. In Canada, the three available antispasmodics with proven efficacy are hyoscine, pinaverium and dicyclomine. However, the evidence for their effectiveness is generally weak, and there is a potential for anticholinergic side effects. Peppermint oil also has antispasmodic properties and, although the evidence is of low quality, it should be offered to patients with abdominal pain (**Table 1**).[8]

TCAs and SSRIs have good-quality evidence demonstrating efficacy in improving IBS-associated abdominal pain. TCAs, such as amitriptyline, desipramine, doxepin, imipramine, and trimipramine, are known to prolong gut transit times and can cause constipation. Therefore, they may be more effective in IBS-D. In contrast, SSRIs, including citalopram, fluoxetine and paroxetine, may decrease transit time and are preferred in IBS-C.[8]

Treatment of IBS-D

Loperamide is a μ-opioid receptor agonist that decreases colonic transit and can be used to treat diarrhea. However, its prolonged use should be avoided as it may lead to constipation. Loperamide may be beneficial in patients with IBS-D as a prophylactic or as-needed treatment before social situations or travel. It is important to recognize that while loperamide is effective in treating diarrhea, it does not improve other IBS symptoms such as abdominal pain. Eluxadoline is a synthetic opioid receptor modulator approved by Health Canada in 2017 for the treatment of IBS-D and has demonstrated moderate-quality evidence of efficacy. However, it is contraindicated

Abdominal Pain	IBS-D	IBS-C
Hyoscine • 10–20 mg TID • Up to 60 mg/day	**Loperamide** • 2–4 mg daily as needed	**Polyethylene glycol** • 17 g daily as needed
Pinaverium • 50 mg TID • Up to 100 mg TID	**Eluxadoline*** • 100 mg BID	**Prucalopride** • 2 mg daily
Dicyclomine • 20 mg QID	**Rifaximin*** • 550 mg TID x 14 days	**Linaclotide*** • 290 µg daily
Peppermint oil • 0.2 to 0.4 ml TID		**Plecanatide*** • 3 mg daily
Amitriptyline • 10–25 mg QHS • Up to 100 mg/day		**Lubiprostone** • 8 µg BID
Citalopram • 10-20 mg daily • Up to 40 mg/day		**Tenapanor*** • 50 mg BID

Table 1: Pharmacologic treatments for abdominal pain, IBS-D, and IBS-C.
** Medications approved by Health Canada for the treatment of IBS.*

in patients with biliary duct obstruction, cholecystectomy, pancreatitis, and hepatic impairment.[8] Clinicians should carefully consider the potential risks of eluxadolin before prescribing it to patients with IBS-D. There is also emerging evidence supporting the use of rifaximin, a non-systemic antibiotic, in managing IBS-D. A 14-day course of rifaximin has demonstrated moderate-quality evidence of efficacy in reducing symptoms. Additionally, bile acid sequestrants have shown promise as a second-line treatment option for IBS-D options.[6] Eluxadoline and rifaximin are the two medications currently approved by Health Canada for the treatment of IBS-D (**Table 1**). In order for medications to be approved by Health Canada, they must improve both disordered bowel movements and abdominal pain.

Treatment of IBS-C

The importance of adequate soluble fibre and water intake should be emphasized to all patients with IBS-C, alongside pharmacologic therapies. Polyethylene glycol is an osmotic laxative which has beneficial effects for constipation, but limited effects in treating other IBS symptoms.

Linaclotide and plecanatide are guanylate cyclase-C agonists that are effective in improving both abdominal pain and diarrhea. Given its low cost, the CAG has made a strong recommendation in favour of using linaclotide in IBS-C patients. Similarly, lubiprostone is a chloride channel activator with proven efficacy in treating both abdominal pain and constipation. While lubiprostone is also recommended in the treatment of IBS-C, it is generally more expensive than similar medications.[6, 8] Tenapanor is a locally acting inhibitor of the sodium/hydrogen exchanger 3 (NHE3), which increases water secretion and accelerates intestinal transit. Tenapanor has been shown to have improved IBS-C symptoms in RCTs and is generally well tolerated by patients.[14] Linaclotide, plecanatide, and tenapanor are the three medications currently approved by Health Canada for the treatment of IBS-C (**Table 1**).

Treatment of IBS-M/U

Managing IBS-M and IBS-U can be challenging due to their sporadic and varying symptoms. In addition to pharmacologic therapies, dietary modifications and lifestyle principles are important in managing these subtypes of IBS. Efforts should be made to identify common food triggers and remove these from the patient's diet. The use of a food diary and referral to a registered dietician can be helpful to support dietary changes. Soluble fibre supplementation and adherence to a low FODMAP diet should also be emphasized to patients.

Regular exercise is recommended for patients with IBS-M/U, as accumulating 150 minutes per week of aerobic physical activity has been shown to be an effective strategy for stress reduction.[15] In addition, counselling and reassurance are key to long-term effective management of IBS-M/U, and referral for CBT should be considered.

Pharmacologic management of IBS-M/U is challenging

due to the limited available evidence to guide treatment. Medications such as TCAs, secretagogues (lubiprostone, linaclotide) and antispasmodics are often used, but clinicians must remain aware of their potential side effects.

Conclusion

IBS is a highly prevalent and often debilitating GI disorder that affects a significant proportion of the Canadian population. In recent years, there have been significant advancements in our understanding of IBS, including the development of the Rome IV diagnostic criteria. These criteria help reduce unnecessary investigations and improve the subtyping of patients with IBS to better guide treatment. The management of IBS involves a multidisciplinary approach that includes dietary modifications, pharmacological and non-pharmacological interventions, and psychological support. This approach can be effective in reducing symptoms and improving the QOL of individuals with IBS.

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