

Defining and Diagnosing Irritable Bowel Syndrome

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Presentation Summary

Approximately 20% of the general population has irritable bowel syndrome (IBS). Although the majority of these individuals do not consult a physician, IBS accounts for 25% of visits to a gastroenterologist and up to 12% of visits to a primary care physician. Consequently, the direct and indirect costs associated with IBS are estimated at \$8 billion annually. IBS symptoms, with no apparent structural pathology, include altered bowel habits, abdominal pain/discomfort, and bloating. The Rome II criteria, a standardized guideline for the diagnosis of IBS, contains in its definition abdominal pain or discomfort associated with altered bowel habits. Bloating may often be present. Three patient subgroups are defined according to the predominant bowel symptom: constipation, diarrhea, or alternating constipation and diarrhea.

Hematology, fecal occult blood test, flexible sigmoidoscopy, and lactose intolerance evaluations are recommended for all patients demonstrating symptoms of IBS. When indicated, tests are recommended to rule out bacterial or parasitic infections, pelvic floor muscle dyssynergia, colonic inertia, peptic ulcer, or inflammatory bowel disease.

The reasons for female predominance are not yet understood although cultural factors appear to play a role.¹ In both men and women, IBS typically manifests in young adolescence or early adulthood and generally persists throughout the patient's life. However, in about 15% of patients, the symptoms are short-lived and do not become chronic. Psychosocial factors contribute to the predisposition, precipitation, and perpetuation of IBS symptoms and affect the clinical outcome.²

IBS has a significant societal impact and is second only to the common cold as a cause of absenteeism from work and school.³ Although an estimated 80% of individuals with IBS currently are not under the care of a physician, IBS accounts for 25% of visits to gastroenterologists and up to 12% of visits to primary care physicians. Patients with IBS visit a physician for both gastrointestinal and nongastrointestinal complaints more frequently than unaffected individuals. In addition, patients with IBS are absent from work or school almost 3 times as often as individuals without the disease. IBS costs the US healthcare system an estimated \$8 billion annually.³

Irritable bowel syndrome (IBS) is a common chronic functional bowel disorder characterized by abdominal pain or discomfort and alterations in bowel habits. This gastrointestinal disorder affects up to 20% of the adult population in the Western world. Females are affected 2 to 3 times more than males.¹

Impact on Quality of Life

In addition to financial costs IBS has a significant impact on the patient's quality of life, as evidenced by the results of an unpublished study.⁴ In this study, a total of 3000 patients were interviewed regarding their personal experiences

with IBS. These patients experienced significant limitations in various aspects of their personal lives, as illustrated in **Table 1**. Fifty-three percent of the patients with IBS, as compared with 26% of patients without IBS, noted that their health limited their physical activities. In this study, patients with IBS used 3 times more sick days than the general population and were absent from work or school twice as often. Patients also underwent abdominal surgery twice as often and had multiple operations 5 times as often than the general population.

The Physician's Perspective

Data from the aforementioned study, which also included physician respondents, demonstrated a stark contrast in the doctors' and patients' perceptions of the significant impact IBS has on a patient's daily functioning. A majority of the doctors believed IBS was not a serious condition; 33% thought IBS was primarily psychological in origin. Although the study's patients on average visited 3 doctors over a 3-year period before IBS was diagnosed, 58% of the physician respondents believed IBS was easy to diagnose. Only 20% of the physicians were familiar with the guidelines for diagnosis of IBS; of these, 80% did not follow the guidelines.

One of the reasons for the disparities between the patients' experiences and the doctors' perceptions is the common opinion that the problem is psychosomatic and IBS is a neurotic disorder. This misconception could result from some reports that IBS patients who are under medical care, as well as patients with lactose malabsorption, rate higher on scales of neuroticism than do normal control subjects. However, a comparison of psychological test results from these 3 groups and from a community sample of patients who have not sought medical attention reveals no difference.⁵

Diagnostic Criteria

As of 1984, the diagnostic criteria for IBS were based on the presence of a triad of symptoms: abdominal pain or discom-

fort, which could be accompanied by bloating; altered bowel habits (constipation, diarrhea, alternating constipation and diarrhea, and/or a sense of bowel urgency); and the absence of structural or biochemical pathology that would suggest organic disease.^{2,6}

These criteria were updated to the Rome I criteria in 1991 and, most recently, to the Rome II criteria.⁶ According to the Rome II criteria, a diagnosis of IBS is based on the presence of abdominal discomfort or pain of at least 12 weeks duration (not necessarily consecutive weeks) in the preceding 12 months and is accompanied by 2 out of the following 3 features of altered bowel habits:

- Relief with defecation
- An onset associated with change in the frequency of stool
- An onset associated with change in the form (appearance) of stool

Pathophysiology

Previously, the pathophysiology of IBS was based on motility disturbance alone, but now has evolved into a more integrated understanding of enhanced motility and visceral hypersensitivity associated with brain-gut dysfunction. Dysmotility accounts for the altered bowel function (diarrhea and constipation); altered visceral sensory perception accounts for the pain or discomfort and the sense of bloating. In addition, there is a hypersecretory component.

Table 1. Reported Patient Symptoms/Limitations with IBS

■ 40% report intolerable abdominal pain
■ 25% allow extra time to commute because of bowel disturbance and/or pain
■ 65% plan schedules around the bathroom
■ 78% report IBS limits food selections
■ 40% are limited in sports, social activities, vacation, and travel
■ 38% have a limited sex life

IBS = irritable bowel syndrome.
Source: Reference 4.

There are 3 IBS patient subgroups defined according to the predominant bowel symptom: constipation, diarrhea, or a combination of both at alternating times. Physiological differences between normal individuals and these IBS subgroups have been demonstrated.

Normal individuals experience a gastrocolic reflex after meals, resulting in increased motility in the colon. This reflex is, for the most part, a neurogenic response. However, some hormones, such as cholecystokinin, which is released by the duodenum as food enters it, can also induce a postprandial pattern of increased motility. These responses are exaggerated in patients with IBS.

In addition to the difference in gastrocolic responses, patients with IBS also experience a different response to intraluminal distension than do normal controls. After a balloon is placed in the rectosigmoid or rectum of a patient without IBS and then inflated with air, a contraction occurs around the distending balloon and then returns to a quiescent baseline. In contrast, patients with IBS experience spastic and tonic contrac-

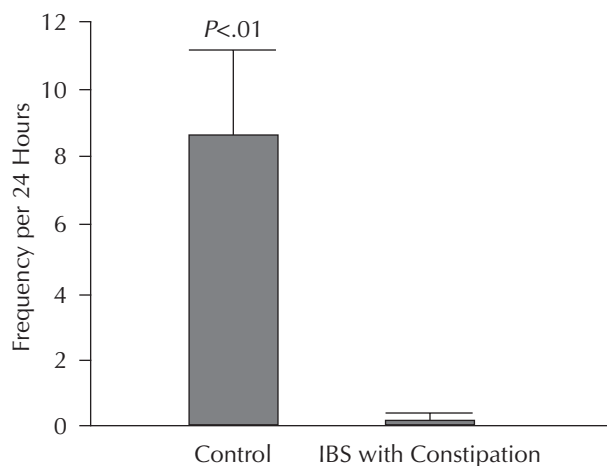
tions in response to intraluminal distension.⁵ A variety of stimuli—stress, food, neurotransmitters, hormones, and intraluminal distension—will activate IBS symptoms and demonstrate evidence of altered physiology.

Previously, constipation in IBS was thought to be solely a result of the spasms induced by intraluminal distension (“spastic constipation”). These spasms are associated with increased segmental haustral contractions, which impede the forward progress of the stool down through the gut. However, the decrease in the propulsive contractions that push food forward also contributes to the constipation. In normal individuals, high-amplitude propagating contractions (HAPCs) sweep down long areas of the colon about 6 to 8 times per day, particularly before and during bowel movements. However, in IBS patients with constipation, dramatically fewer HAPCs occur over a 24-hour period (**Figure 1**).⁷ In contrast, an increased number of these contractions are seen in IBS patients with diarrhea.

Other physiologic differences between IBS patients with either constipation or diarrhea have been identified. Although patients with IBS demonstrate increased motility in response to rectosigmoid balloon distension in general, the balloon-induced increase in colonic motility is greater in IBS patients with constipation than in IBS patients with diarrhea (**Figure 2**).⁵

IBS patients with constipation generally have relaxation of the rectum postprandially, whereas IBS patients with diarrhea have an increased rectal tone.⁸ IBS patients with constipation also have blunted gastrocolic responses compared with normal responses among those with diarrhea. In addition, whereas rectal discomfort thresholds are fairly normal among IBS patients with diarrhea, IBS patients with constipation have lower thresholds.⁹ IBS patients with constipation also demonstrate a greater prevalence of a wide range of symptoms referred to upper and lower abdomen, musculoskeletal, and constitutional functions

Figure 1. Frequency of HAPCs in Normal Individuals and IBS Patients with Constipation



HAPCs = high-amplitude propagating contractions.

compared with IBS patients with diarrhea.¹⁰ These findings may be related to differences in autonomic or perceptual responses to visceral and somatic stimuli. **Table 2** summarizes the physiological differences between IBS patients with constipation versus diarrhea.

Criteria That Refute a Diagnosis of IBS

A number of clinical features do not support a diagnosis of IBS (**Table 3**). Onset in older age or a steady progressive course of symptoms are more suggestive of cancer or a neurologic disorder than of IBS. Likewise, frequent awakening by symptoms, features that indicate infection or inflammation, weight loss, steatorrhea, or onset of new symptoms would rule out a diagnosis of IBS.

There are no physical findings that are pathognomonic or even typical of IBS. However, an increase in rectosigmoid palpability and tenderness has been reported. Physical findings that do not point to a diagnosis of IBS would include evidence of inflammation or obstruction (**Table 3**).

Recommended Laboratory Investigations

In patients who demonstrate symptoms of IBS, minimal laboratory investigations are necessary to rule out other conditions, as indicated in **Table 4**. It is important to rule out gastrointestinal bleeding via the use of hemoccult tests. However, about 20% of patients with IBS have blood in the stool secondary to constipation or diarrhea-induced hemorrhoids or fissures. Flexible sigmoidoscopy should be performed to rule out lesions, obstruction, and inflammation. Patients also should be evaluated for lactose tolerance by placing them on a lactose-free diet and observing them for 10 to 14 days or by doing a lactose tolerance test. Additional tests are recommended when indicated by history, eg, small bowel X rays or colonoscopy with biopsies should be performed when symptoms strongly suggest Crohn's disease.

Laboratory features that rule against a diagnosis of IBS are summarized in **Table 3**. Of particular note are findings that indicate inflammation or bleeding and findings consistent with secretory

Figure 2. Effects of Balloon Distension on Rectosigmoid Motility in Normal Individuals and Patients with Irritable Bowel Syndrome

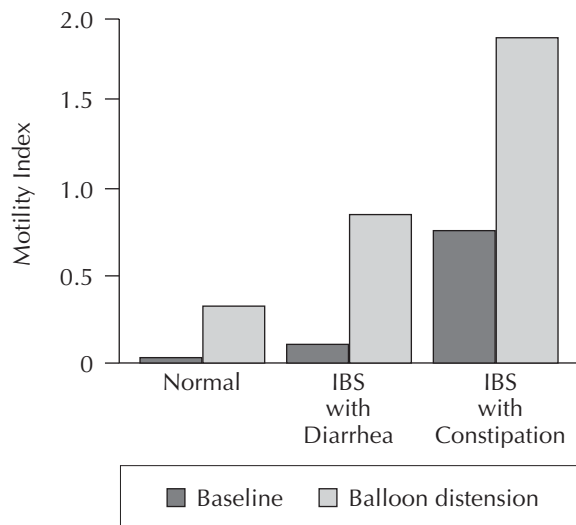


Table 2. Physiological Differences Between IBS Patients with Constipation Versus Diarrhea

Constipation	Diarrhea
■ Fewer HAPCs	■ Increased number of HAPCs
■ Greater balloon-induced increase in colonic motility	■ Lower balloon-induced increase in colonic motility
■ Postprandial rectal relaxation	■ Postprandial increased rectal tone
■ Blunted gastrocolic response	■ Normal gastrocolic response
■ Lower rectal discomfort thresholds	■ Relatively normal rectal discomfort thresholds
■ Greater prevalence of symptoms referred to upper and lower abdomen, musculoskeletal, and constitutional functions	

HAPCs = high-amplitude propagating contractions.

Table 3. Criteria That Do Not Support a Diagnosis of Irritable Bowel Syndrome

Clinical Features	Physical Findings	Laboratory Features
<ul style="list-style-type: none"> ■ Onset in old age ■ Steady progressive course ■ Frequent awakening by symptoms ■ Fever ■ Weight loss not attributable to depression ■ Rectal bleeding other than fissures or hemorrhoids ■ Steatorrhea ■ Dehydration ■ Development of new symptoms 	<ul style="list-style-type: none"> ■ Fever ■ High-pitched tinkling bowel sounds ■ Rebound tenderness ■ Succussion splash 3 hours after eating ■ Inflammation seen by proctoscopy 	<ul style="list-style-type: none"> ■ Elevated ESR ■ Leukocytosis ■ Blood, pus, or fat in the stool ■ Persistence of diarrhea after 72-hour fast ■ Hypokalemia

ESR = erythrocyte sedimentation rate.

Table 4. Recommended Laboratory Investigations for Diagnosis of Irritable Bowel Syndrome

Recommended for All Patients	Conditions Investigated
Hematology (CBC, ESR, differential)	Anemia
Stool hemocult	Any cause of GI bleeding
Flexible sigmoidoscopy	Obstruction, inflammation
Evaluation for lactose intolerance	Lactose intolerance
Recommended When Indicated by History	Conditions Investigated
Stools x 3 for ova and parasites	<i>Amoeba</i> , <i>Clostridium difficile</i>
Anal canal pressure or electromyogram	Pelvic floor muscle dyssynergia
Whole gut transit time	Colonic inertia
Esophagogastroduodenoscopy	Peptic ulcer disease
Dextrose breath test	Small bowel bacterial overgrowth
Small bowel X rays	Inflammatory bowel disease
Colonoscopy	Right-sided inflammatory bowel disease

CBC = complete blood count; ESR = erythrocyte sedimentation rate; GI = gastrointestinal.

diarrhea. A simple test for secretory diarrhea can be conducted by hospitalizing the patient and providing only intravenous supplementation—nothing by mouth—for a 72-hour period. If the diarrhea ceases, the physician can diagnose osmotic diarrhea rather than secretory diarrhea.

Summary

IBS affects up to 20% of adults in the Western world and significantly impacts a patient's quality of life. Although IBS accounts for over 25% of visits for gastrointestinal problems, the majority of patients with IBS do not seek medical assistance. The major pathogenesis of IBS includes dysmotility, which accounts for the altered bowel habits, and alterations in visceral sensitivity, which account for the pain. The colonic motility patterns following a meal or with rectosigmoid balloon distension tend to be exaggerated in patients with IBS as compared with normal individuals. In addition, differences in colonic motility are seen in IBS patients with constipation versus diarrhea. A diagnosis of IBS is made primarily by using the symptom-based Rome II criteria. Laboratory investigations required to rule out other diseases are minimal.

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