Irritable Bowel Syndrome Subtypes: New Names for Old Medical Conditions

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Keywords

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Abstract

The irritable bowel syndrome (IBS) is the most common functional gastrointestinal disorder (FGID), also called disorders of the gut-brain interaction (DGBI). Over the years, the definition and classification of IBS suffered several conceptual changes. The work of the Rome Committees has largely contributed to the progress in knowledge and awareness of IBS. This paper is an overview of the evolution of diagnosis and classification criteria of IBS. **Background:** The majority of the complaints causing presentation to the general gastroenterological centers are represented by FGID. IBS is the most frequent among them. IBS is not a uniform condition but includes an array of particular forms called subtypes. Criteria for the identification of the IBS subtypes have suffered several changes in parallel with the accumulation of scientific evidence about this disorder. Classification of IBS subtypes relies on symptoms. **Summary:** This is a review of the evolution of the criteria for diagnosis and classification of IBS subtypes. Starting with older names given to IBS, some changes in definition and diagnosis have been operated by each edition of the Rome criteria. These changes have led to the better identification of patients with IBS. The management of IBS depends on subtypes and should be individualized. **Key Messages:** IBS is the main FGID, called also DGBI. It is not a homogenous disorder but a generic name for an ar-

ray of subtypes with common features but with clinical differences. The diagnosis and classification of IBS subtypes have evolved in time, in accordance with the progress of the knowledge on pathogenesis. It is important for healthcare providers to recognize the subtypes and to use a common nomenclature (that offered by the Rome Committees work).

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Introduction

Irritable bowel syndrome (IBS) is a common pathological condition, being the prototype of functional gastrointestinal disorders (FGID). As the knowledge about FGID and IBS has progressed, the perspective on this syndrome has changed. Considered long ago an idiopathic condition, at the moment IBS is no longer a diagnosis remaining after the exclusion of all other putative diseases with partly similar presentation, but an entity produced by the disturbance of the interaction between the brain and the gut. Thus, IBS has become a positive diagnosis that should be differentiated from other clinical conditions.

IBS has been recognized as a disease long time ago and several names have been proposed for it: mucous colitis [1], chronic nonspecific enteropathy [2], and so on.

Nowadays, the standard in the diagnosis, classification, and treatment of IBS is provided by the working groups of experts of the Rome Foundation. Four editions of the Rome working groups have been published, reflecting the changes of our knowledge on FGID.

Table 1. Diagnostic criteria for IBS

Manning	Rome I	Rome II	Rome III	Rome IV
Onset of pain linked to more frequent bowel movements	Abdominal pain and discomfort that is	Abdominal pain or discomfort for at least 12 weeks (which need not be consecutive) in the preceding 12 months associated with 2 or more of the following	Recurrent abdominal pain or discomfort at least 3 days/month in the last 3 months associated with 2 or more of the following	Recurrent abdominal pain, on average, at least 1 day/ week in the last 3 months, associated with 2 or more of the following criteria
Looser stools associated with onset of pain	Relieved with defecation and/or	Relieved with defecation; and/or	Improvement with defecation	Related to defecation
Pain relief with defecation	Associated with a change in frequency of stool; and/or	Onset associated with a change in frequency of stool; and/or	Onset associated with a change in frequency of stool	Associated with a change in frequency of stool
Noticeable abdominal bloating/ visible abdominal distention	Associated with a change in the consistency of stool and	Onset associated with a change in appearance of stool	Onset associated with a change in appearance of stool	Associated with a change in appearance of stool
Sensation of incomplete evacuation >25% of the time	Two/more of the following at least on one fourth of occasions/days: – Altered stool frequency – Altered stool form – Altered stool passage – Passage of mucus and/or Bloating or feeling of abdominal distension			
Diarrhea with mucus >25% of the time				
Patient must meet ≥3 criteria			Criteria fulfilled for the last 3 months with symptom onset at least 6 months before diagnosis	Criteria fulfilled for the last 3 months with symptom onset at least 6 months before diagnosis
IBS, irritable bowel syndrome.				

History of Criteria for Diagnosis of FGIDs

In 1978, Manning et al. [3] proposed the first widely used IBS criteria based on symptoms (Table 1).

In 1984, Kruis et al. [4] created a diagnostic score including positive points for symptoms suggesting functional etiology and negative points for data suggesting organic diseases. This score was correct but quit ponderous and have never been widely used.

In 1988, a group of international experts were recruited by Professor Aldo Torsoli from Rome, Italy, to develop Working Teams for the International Gastroenter-

ology Meeting in Rome. This working team used a “Delphi” method of decision making, which fosters a team to produce consistency in opinion, or consensus to answer difficult clinical questions that could not be answered through scientific evidence at the time, and present their results at this meeting. Torsoli collaborated with W. Grant Thompson (from Ottawa); then, they published the first diagnostic criteria for IBS based on consensus [5].

In 1989 Torsoli and Corazziari proposed to Professor Drossman to continue the working team process. In this formula, they began the process of creating a classifica-

tion system with diagnostic criteria for all of the FGIDs divided into anatomical regions (esophagus, gastroduodenal, bowel, biliary, and anorectal).

Rome I: 1994. In the next few years, a series of publications relating to each anatomic domain was elaborated upon and published in *Gastroenterology International*. Each member of the original committee created his own working team of experts. The articles were compiled into a book: “The Functional Gastrointestinal Disorders: Diagnosis, Pathophysiology, and Treatment” and in retrospect is considered Rome I [6]. Starting from that moment; these criteria have been increasingly used for FGID classification and diagnosis.

Rome II: In 2000, the Rome Foundation developed the book Rome II, following the reviews from literature made by 52 authors from 13 countries [7].

Rome III: 2006. After the book Rome II was developed, the number of publications increased considerably. Thus, starting from 2002 the process of elaboration of the Rome III criteria was started by analyzing the publications of 87 authors from 18 countries. In May 2006, the book Rome III was published. Rome III is different from Rome I and II, using more evidence based rather than consensus based data [8].

Rome IV: After 10 years, in 2016, it was published Rome IV, which is a compendium of knowledge that provides additional information compared to Rome III in terms of gut micro environment, gut-brain interactions, and biopsychosocial model. It also introduced new classifications and new diagnostic and treatment algorithms [9].

Rome IV Changes

Despite the fact that the old term “functional” is largely used, the recommendations of Rome IV are to remove this term as it carries a risk for being nonspecific and stigmatizing. Instead, the use of the term “disorder” is increasingly recommended.

Taking into account the multifactorial interaction in the mechanisms of FGIDs, a revised definition was created: disorders of the gut-brain interaction to help clarify its meaning. These disorders are defined as a group of disorders classified by GI symptoms related to any combination of motility disturbances, visceral hypersensitivity, altered mucosal and immune function, gut microbiota, and/or central nervous system processing [10].

Changes Regarding IBS

IBS is the most commonly recognized disorders of the gut-brain interaction around the world, being part of the group of bowel disorders (C), along with 5 other categories: functional constipation, functional diarrhea, functional abdominal bloating/distension, unspecified functional bowel disorder, and opioid-induced constipation. Sometimes there are significant overlaps between these disorders.

The entity opioid-induced constipation is newly introduced in Rome IV; even if this condition has a clear etiology and is not only functional, it still fits the definition of gut-brain interactions. Based on the same principle were also introduced narcotic bowel syndrome (opioid induced GI hyperalgesia), the cannabinoid hyperemesis syndrome, and centrally mediated disorders (old term – functional abdominal pain syndrome) [11].

Due to the different diagnostic criteria and survey methods used in research studies, the prevalence of IBS remains elusive [12].

There were changes in symptom-based criteria for IBS compared to the previous Rome III definition.

Definition (According to Rome IV)

“IBS is an FBD in which recurrent abdominal pain is associated with defecation or a change in bowel habits. Disordered bowel habits are typically present (i.e., constipation, diarrhea, or a mix of constipation and diarrhea), as are symptoms of abdominal bloating/distention. Symptom onset should occur at least 6 months before diagnosis and symptoms should be present during the last 3 months” [13].

As shown in Table 1, over the time various modifications have been made to the IBS definition.

First, the term “*abdominal discomfort*” was excluded from the definition because it is ambiguous, nonspecific, has different meanings in different languages. Some patients consider the “discomfort” to be mild pain while others regard it as urgency or bloating. Excluding the term “discomfort” and maintaining only the pain as a symptom for the diagnosis of IBS, there was no reduction in the prevalence of IBS from Rome III to IV [14].

Aziz et al. [15] have shown in a recent study that updating the criteria from Rome III to IV will not have major implications in diagnosis of IBS; overall, 85% of subjects with Rome III defined IBS fulfill criteria for Rome IV IBS and 15% do not. Those who are positive for Rome IV IBS have more severe clinical symptoms and visceral sensitivity, compared to Rome IV-negative IBS patients.

Table 2. Diagnostic criteria for IBS subtypes

	Rome III		Rome IV
IBS – C (IBS with constipation)	Hard/lumpy stools >25% and loose/watery stools <25% of bowel movements	IBS – C (IBS with predominant constipation)	>25% of bowel movements with Bristol Stool form types 1–2 and <25% of bowel movements with Bristol Stool form types 6–7
IBS – D (IBS with diarrhea)	Loose/watery stools >25% and hard/lumpy stools <25% of bowel movements	IBS – D (IBS with predominant diarrhea)	>25% of bowel movements with Bristol Stool form types 6–7 and <25% of bowel movements with Bristol Stool form types 1–2
IBS – M (mixed IBS)	Hard/lumpy stools >25% and loose/watery stools >25% of bowel movements	IBS – M (IBS with mixed bowel habits)	>25% of bowel movements with Bristol Stool form types 1–2 and >25% of bowel movements with Bristol Stool form types 6–7
IBS – U (unsubtyped IBS)	Insufficient abnormality of stool consistency to meet criteria for IBS-C, D, M	IBS – U (IBS unclassified)	Patients meet diagnostic criteria for IBS but their bowel habits cannot be accurately categorized in any of the above subtypes
Patients should not be on any type of medication used to treat bowel habit abnormalities. IBS, irritable bowel syndrome.			

Second, IBS diagnosis requires that abdominal pain occurs on average at least 1 day/week in the last 3 months; comparing with only 3 days per month in the last 3 months in Rome III. This change represents the most important factor that contributes to the decrease in estimated prevalence of IBS from 11.7% for Rome III to 5.7% for Rome IV. The comorbidity of IBS with functional constipation, functional diarrhea, and functional dyspepsia also contributed to misclassifications [16].

On the other hand, in Rome IV, the temporal association between abdominal pain and defecation or stool characteristics is less specific. In Rome III, pain or discomfort had to “*improve with defecation*,” but some patients with IBS may report worsening of abdominal pain after defecation or they have no changes of pain after defecation.

Therefore, the old criterion “abdominal pain relieved with defecation” (in Rome I and II) or “improvement of abdominal pain with defecation” (in Rome III) was replaced with the new criterion “*abdominal pain related to defecation*” (in Rome IV).

Finally, the word “*onset*” was deleted from criteria 2 and 3 of the Rome III because not in all patients the onset of abdominal pain coincides with a change in stool frequency or form [13].

These changes in the temporal relationship between pain and defecation did not significantly change the prevalence of IBS [17].

IBS Subtypes

In clinical practice and for epidemiological studies, Rome IV classification into IBS subtypes is based on the patient’s perception of their predominant type of abnormal stool consistency (using Bristol Stool Form Scale), not on the frequency of defecation.

According to Rome III, IBS was divided into IBS with diarrhea (IBS-D), IBS with constipation (IBS-C), mixed IBS (IBS-M), and unspecified (IBS-U); based on the proportion of all bowel movements that were loose/watery or hard/lumpy.

However, subsequent studies showed that IBS subtyping was more reliable if based only on the proportion of abnormal bowel movements that were loose/watery or hard/lumpy [18].

Sometimes, patients can have large periods of time with normal stool consistency, which leads to a large number of patients with unclassified IBS subtype [19].

As a result of these observations and the results of a Rome Foundation Normative Symptom Study, in Rome IV the criteria for subtypes of IBS have been changed and relate to the proportion of symptomatic stools (i.e., loose/watery and hard/lumpy) rather than all stools (in Rome III; Table 2). This change has reduced significantly the group of unclassified IBS [10].

Using this criterion, the term “*predominant*” was added in the classification of IBS subtypes [13].

In the past, it was recognized that these disorders could overlap (Rome II, Rome III). However, sometimes in daily practice, it may be not possible to confidently separate disorders into separate entities. Such is the case of IBS with predominant constipation (IBS-C) from functional constipation, or IBS-D from functional diarrhea and also symptoms often swap over between different subcategories of IBS. Thus, Rome IV considers that these disorders exist as a continuum rather than as in isolation [20].

Diagnostic

The diagnosis of IBS is based on symptom criteria, is not a diagnosis of exclusion, and there are no specific tests for diagnostic. In patients who fulfill the Rome IV criteria and have no alarm features (fever, blood in stool, weight loss, anemia, palpable abdominal mass, family history of colorectal cancer), routine use of any diagnostic tests is not recommended.

Clinicians should use their clinical judgment and sometimes have to make a differential diagnosis. Some differential diagnoses we have to keep in mind are: inflammatory bowel disease, microscopic colitis, small intestinal bacterial overgrowth, gluten or lactose intolerance, hyperthyroidism, pelvic floor dysfunction, neurologic disease (Parkinson disease), symptomatic uncomplicated diverticular disease, chronic pancreatitis, and medication (opiates, calcium channel blockers) [21].

The new Rome IV criteria are useful for the diagnosis of IBS and the subtype classification and thus influence the management, because the therapy is oriented toward the dominant symptom; aimed to improve the predominant symptom (constipation, diarrhea, abdominal pain). Several medications are approved by the FDA only for the treatment of IBS-C (e.g., lubiprostone and linaclotide), while other medications are approved only for IBS-D, (e.g., rifaximin and eluxadoline); and none are approved for the treatment of IBS-M or IBS-U [17].

The changes made by Rome IV were not only related to diagnosis and classification but also an explosion of new information on the pathophysiology of IBS (e.g., recognition that IBS is a brain–gut disorder, the role of gut microflora, intestinal permeability, psychosocial factors) and the new treatment options (e.g., linaclotide, rifaximin, eluxadoline, and low FODMAP diets) [10, 22].

Although the new Rome IV criteria are useful for clinical research and pharmaceutical trials, they are sometimes difficult to apply in clinical practice. In this regard, the Rome Foundation has published several diagnostic algorithms,

handbook, and has created an intelligent software system to help busy primary care physicians (e.g., The Rome IV Multidimensional Clinical Profile book, Rome IV Interactive Clinical Decision Toolkit, The Rome IV diagnostic algorithms for common gastrointestinal disorders) [23, 24].

Conclusion

The Rome IV criteria for diagnosing IBS are more restrictive than Rome III, primarily because they require more frequent abdominal pain than the older criteria and the old term “discomfort” was removed; but these new criteria did not significantly change the prevalence of IBS.

For the diagnosis of IBS subtypes according to Rome IV is considered stool consistency (using Bristol Stool Form Scale) based only on the proportion of symptomatic stools. These new criteria have reduced significantly the group of unclassified IBS.

A limitation of the Rome IV criteria for IBS is that they remain exclusively based on symptom reports and there are a limited number of diagnostic tests.

Disclosure Statement

The authors have no relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript. This includes employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties.

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