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Diagnostics and Associated Criteria of Irritable Bowel Syndrome: Recent Perspective and Advancements

Lance Henrick*

Department of Pathology, Virginia State University, Virginia, United States

Introduction

Irritable bowel syndrome is the most common disorder observed through gastroenterological. Epidemiologic studies have reported wide range of prevalence estimates mainly due to inclusion criteria. Imaging studies have been not so reliable in the diagnosis of IBS. The role of abdominal ultrasound in IBS was evaluated among patients who met the diagnostic criteria for IBS and very less percentage had an abnormality in ultrasonography and they did not lead to additional therapeutic measures.

The diagnosis of irritable bowel syndrome is difficult due to the following reasons:

- Symptoms change over time.
- Symptoms mimic other disorders of lactose or fructose intolerance.
- Lack of thorough knowledge on diagnosis.
- Lack of precise biomarker for IBS.

Therefore, development of a single test with accurate sensitivity and specificity is desirable. This also helps in the effective treatment of the IBS. So far despite of advanced technology, a gold standard for the diagnosis of IBS does not exist. Currently the clinicians rely on criteria such as Manning, Kruis or Rome even though they have certain limitations.

The Manning diagnostic criteria were proposed in 1978 based on frequent IBS symptoms. The sample size of the questionnaire study used by Manning and colleagues was relatively small. Major symptoms included looser stools at the onset of pain, increased frequency of bowel movements after the onset of pain, relief of abdominal pain after a bowel movement, and abdominal distension. Two symptoms of sensation of incomplete evacuation and fecal mucus were common among IBS patients. With increased number of symptoms the sensitivity and specificity decreased. The Manning criteria could not differentiate IBS with Constipation (IBS-C) from IBS with Diarrhea (IBS-D), therefore with this criteria drug development and patient care was difficult. The Kruis criteria included symptom duration of two years time and combined normal physical examination and basic laboratory studies (CBC and ESR). However, the criteria were clinically not feasible.

The Rome criteria in 1992, known as Rome I, considered abdominal bloating, a cardinal symptom of many IBS patients with sensitivity of 85% and a specificity of 71%. The revised Rome II criteria were published in 1999 required that symptoms be present for at least 12 weeks out of the preceding 12 months and added the term “discomfort” with two of the three abdominal pain related criteria had to be required for the diagnosis of IBS. The Rome III criteria introduced in 2006 emphasized on the classification of IBS by subtypes based on stool consistency and included IBS-C (Constipation), IBS-D (Diarrhea), IBS-M (Mixed) and also IBS-U (Un-subtyped). The symptom of bloating was eliminated. The sensitivity of the Rome III criteria as 68.8% and specificity was 79.5%. The fourth iteration of ROME criteria was released in 2016 as Rome IV that defined Irritable Bowel Syndrome (IBS) as a functional bowel disorder in which recurrent abdominal pain is associated with defecation or alteration in bowel habits. The symptoms included constipation, diarrhea or a mix of constipation and diarrhea with onset occurring at least 6 months prior to diagnosis and particularly in last 3 months.

Description

As diagnostic criteria, the frequency of abdominal pain was increased from 3 days per month to one day per week on average based on a large population study. Functional gastrointestinal disorders are reported in 40% of all gastrointestinal referrals to gastroenterologists. Among 33 recognized adult FGIDs, the global prevalence of Irritable Bowel Syndrome (IBS) is 12%. Cardinal symptoms of IBS include abdominal pain and altered bowel habits. Abdominal pain is the major diagnosis of IBS. Diagnosis usually includes factors of diet, medication, medical, surgical, and psychological history, anemia, hematochezia, unintentional weight loss, or a family history of colorectal cancer or inflammatory bowel disease. Establishing of IBS can be difficult as there is no confirmatory test. The Bristol stool chart should also be used to objectively describe bowel habits and classify patients into the correct subtype [1].

So far there are no anatomic or physiologic markers for detection of IBS. Therefore the diagnosis of IBS has to be made on clinical grounds. The Rome criteria have a positive predictive value of

***Address for Correspondence:** Lance Henrick, Department of Pathology, Virginia State University, Virginia, United States, Tel: 6485684526374; E-mail: Henrik_l@gastrictherapy.com*

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approximately 98%. Diagnostic evaluation must include a psychosocial assessment for effective management strategies and treatment [2].

There are no single or specific diagnostic tests for IBS. IBS represents a range of symptoms that may originate from diverse dysfunctions of the gut-brain axis, including abnormal intestinal motility or transit, increased sensation of abdominal symptoms such as pain or bloating which is either mediated in the gut or in the brain, and psychological disturbances including somatization or multiple somatic comorbidities. Diagnostics tests are prescribed to exclude organic diseases such as colon cancer, inflammatory bowel disease, or celiac disease for screening for colon cancer or the presence of alarm features such as weight loss or rectal bleeding. Diagnosis of rectal bleeding, weight loss, nocturnal diarrhea; somatoform or psychological disorders such as anxiety or depression; hemoglobin and C-reactive protein enhance reliability of symptom based criteria for IBS [3]. If patients do not respond to first-line treatments for the primary symptoms of diarrhea, constipation, or pain or discomfort, reassessment of the history and physical examination including additional tests to identify treatable dysfunctions is suggested. These tests include anorectal manometry and balloon expulsion, colonic transit, and tests for biochemical causes of diarrhea including sugar malabsorption, bile acid diarrhea. Cumulative evidence from several small trials suggests efficacy of pelvic floor retraining with biofeedback for patients with pelvic floor dyssynergia presenting with symptoms of IBS Constipation (IBS-C) or functional constipation.

There is no histopathological or radiological diagnostic test for IBS either. Warning symptoms or red flags, such as age over 50 years, a short history of symptoms, nocturnal symptoms, weight loss, rectal bleeding, anemia, and the presence of markers for inflammation or infections, should be excluded. About one third of patients have IBS-D, one third have IBS-C, and the rest have IBS-M. More than 75% of IBS patients change to either of the other 2 subtypes at least once over a 1 year period. Generally gastroenterologists believe that a symptom based diagnosis, such as that based on the Rome III criteria, without red flags is sufficient for the diagnosis of IBS. The American college of gastroenterology task force does not recommend routine colonoscopy in patients younger than 50 years of age without any associated alarming symptoms. British society of gastroenterology recommend an examination of the colon earlier if affected by colorectal cancer who is younger than 45 years, or two first degree relatives of any age. It is difficult to clinically distinguish IBS from adult onset Coeliac Disease (CD). Microscopic Colitis (MC) and IBS have similar symptoms and a normal endoscopic appearance, and the diagnostic overlap between IBS, IBD and MC is important because of a potentially different treatment for each disorder. The symptom-based diagnosis of IBS may lead to a number of other GI disorders that require quite different management than IBS. Sigmoidoscopy in IBS patients might be insufficient, however, as a considerable number of MC patients may not be identified without mucosal biopsies from the right colon. Moreover, performing a sigmoidoscopy would not exclude crohn's disease lesions in the terminal ileum, making ileocolonoscopy prefered, especially in IBS-D patients.

Conclusion

Performing an ileocolonoscopy would reassure IBS patients and prevent them from seeking a new examination, which would not increase the economic burden of this patient group on society. Several biomarkers for the diagnosis of IBS have been considered, but only gut transit measured by radio isotope markers meets the criteria for reproducibility and availability. The radio isotope tests are expensive and of limited availability. It has been reported that the chromogranin A-containing cell density is low in the duodenum of IBS patients. As chromogranin A is a general marker for endocrine cells, this finding indicates a general reduction in small intestinal endocrine cells in these patients. It has been proposed that the quantification of duodenal chromogranin a cell density could be used as a histopathological marker for the diagnosis of IBS. Gastroscopy with duodenal biopsies can be used for excluding or confirming CD instead of blood tests and the same biopsies can be used for the diagnosis of IBS [4].

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