Irritable bowel syndrome

BACKGROUND Irritable bowel syndrome (IBS) is a common worldwide problem, particularly in women, and presents from the teenage years onward.

OBJECTIVE This article discusses the causes, diagnosis and management of IBS.

DISCUSSION Disturbed motility and sensory function underlie much of the disturbance in function that, not infrequently, begins following an episode of gastroenteritis. There is an intimate role for the brain-gut axis in modulating symptoms relating to underlying causes of small bowel bacterial overgrowth, food intolerance and sensitivity, and abnormalities of corticotropin releasing factors. Management requires long term involvement with the patient as there is no single therapeutic strategy that is predictably effective. However, diet, bulking agents, antispasmodics and a variety of alternative therapies including herbs, probiotics, and psychological intervention are important in individual patients.

Irritable bowel syndrome (IBS) is defined as a group of functional bowel disorders in which abdominal discomfort or pain is associated with defaecation or a change in bowel habit with features of disordered defaecation.[1] These symptoms have been formally grouped by the Rome II Diagnostic Criteria (*Table 1*) although all patients do not easily fit into such a pattern.[2]

The abdominal pain is usually in the lower abdomen, frequently on the left side, often worse in the morning and relieved by passing wind or defaecating. Commonly, pain occurs soon after waking and there is an urge to defaecate. This is repeated several times over a short period of time with a feeling of incomplete defaecation. The urgency is sometimes severe and, if there has been damage to the muscular function of the anus (eg. during childbirth) loss of bowel control can occur with involuntary passing of faeces or mucous. Gas, bloating and abdominal distention are common and may be worse at the end of the day. Offensive wind is also present. While it is socially embarrassing, it has no serious effects on health.

The prevalence of IBS is greater in women, with the first presentation of patients commonly between 30 and 50 years of age;[1] although it is not uncommon during teenage years and younger adult life. When symptoms present in older patients, it becomes more important to exclude underlying alternative pathology. Studies suggest that IBS seems to be as common in Japan, China, South America and the Indian subcontinent as it is in western countries.

The role of motility and sensory dysfunction in IBS, and a growing understanding of the roles of neurotransmitters and hormones in the control of

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gastrointestinal motility and secretion and sensation, will ultimately provide a better basis for more effective therapy.

What causes IBS?

Irritable bowel syndrome is a common sequel to gastroenteritis of any cause, and in up to 25% of patients, symptoms of IBS start soon after such an attack.[3] It is possible that, during the enteric infection, toxins are released which damage nerve endings in the gut and this damage may persist even after the infection disappears leading to disordered muscular contraction of the bowel. In addition, there is increasing evidence of altered gut sensitivity as demonstrated by experiments using balloons inflated within the intestine of patients with IBS, demonstrating that many are extremely sensitive to modest distention. There is more recent evidence using intestinal gas insufflation that the bloating accompanying IBS is a colonic phenomenon while the pain may frequently be due to gaseous distention of the small intestine. Where this small intestinal gas originates remains unresolved, although it may be from gas refluxing through a relatively incompetent ileo-caecal valve in a way analogous to gastro-oesophageal reflux.

Studies have demonstrated that patients with IBS generate the same volume of gas as normal controls, thus giving increased credibility to the concept of hypersensitivity in the enteric nervous system.

The role of the brain-gut axis is now well recognised with many of the neurotransmitters and hormones in the gut being similar to those in the brain; the reactions being triggered by a range of emotions. While food intolerance and sensitivity is often blamed for IBS symptoms, in most cases they are not due to problems with particular foods (except perhaps for fat and caffeine).

Another controversial cause for IBS is small intestinal bacterial overgrowth. Controversy relates to the need for duodenal biopsy and culture rather than relying on a lactulose or hydrogen breath test that may lead to overdiagnosis. Nevertheless, the gastrointestinal and immune effects of small intestinal bacterial overgrowth (SIBO) provide a possible unifying framework for understanding the postprandial bloating and distention, altered motility, visceral hypersensitivity, autonomic dysfunction and immune activation.[4]

There is also evidence that corticotropin releasing factor (CRF) has potential involvement with activation of CRF signalling pathways in the brain being shown to reproduce the overall endocrine, autonomic, visceral and behavioural responses to stress.[5]

The diagnosis

The symptom pattern emphasised by the Rome criteria[2] provides the platform for the diagnosis that frequently remains a diagnosis of exclusion (*Table 1*). The symptoms may mimic those of other important conditions such as colorectal polyps or cancer, diverticular disease, and inflammatory bowel disease. Alarm symptoms as outlined in *Table 2*, indicate the need for further investigation. Thus, colonoscopy becomes a prerequisite if:

Table 1. Rome II Diagnostic Criteria for IBS[2]

At least 12 weeks, which need not be consecutive, in the preceding 12 months of abdominal discomfort or pain that has two of three features:

- Relieves with defaecation, and/or
- Onset associated with a change in frequency of stool, and/or
- Onset associated with a change in form (appearance) of stool

Symptoms that cumulatively support the diagnosis of IBS:

- Abnormal stool frequency (for research purposes 'abnormal' may be defined as greater than three bowel movements per day or less than three bowel movements per week)
- Abnormal stool form (lumpy/hard or loose/watery stool)
- Abnormal stool passage (straining, urgency, or feeling of incomplete evacuation)
- Passage of mucus
- Bloating or feeling of abdominal distention

Note: The diagnosis of a functional bowel disorder always presumes the absence of a structural or biochemical explanation for the symptoms

Table 2. Alarm association symptoms

Weight loss
Rectal bleeding
Family history of colorectal cancer/inflammatory bowel disease
Anaemia
Elevated ESR/CRP
Age over 40 years

- there is a family history of colorectal cancer or polyps
- the individual is over 40 years of age, or
- there is any evidence of bleeding or anaemia.

When persistent diarrhoea is a feature, biopsies are mandatory to exclude microscopic (lymphocytic or collagenous) colitis. There is also an association with coeliac disease and that warrants exclusion by antibody testing or duodenal biopsy carried out at the same time as colonoscopy. A small bowel series as a mechanism for diagnosing small intestinal Crohn disease may often be indicated; especially when there is a family history of Crohn disease, an elevated erythrocyte sedimentation rate (ESR) or C-reactive protein (CRP), or anaemia.

Management

As a patient may present because of fear of cancer or recent stressful life events, these need to be addressed with explanation of the symptoms and reassurance. The latter may require investigation to exclude other significant pathology. Lifestyle and dietary factors may aggravate symptoms.[6] For example ask:

- are your symptoms worse with stress
- do you drink too much alcohol
- are your symptoms worse after drinking milk or eating ice-cream (lactose intolerant)
- are you taking medications which might aggravate diarrhoea, eg. antibiotic, antacids, laxatives or hypertensive medication
- are you taking medications which might aggravate constipation, eg. antidepressants, iron tablets, analgesics or tranquillisers?

Diet

Although the evidence for a high fibre diet and dietary fibre supplements remains somewhat controversial, there nevertheless is a role for a good diet. A good diet may be complicated by haphazard meals with a high consumption of fatty foods and caffeine. A bulking agent often provides a simple introduction to high fibre, either with psyllium preparations, ispaghula husk derivatives, or sterculia based products. Dietary fibre modification is as likely to benefit diarrhoea as much as constipation.

When abdominal pain is a feature, an antispasmodic such as mebeverine is often effective in relieving pain and urgency (*Table 3*). Tricyclic compounds such as amitriptyline, in addition to being an antidepressant, have a separate effect on neuromuscular hypersensitivity and are often helpful in relieving pain, albeit in small doses.

When the predominant problem is watery diarrhoea, it is crucial to exclude microscopic colitis by colonoscopy and biopsies (*Table 3*). More highly

Table 3. Management options

Diarrhoea predominant

- Exclude microscopic colitis
- A high fibre diet and bulking agents are as valuable with diarrhoea as with constipation, especially morning urgency
- Antispasmodics, eg. mebeverine (Colafac, Buscopan) are often helpful
- Rarely are loperamide (Imodium), diphenoxylate (Lomotil) or codeine phosphate required

Constipation/pain

- High fibre diet and bulking agents (Agiofibe, Metamucil, Normafibe)
- Antispasmodics
- Amitriptyline (Endep) 10–20 mg at night for pain
- Laxatives may be required, especially with associated bulk (Agiolax, Normacol, Granocol)
- Tegaserod (Zelmac) in women with bloating/constipation may help
- Bloating may require a lower fibre diet plus a laxative

selective gut sensory motor modulation may be achieved by serotonergic drugs, many of which are still in the process of substantiation in clinical trials. The 5HT4 partial agonist, tegaserod, has been shown to be of value, particularly in women with constipation and bloating, but has not been validated beyond 3 months. Another 5HT4 agonist, prucalopride, is similarly effective and continues to be evaluated.

There are other drugs with visceral, analgesic and sensory motor modulatory properties; and serotonergic agents, neurokinin antagonists, antimuscaritic agents, cholecystokinin antagonists and alpha-2 adrenergic agonists being studied.

Complementary therapies

The lack of predictably efficacious therapy has led to an increased use of complementary and alternative therapies, with up to half of IBS sufferers using complementary therapies at some time.[7] One randomised control study of herbal therapies in Australia demonstrated that digestive symptoms were significantly improved after 16 weeks in contrast to those on placebo therapy.[8] A range of commercial products including peppermint oil, ginger, and aloe are used widely and a new combined herbal preparation, iberogast – having been evaluated in Europe – is currently available in Australia.

Our understanding of the complex relationship between the host and enteric microflora environment is evolving and preparations, including the probiotics lactobacillus plantarum, lactobacillus GG and lactobacillus fermentum, continue to be studied. However, most of the positive evidence for their value relates to acute episodic diarrhoea.

Psychological therapies including hypnotherapy, psychotherapy, behavioural therapy, and multicomponent treatment incorporating elements of education, relaxation therapy, biofeedback and cognitive or psychotherapy are potentially helpful. All have their advocates and may be of value in individual patients.

Conclusion

The strategies outlined for the management of IBS are of potential use, either alone or in combination. It must be emphasised that there is no one single successful therapy for IBS and that treatment may need to be continued over months or years allied with continued psychological support for patients who are frequently therapeutically frustrating.

Summary of important points

- IBS is more common in women, and the first presentation is often between 30–50 years of age.
- In up to 25% of cases, IBS starts soon after a bout of gastroenteritis, suggesting a possible aetiological role of toxins.
- Altered gut sensitivity to distention and the role of neurotransmitter receptors in the gut are thought to be aetiological factors in IBS.
- IBS is a diagnosis of exclusion. The Rome criteria assist with diagnosis and the presence of alarm symptoms indicate the need for further investigation.
- Management involves explanation and reassurance. There is no single successful treatment for IBS and management often includes a number of diet, lifestyle, pharmacological, psychological and complementary medicine strategies.

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References

1. AGA technical review on irritable bowel syndrome. Gastroenterology 2002;123:2108–31.
2. Thompson WF, Longstreth GF, Drossman DA, Heaton KW, Irvine EJ, Mueller-Lissner SA. C. Functional bowel disorders and D. Functional abdominal pain. In: Drossman DA, Talley NJ, Thompson WG, Whitehead WE, Corazziari E, editors. Rome II: functional gastrointestinal disorders: diagnosis, pathophysiology, and treatment. 2nd ed. McLean, VA: Degnon Associates, Inc, 2000;351–432.
3. Kellow JE. Irritable bowel syndrome: advances in the management of irritable bowel syndrome. J Gastroenterol Hepatol 2002;17:503–7.
4. Lin HC. Small intestinal bacterial overgrowth: a framework for understanding irritable bowel syndrome. JAMA 2004;292:852–8.
5. Tache Y, Martinez V, Wang L, Million M. CRF1 receptor signalling pathways are involved in stress related alternations of colonic function and viscero sensitivity: implications for irritable bowel syndrome. Br J Pharmacol 2004;141:1321–30.
6. Camilleri M. Treating irritable bowel syndrome: overview, perspective and future therapies. Br J Pharmacol 2004;141:1237–48.
7. Spanier JA, Howden CW, Jones MP. A systematic review of alternative therapies in the irritable bowel syndrome. Arch Intern Med 2003;163:265–74.
8. Bensoussan A, Talley NJ, Hing M, Menzies R, Guo A, Ngu M. Treatment of irritable bowel syndrome with Chinese herbal medicine: a randomised controlled trial. JAMA 1998;280:1585–9.

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