*BMJ Learning*

# Irritable bowel syndrome: diagnosis and management

A Agrawal, P J Whorwell

Irritable bowel syndrome is often dismissed as just being a nuisance rather than anything more serious, but its symptoms can seriously diminish a patient's quality of life. When the disease is better understood and treatment is tailored to the individual patient, it can often be rewarding to manage

**This article is based on a module that is available on the BMJ Learning website (www.bmjlearning.com). Access to the site is free but registration is required**

Department of Medicine and Gastroenterology, Wythenshawe Hospital, Manchester M23 9LT

A Agrawal
*clinical research fellow*

Education and Research Centre, Wythenshawe Hospital

P J Whorwell
*professor of medicine and gastroenterology*

Correspondence to:
P J Whorwell
Peter.whorwell@smuht.nwest.nhs.uk

*BMJ* 2006;332:280–3

## What is it, and who gets it?

Irritable bowel syndrome (IBS) is a chronic condition characterised by abdominal pain, bowel dysfunction, and abdominal bloating in the absence of any structural abnormality. A number of pathophysiological abnormalities, however, can often be identified.[1] About 10-15% of the adult population in the United Kingdom is affected by irritable bowel syndrome.[2]

## Aetiology

IBS is now clearly understood to be a multifactorial condition, with a variety of factors contributing to expression of the disease rather than its just being due to psychopathology.. These include motility, visceral sensation, central processing, genetics, dietary factors, inflammation, and neurotransmitters.[1]

## Exacerbating factors

Stress exacerbates IBS rather than being causative in any way. If stress is severe and chronic—for example, stress caused by continuous domestic strife—it can result in the disorder being virtually untreatable.[3]

Antibiotics need to be used with care in patients with IBS. Some antibiotics, particularly erythromycin, can make the condition worse.[4]

Non-steroidal anti-inflammatory drugs are often prescribed for the pain associated with IBS, but they may exacerbate symptoms. Paracetamol does not upset IBS.[5]

## How do I diagnose it?

In the absence of a specific diagnostic test, the diagnosis remains largely clinical.

**History**

Patients typically report

- Abdominal pain or discomfort
- Disordered bowel habit, with either diarrhoea, constipation, or alternating diarrhoea and constipation
- Abdominal bloating or distension.

Many patients experience extracolonic features that can be useful for making the diagnosis:

- Low backache
- Constant lethargy
- Nausea
- Thigh pain
- Urinary symptoms:
  - Frequency
  - Urgency
  - Urge incontinence
- Gynaecological symptoms:
  - Dysmenorrhoea
  - Dysparaeunia.[6]

The diagnosis of IBS is usually made intuitively with remarkable safety and reliability. Attempts to refine this clinical approach into guidelines have resulted in several diagnostic criteria being created: the Manning criteria, Rome I criteria, Rome II criteria, and Rome III criteria (in preparation).

Such criteria have proved useful for research purposes by ensuring homogeneity of patient populations, but their applicability in clinical practice is extremely limited and they are seldom used. Unless much more reliable guidelines are developed, doctors are likely to continue with the pragmatic approach they are using now.

Diagnostic uncertainty is more likely with diarrhoea predominant rather than constipation predominant IBS. Inflammatory bowel disease has to be considered when diarrhoea is present, especially if it is accompanied by perianal soreness (unusual in patients with IBS) or features such as arthralgia, mouth ulcers, or eye signs.

**Examination**

The abdomen should be normal on examination, although some tenderness is often found, particularly in the left or right iliac fossa. A palpable caecum should not cause concern but obviously needs to be distinguished from a mass associated with Crohn's disease.

**Investigations**

The concept that IBS is a diagnosis by exclusion is outdated. Investigation can often be kept to a minimum and should be used to exclude realistic alternatives. A full blood count and erythrocyte sedimentation rate are often sufficient, but a normal erythrocyte sedimentation rate does not definitively rule out inflammatory bowel disease. Examination of the colon is advisable in patients older than 50 years, and this is particularly important if the symptoms are recent in onset.[7]

Currently, some uncertainty exists about the need to screen for coeliac disease with endomysial antibody or tissue transglutaminase, although some authors say that screening should be undertaken routinely.[8] Testing certainly is indicated in the presence of a family history or malabsorption. The threshold for investigation should be lower in the presence of "red flag" features:

- Rectal bleeding
- Anaemia
- Weight loss
- Late age of onset
- Acute onset
- Family history of cancer
- Family history of inflammatory bowel disease
- Signs of infection.[7]

## How should I treat it?

The treatment of IBS is notoriously unsatisfactory, and no new drug has become available in the United Kingdom in the past 20 years. Consequently, none of the currently available options has been subjected to controlled trials conducted to modern standards. The following approaches are usually applied in the order in which they are discussed.

**Dietary manipulation**
An increase in fibre is often advised in the first instance. This is surprising, as there is little evidence to show that it is effective—in fact, insoluble fibre (for example, bran) often makes the condition worse by exacerbating bloating and pain.[9] Fibre may help constipation; the commercially available soluble fibre preparations are the least likely to cause problems. Other food items that can exacerbate symptoms are coffee, chocolate, and sugar substitutes such as sorbitol or fructose. Any food suspected of causing problems must be excluded from the diet for at least one month. It is best to omit one food at a time; otherwise, confusion arises about which item is a problem if improvement occurs. More strict exclusion diets have also been shown to be helpful but are time consuming and best done under the supervision of a dietitian.[10] True IgE mediated dietary allergy is probably relatively unimportant in IBS, but there is some preliminary evidence that eliminating foods on the basis of the presence of IgG antibodies to food may have a role.[11]

**Antispasmodics**
Antispasmodics are available in two varieties:
- Anticholinergics—hyoscine and dicyclomine
- Smooth muscle relaxants—alverine, mebeverine, and peppermint oil.

It is impossible to predict who will respond to a particular preparation and therefore it is worth trying them all. Combinations of a smooth muscle relaxant and anticholinergic are sometimes effective, and taking them "as necessary" helps to minimise tachyphylaxis, which can occur after prolonged use.

**Antidiarrhoeals**
Antidiarrhoeal agents include loperamide, diphenoxylate, and codeine phosphate. Loperamide especially is useful as it also tends to increase the tone of the anal sphincter. Codeine can lead to dependency. Patients should be encouraged to titrate the dose of an antidiarrhoeal according to their needs, and they need to be reassured that regular use is not a problem and will not damage their bowel.

**Laxatives**
Laxatives include senna, bisacodyl, polyethylene glycol, and sodium picosulphate. In a similar way to antidiarrhoeals, laxatives are often best used in the form of a regular small dose rather than precipitating a catharsis now and again. Patients should be reassured that there is no evidence to suggest that laxatives "damage" the bowel, and that long term use is acceptable. Lactulose is best avoided, as it causes a lot of flatus and can exacerbate bloating.

**Antidepressants**
The tricyclic antidepressants and selective serotonin reuptake inhibitors are used, but there is more evidence to support the use of tricyclics. The tricyclics tend to cause constipation and consequently are particularly suited to diarrhoea predominant IBS. If such antidepressants are used in patients with constipation, a laxative may also have to be given. The selective serotonin reuptake inhibitors do not cause constipation.[12]

**Behavioural treatments**
Behavioural treatments include psychotherapy, cognitive behavioural therapy, and hypnotherapy. Evidence supports all of these treatments, but they are time consuming, costly to provide, and vary widely in their availability. They probably are best reserved for treatment in secondary and tertiary care.[13 14]

## New treatments

**Probiotics**
Probiotics are "friendly bacteria" such as lactobacilli and bifidobacteria. Different strains can elaborate different mediators, which confer different properties on different organisms. This means that the therapeutic activity of one strain can be completely different from that of another strain. Combinations may not be a good idea, as they could inhibit one another. One probiotic strain (*Bifidobacterium infantis* 35624) has shown potential in patients with IBS, but further work is needed.[15 16]

**Type 3 serotonin receptor antagonists**
Alosetron, cilansetron, and ramosetron have been developed for the treatment of diarrhoea predominant IBS and show a positive effect in clinical trials. Ischaemic colitis has been reported with alosetron and cilansetron, although this seems to be self limiting if the drug is stopped. In addition, any type 3 serotonin receptor antagonist needs to be discontinued promptly if constipation develops.[17] Alosetron is available in the United States but not in the United Kingdom.

**Type 4 serotonin receptor agonists**
Tegaserod is used for constipation predominant IBS and has proved effective in clinical trials. It is now on the market in several countries, including the United States, but not in the United Kingdom. No major safety issues seem to be associated with this drug.[18]

## When should I refer my patient?

Many patients with IBS respond to a combination of education about the condition and simple measures to deal with symptoms. Referral for further assessment should be considered if there is doubt about the diagnosis or the patient becomes refractory to treatment.

## What is the outlook?

IBS should probably be regarded as a lifelong condition, just as patients with a history of migraine will nearly always continue to have a tendency towards migraines. Patients should thus expect to have symptoms intermittently, especially if they are exposed to any exacerbating factors.

## IBS in secondary care

Most cases of IBS are relatively mild, and the patient can cope with the condition reasonably well. Symp-

toms in patients who attend hospital clinics are much more severe; because IBS is so common, these patients are numerous. The factors below are more characteristic of patients seen in secondary and tertiary care than of those seen in general practice.

**Pain**
The pain of IBS can be exceptionally severe. Many women equate it with the pain of childbirth.

**Bowel dysfunction**
In some cases of constipation, bowel movements can be separated by many days or sometimes weeks. Patients with the diarrhoea predominant form of the condition can experience extreme urgency. Faecal incontinence is not uncommon and is devastating when it occurs.

**Distension**
Distension might be regarded as an unimportant feature, but, in some instances, the abdominal girth can increase by 10-12 cm by the end of the day.

**Flatus**
Flatus is a universal occurrence, but patients with IBS seem to experience more flatus problems, perhaps because so many patients are on high fibre diets, which are known to generate more gas. Dietary modification sometimes helps.

**Sexual function**
Eighty per cent of patients who attend hospital clinics say that their IBS significantly impairs sexual function. This compares with a figure of 30% in patients with Crohn's disease or ulcerative colitis. Dyspareunia is the main complaint; this usually follows intercourse and may persist for many hours or days.[19]

**Suicide**
In a recent report, 38% of patients who attended a tertiary care clinic seriously considered ending their lives solely because of their bowel problem.[20] The patients were not especially depressed, and the suicidal ideation was considered to be centred around hopelessness related to the prospect of little relief from their problem in the future.

**Extracolonic symptoms**
The extracolonic symptoms listed earlier are important for several reasons:
- Diagnostic utility—the more of these symptoms that are present, the more likely the patient is to have IBS
- Reassurance—patients are often alarmed by the presence of all these disparate symptoms, suspecting that a major disease might be overlooked. An understanding that they all form part of the syndrome provides some reassurance
- Inappropriate referral and treatment.

Many patients with IBS are referred to gynaecological clinics, where they can undergo a variety of unnecessary investigations and sometimes even removal of the uterus or ovaries. Abdominal surgery unfortunately tends to make the symptoms of IBS even worse and should be avoided where possible.

Patients with IBS are also over-represented in urological clinics. They tend to be offered antibiotics for presumed recurrent urinary infections, but such drugs can exacerbate the bowel problem.

The low backache associated with IBS can lead to orthopaedic referral, and patients with IBS have been shown to have an excessive history of back surgery compared with controls.[21]

**Absenteeism**
IBS is a major cause of absenteeism from work which is a reflection of symptom severity as opposed to work avoidance.[22]

**Stigmatisation**
Patients with IBS often are reluctant to admit to others that they have this condition because of fear that they will be labelled as psychologically disturbed. Potential

## Summary points

Irritable bowel syndrome is often regarded as a trivial, largely psychological disorder that is impossible to treat

Patients with severe disease have a range of symptoms that can seriously erode quality of life

Abdominal pain can sometimes be devastating, and the bowel dysfunction is not infrequently accompanied by incontinence

Better understanding of the pathophysiology, and tailoring treatment to the individual, can make irritable bowel syndrome a surprisingly rewarding condition to manage

### Sample questions

Here is a small sample of the questions that you can find at the end of this module. To see all the questions and to get the answers, go to www.bmjlearning.com/ and search for "irritable bowel syndrome".

1. Which of the following statements about bloating in patients with irritable bowel syndrome is correct?
   a. Bloating when present is diagnostic of irritable bowel syndrome
   b. Bloating is more common in women with irritable bowel syndrome than in men with irritable bowel syndrome
   c. Bloating is usually at its worst in the morning
   d. Bloating is ranked as the least bothersome of all symptoms of irritable bowel syndrome

2. Which one of the following statements about post-infectious irritable bowel syndrome is correct?
   a. About half of all patients with irritable bowel syndrome date their problem to a preceding infection
   b. Steroids are the treatment of choice
   c. Patients generally present with diarrhoea predominant irritable bowel syndrome
   d. The most common infective organism is *Yersinia*

3. Which one of the following statements about probiotics is correct?
   a. Probiotics are inactivated bacteria that are beneficial to health
   b. Almost any strain of probiotic is helpful in patients with irritable bowel syndrome
   c. Probiotics may help prevent acute infectious diarrhoea

4. A 55 year old man has a diagnosis of longstanding irritable bowel syndrome and benign prostatic hyperplasia. Which of the following medications would you avoid giving this man?
   a. Peppermint oil
   b. Mebeverine
   c. Dicyclomine

employers often are reluctant to employ patients with IBS because of their reputation for absenteeism.

### Quality of life

Given the severity and range of symptoms in some patients with IBS, that quality of life is eroded is not surprising. Quality of life can be measured with a questionnaire such as the 36 item short form; such an approach has shown that patients with IBS who attend hospital clinics have worse quality of life than those with chronic renal disease or diabetes.

## Conclusion

IBS is an extremely challenging condition to manage. Effective treatment involves understanding the whole situation and tailoring the treatment to the individual. It is difficult, but not impossible, to offer at least some help to most patients with the condition.

Competing interests: PJW has received remuneration for advice and his department has also received financial support from Novartis Pharmaceuticals, GlaxoSmithKline, Pfizer, Solvay Pharmaceuticals, Rotta Research, Procter & Gamble, Astellas Pharma, Tillots Pharma.

1 Drossman DA, Camilleri Mm Mayer EA, Whitehead WE. AGA technical review on irritable bowel syndrome. *Gastroenterology* 2002;123:2108-31.
2 Wilson S, Roberts L, Roalfe A, Bridge P, Singh S. Prevalence of irritable bowel syndrome: a community survey. *Br J Gen Pract* 2004;54:495-502.
3 Bennett EJ, Tennant CC, Piesse C, Badcock CA, Kellow JE. Level of chronic life stress predicts clinical outcome in irritable bowel syndrome. *Gut* 1998;43:256-61.
4 Maxwell PR, Rink E, Kumar D, Mendall MA. Antibiotics increase functional abdominal symptoms. *Am J Gastroenterol* 2002;97:104-8.
5 Locke GR 3rd, Zinsmeister AR, Talley NJ, Fett SL, Melton LJ. Risk factors for irritable bowel syndrome: role of analgesics and food sensitivities. *Am J Gastroenterol* 2000;95:157-65.
6 Whorwell P, McCallum M, Creed FH, Roberts CT. Non-colonic manifestations of irritable bowel syndrome. *Gut* 1986;27:37-40.
7 Winawer S, Fletcher R, Rex D, Bond J, Burt R, Ferrucci J, et al. Colorectal cancer screening and surveillance: clinical guidelines and rationale—update based on new evidence. *Gastroenterology* 2003;124:544-60.
8 Spiegel BM, DeRosa VP, Gralnek IM, Wang V, Dulai GS. Testing for celiac sprue in irritable bowel syndrome with predominant diarrhea: a cost-effectiveness analysis. *Gastroenterology* 2004;126:1721-32.
9 Francis CY, Whorwell PJ. Bran and irritable bowel syndrome: time for reappraisal. *Lancet* 1994;344:39-40.
10 Jones VA, McLaughlan P, Shorthouse M, Workman E Hunter JO. Food intolerance: a major factor in pathogenesis of irritable bowel syndrome. *Lancet* 1982;2:1115-7.
11 Shanahan F, Whorwell PJ. IgG-mediated food intolerance in irritable bowel syndrome: a real phenomenon or an epiphenomenon? *Am J Gastroenterol* 2005;100:1558-9.
12 Clouse RE, Lustman PJ. Use of psychopharmacological agents for functional gastrointestinal disorders. *Gut* 2005;54:1332-41.
13 Tan G, Hammond C, Gurrala J. Hypnosis and irritable bowel syndrome: a review of efficacy and mechanism of action. *Am J Clin Hypnosis* 2005;47:161-78.
14 Lackner JM, Mesmer C, Morley S, Dowzer C, Hamilton S. Psychological treatments for irritable bowel syndrome: a systematic review and meta-analysis. *J Consult Clin Psychol* 2004;72:1100-3.
15 Spiller R. Probiotics: an ideal anti-inflammatory treatment for IBS? *Gastroenterology* 2005;128:783-5.
16 O'Mahony L, McCarthy J, Kelly P, Hurley G, Luo F, Chen K, et al. Lactobacillus and bifidobacterium in irritable bowel syndrome: symptom responses and relationship to cytokine profiles. *Gastroenterology* 2005;128:541-51.
17 Chey WD, Chey WY, Heath AT, Dukes GE, Carter EG, Northcutt A, et al. Long-term safety and efficacy of alosetron in women with severe diarrhea-predominant irritable bowel syndrome. *Am J Gastroenterol* 2004;99:2195-203.
18 Evans BW, Clark WK, Moore DJ, Whorwell PJ. Tegaserod for the treatment of irritable bowel syndrome. *Cochrane Database Syst Rev* 2004;(1):CD003960.
19 Guthrie E, Creed FH, Whorwell PJ. Severe sexual dysfunction in women with the irritable syndrome: a comparison with inflammatory bowel disease and duodenal ulceration. *BMJ* 1987;295:577-8.
20 Miller V, Hopkins L, Whorwell PJ. Suicidal ideation in patients with irritable bowel syndrome. *Clin Gastroenterol Hepatol* 2004;2:1064-8.
21 Longstreth GF, Yao JF. Irritable bowel syndrome and surgery: a multivariable analysis. *Gastroenterology* 2004;126:1665-73.
22 Drossman DA, Li Z, Andruzzi E, Temple RD, Talley NJ, Thompson WG, et al. US householder survey of functional gastrointestinal disorders. Prevalence, sociodemography and health impact. *Dig Dis Sci* 1993;38:1569-80.

*(Accepted 25 November 2005)*

## PPUD syndrome (post PLAB unemployed doctor's syndrome)

In an effort to keep up an old medical tradition, I report a new syndrome, prevalent in the age group 25-35, but some cases are seen in the early 40s. Both sexes are equally affected. It is endemic in east London, but sporadic cases can be seen all over Britain. It is mostly found in immigrants from the Indian subcontinent and is characterised by the following features.

*Depression*—The hallmark of the syndrome, with 90% suffering from it at some time or other.

*Insomnia*—Patients are not able to sleep even though they stay in bed all night and even during the day at weekends, as they have nothing else to do and no money to spare.

*Obsessive-compulsive disorder*—Patients check their CV again and again, showing it to every person they meet; constantly check their telephone in order not to miss any interview call (which never comes); keep checking the mail again and again; and are resistant to any counselling from others.

*Hallucinations*—Visual and auditory hallucinations of a job that exists nowhere and interview calls that never come.

*Somnambulism*—Some patients can be seen sleepwalking to the post office to send an application for a job.

*Omniphagia*—Patients eat just about anything they can get and can be seen cooking strange recipes in the single pan they own. They lose weight.

*Dissociative fugue*—Patients are seen wandering aimlessly here and there, sometimes running amok in search of something elusive.

*Musculoskeletal deformities*—For example, 11th nerve palsy, resulting in drooping of the shoulders; seventh nerve palsy, resulting in expressionless face and inability to smile; disturbed gait; kyphosis, with inability to stand straight and keep their head high.

*Cardiovascular manifestations*—Palpitations and tachycardia are characteristic. Patients find it difficult to have a normal cardiac output with a broken heart.

*Skin manifestations*—Dry skin from exposure to the atmosphere (no money for moisturisers) and dry long hair (hair cut is expensive), and the females usually suffer from hirsutism (no money for bleaching and threading).

*Eye changes*—Epiphora and eyes always wet with vacant stare.

*Prognosis*—All patients lose money and weight, but those who do not lose their confidence and hope have better prognosis.

*Treatment*—Love and a healing touch. Patients should be encouraged to go back to their home country, as in Britain even local graduates find it difficult to get a job and nobody is bothered about someone with PPUD syndrome.

Surinder Sareen *unemployed doctor, Grantham (ppud_uk@yahoo.com)*

I thank Dr Vinita Kumari for helping me to write this article.

We welcome articles up to 600 words on topics such as *A memorable patient, A paper that changed my practice, My most unfortunate mistake,* or any other piece conveying instruction, pathos, or humour. Please submit the article on http://submit.bmj.com Permission is needed from the patient or a relative if an identifiable patient is referred to. We also welcome contributions for "Endpieces," consisting of quotations of up to 80 words (but most are considerably shorter) from any source, ancient or modern, which have appealed to the reader.