Irritable bowel syndrome (IBS) is a common, debilitating, multifactorial, functional gastrointestinal (GI) disorder where a definitive aetiology has not been established and no uniformly successful treatment exists. The condition is very prevalent in developed countries, with symptoms experienced by 8–22 per cent of the population. IBS thus poses a significant economic burden on the community as well as the individual.

IBS is characterised by a combination of symptoms and signs, such as abdominal pain, constipation (IBS-C), diarrhoea (IBS-D) — or alternating between both (IBS-A) — a noted change in both the frequency and consistency of stools, rectal mucus due to hypersecretion of colonic mucus, dyspeptic symptoms including anorexia, flatulence, gastro-oesophageal
reflux and nausea, and an emotional component where anxiety and/or depression are often noted. Abdominal pain is often relieved following defaecation.

Although some genetic predisposition may exist for IBS, no biological marker exists and diagnosis is now usually based on symptoms meeting the Rome II criteria. Originally, diagnosis for IBS was made based on the Rome I criteria, which specified at least three months of abdominal pain, either continuous or recurrent, that is relieved by defaecation and/or is associated with either a change in the frequency or consistency of the stool. Conversely, the Rome II criteria specifies that the abdominal pain should be further accompanied by at least two of the other symptoms. Where patients are less than 45 years of age and meet three or more of the Rome II criteria (without ominous symptoms), a confident diagnosis can be provided without the need for invasive testing.

It has also been suggested that IBS is a psychosomatic illness, however the evidence for this appears to be equivocal. IBS patients have been found to have significantly higher scores on the Beck Depression Inventory and the State-Trait Anxiety Inventory and, in a recent study, IBS patients treated successfully with cognitive and behavioural procedures showed significant reductions in these scores.

**Pathophysiology**

IBS can develop from a number of different mechanisms. Several have been proposed, including abnormal colonic fermentation or gallbladder motility; altered microbial flora; anxiety/depression; bacterial gastroenteritis; an exaggerated sensory component of the gastrocolonic response; food allergy; intolerance or sensitivity; gastro-oesophageal reflux; impaired transit time or tolerance of intestinal-gas loads; increased gut sensitivity; low-grade mucosal inflammation; motility disorder; myenteric plexus neuronal degeneration; oxytocin-increased thresholds for visceral perception; rectal hypersensitivity; and visceral hypersensitivity.

Irrespective of the mechanism by which IBS develops, symptoms typically relate to altered gut motility, resulting in abnormal transit of gas and stool.

**Conventional treatment**

Conventional drug therapy involves prescribing antispasmodics/anticholinergics (used in the treatment of GI spasm), antidiarrhoeals, laxatives, serotonin-receptor agonists (for IBS-C), serotonin-receptor antagonists (for IBS-D) and SSRIs for associated anxiety, depression, obsessive–compulsive behaviour and panic disorders. These drugs typically have wide-ranging side-effects; however, their actions and adverse reactions are beyond the scope of this review.

There does not appear to be any universal agreement in the management of IBS. With regards to conventional patient education, most patients are only advised to increase their fibre intake through diet or food supplements. Some practitioners do, however, recognise the importance of stress management and counselling.

**Diet**

A number of different treatment options are cited within the literature for IBS; however, dietary modifications are not viewed as a priority in many cases. Most dietary studies relating to IBS have been observational, and only a small proportion are randomised controlled trials. Nevertheless, they are useful in suggesting treatment options.

**Diet, gas and IBS**

The daily production of gas in the human GI tract is 500–1500 mL, and the volume found at any given time is 200 mL. Five major gases are responsible for the development of flatus: carbon dioxide (the main gaseous product), hydrogen, hydrogen sulphide, methane and oxygen. At least 400 different bacterial species inhabit the large intestine, including carbohydrate-fermenting, methane-generating and pectinolytic bacteria. They are responsible for producing all these gases except oxygen which, in the GI tract, is the result of swallowed air during the course of eating and drinking, or it may be due to hyperventilation in cases of anxiety. Greater amounts would be expected in subjects who eat too quickly, chew gum or smoke, as not all is absorbed or expelled following belching.

Flatus is the by-product of fermentable substrates (carbohydrates and proteins). Examples include beans, cabbage, Brussels sprouts, broccoli, and whole grains (which contain...
raffinose); and fruit, onions and wheat (which contain fructose). These nonabsorbable carbohydrates, together with ingested sugars, starches (that escape small-intestinal absorption) and fibre, are all capable of producing gas after being metabolised by the colonic flora, and fermented by bacteria.4,5 Sulphur-containing foods, such as beans, broccoli, Brussels sprouts, cabbage, cauliflower, garlic and onions, have been identified as being extremely flatulogenic.6 Evidence relating to the exclusion of sulphur-containing foods is limited and, in many cases, dismisses exclusion diets as being of no use, limited use, or not proven to be effective.7,8 Nevertheless, other studies acknowledge that some foods may play a role in producing gas in the IBS patient.6,9–15

The sulphur-containing amino acids cysteine, cystine, methionine and taurine are the main sources of dietary sulphur. Other sources are derived from glucosinolates found in Brassica vegetables (broccoli, Brussels sprouts, cabbage, cauliflower and turnip).16 In garlic and onions, the organic sulphur compounds are found in the form of diallyl thiosulphinates (allicin). Other dietary sources of sulphur are derived from meat or food additives used as preservatives (e.g. sulphur dioxide and sodium metabisulphite). Magee et al16 found a significant dose-related increase in faecal sulphide concentrations associated with the intake of meat.

Some oligosaccharides, such as raffinose and stachyose, appear to be the most important sources of gas from bean digestion, as these compounds cannot be degraded by intestinal mucosal enzymes.5,17 It might be expected that, following fermentation, these complex carbohydrates contribute to abdominal distension and bloating in IBS patients. Again, these patients might only demonstrate a greater sensitivity due to their reduced gas-handling ability as a result of altered motility. Information within the literature is limited as to the gas-producing ability of sulphur-containing foods and oligosaccharides, and addressing this knowledge gap may be important step in the treatment of IBS.

**Food allergy/hypersensitivity**

Food allergies and/or sensitivities are an IgE-mediated immunological response to foods that release inflammatory mediators, whereas food intolerance is a non-immunologically mediated adverse reaction.

Although the use of IgE RAST or skin-prick testing might prove positive to a number of foods in IBS patients, other researchers have proposed testing for IgG antibodies to exclude food sensitivity. A correlation between raised IgG antibodies and foods known to exhibit a sensitivity response in IBS patients has been shown18 — see *JCM* 2005;4(5):11. This study demonstrated that eliminating all foods in which a prior sensitivity was detected and demonstrated by raised IgG antibodies resulted in a significant improvement in IBS symptoms. Further studies examining the effects of foods capable of raising serum IgG levels in IBS patients suggest IBS may be related to an immune response.19–20

**Sorbitol and xylitol**

Sorbitol and xylitol are artificial sweeteners found commonly in many food items.6 Unlike glucose, intestinal absorption of xylitol is slow6,23 and, in the presence of increased motilin levels, intestinal transit time is decreased. Furthermore, large doses (>30 g) of xylitol can produce diarrhoea in most healthy individuals.25

Large doses of sorbitol can induce osmotic diarrhoea, bloating and pain6,24 and therefore it is possible that smaller doses might aggravate symptoms in IBS patients, particularly those who are diarrhoea predominant.

**Fructose**

Studies have identified a possible correlation between fructose intolerance and many IBS symptoms, such as altered bowel frequency, bloating, flatus and pain. IBS patients who tested...
positive following a fructose breath test, and limited their daily fructose intake, had their symptoms improve significantly.\textsuperscript{25,26}

Abnormal colonic fermentation has been noted in IBS patients\textsuperscript{9}, thus it is feasible that fructose malabsorption within the small intestine might lead to an increase in symptoms if fructose is fermented in the large intestine by the action of colonic microflora.\textsuperscript{9}

**Fat**

Increases in the dietary lipid content causes an increase in small-intestine motility, and the gastro-colic reflex response in IBS patients has been noted as prolonged and exaggerated, leading to exacerbation of GI symptoms in IBS patients.\textsuperscript{12,27} However, dietary lipids inhibit intestinal gas transit, and this mechanism is upregulated in IBS patients.\textsuperscript{27}

**Lactose**

The symptoms of lactose malabsorption (bloating, osmotic diarrhoea) are similar to those of IBS, suggesting that lactose may be a dietary cause in some individuals. Without the enzyme lactase, lactose cannot be hydrolysed in the small intestine and thus could be fermented in the colon.\textsuperscript{6} It is also possible that alterations to colonic microflora might be involved in the development of IBS in lactose-intolerant individuals. Low-grade inflammation of the colon, and also the effects of post-infective enteritis, might be a cause of lactose intolerance in some IBS patients. Lactase function decreases with inflammation, but generally can regenerate within 1–2 weeks following an episode of enteritis.\textsuperscript{28}

**Gluten and gliadin**

In one study, 35 per cent of IBS-D-predominant patients with suspected coeliac disease were found to be HLA genotype-DQ2-positive, and 23 per cent had increased intra-epithelial lymphocytes.\textsuperscript{29} In this group of patients, symptoms significantly improved after a six-month period on a gluten-free diet. Intestinal IgA levels and stool frequency decreased significantly in those IBS patients who demonstrated a positive response to both markers (HLA-DQ2 and intestinal antibody) compared to IBS patients who tested negative. As oat and rye both contain gliadin, avoidance of these foods, as well as wheat, might benefit IBS-D-predominant patients in whom these markers are shown to be positive.\textsuperscript{29} To confirm the involvement of such proteins, testing specifically for IgG and IgA to gliadin would seem a logical first step.

**Coffee**

IBS symptoms are largely associated with intestinal smooth-muscle activity. Coffee is well known to stimulate gastric and intestinal smooth-muscle activity\textsuperscript{30} and thus may be a contributing factor in IBS-D individuals. However, decaffeinated coffee may contain approximately one per cent caffeine, and thus IBS-D-predominant patients should avoid both caffeinated and decaffeinated coffee.\textsuperscript{6}

**Alcohol**

Hydrolisable tannins, as found in red wine, are astringents (causing contraction of mucous membranes and reducing secretion of mucus).\textsuperscript{31} Thus symptoms experienced by IBS-C and IBS-A patients may be exacerbated by the consumption of tannin-containing beverages, as the tannins may contribute to an increased transit time. Furthermore, tannic acid reduces peristalsis, and high tannin-containing foods may contribute to the constipation seen in both IBS-C- and IBS-A-predominant individuals due to their binding effect.\textsuperscript{31}

Conversely, Dapoigny et al\textsuperscript{6} state that ‘alcohol is known to induce diarrhoea in abusers through a potential neural mechanism, thereby decreasing transit time’. As IBS-D-predominant patients already demonstrate a decreased transit time, it might again be logical to exclude alcoholic beverages from the diet, despite the sometimes contradictory findings in the literature.

**Dietary fibre**

The role of dietary fibre in the treatment of IBS is controversial and a broad range of foods containing significant amounts of fibre, including cereals, fruits, vegetables and rice have been studied.\textsuperscript{12} Additionally, studies have been conducted using supplemental forms of both soluble fibre (e.g. partially hydrolysed guar gum, ispaghula and psyllium [see JCM 2005;4(2):68–70]) and insoluble fibre (e.g. wheat bran).\textsuperscript{32–35}

A high-fibre diet has been the standard advice provided to IBS sufferers, yet many commercially available preparations (such as those based on the hydrophilic colloids guar gum, psyllium or slippery-elm powder [see pp 83–4]) include herbal laxatives containing anthraquinone glycosides e.g. cascara, Turkey rhubarb and senna. The end result is that many patients note an increase in their symptoms of pain (colic), abdominal bloating and distension\textsuperscript{34,36,37} despite the laxatives present in such products [see Caution, p 21].
In a meta-analysis of randomised controlled IBS trials, 17 studies involved the use of soluble and insoluble fibre. Differences were noted in the outcome of symptom relief, relating to the type of fibre used in each study. In IBS-C-predominant people, soluble-fibre preparations containing calcium polycarbophil and psyllium demonstrated superiority compared to insoluble fibre from corn and wheat bran. However, insoluble fibre exacerbated symptoms in some cases, and the overall benefit of fibre treatments was marginal in improving IBS symptoms. Furthermore, no evidence was found that abdominal pain in IBS could be relieved by the use of fibre. Nevertheless, the overall symptom improvement was statistically significant, and the use of soluble fibre is effective as one facet of treatment for IBS patients.

Bran supplementation has also been found to be effective. In another study, fibre sources other than bran were used; fruit (in particular, citrus fruits) and vegetables demonstrated moderate attenuation of symptoms, with most foods having no effect.

Psyllium (Plantago spp.) is capable of retaining water due to its hydrophilic nature and, if taken at the correct dose as a supplemental dietary fibre, should both increase the weight of the stool and reduce colonic transit time — see JCM 2005;4(1):35–9. Several studies have confirmed that psyllium can increase stool water content and stool output and is effective in treatment of constipation. Psyllium also significantly improved constipation in IBS patients, with a decrease in transit time compared to controls. Thus, increasing the dose slowly might be of benefit to these patients.

However, patients who are IBS-C predominant and take pure psyllium (with no other additives) in too large a quantity might note an exacerbation of their symptoms. Conversely, those who are IBS-D predominant and consume too small a quantity of this fibre might find that this leads to an increase in bowel frequency. Depending on the quantity of psyllium consumed, patients who are IBS-A predominant might experience a worsening of their already alternating bowel patterns, or they might experience a predominance of constipation or diarrhoea. Thus, an incorrect dosing of psyllium may exacerbate their IBS symptoms. Consequently, increasing the dose slowly might be of benefit to these patients.

A multisite, randomised, double-blind, and parallel-design study of 170 subjects with chronic idiopathic constipation found psyllium significantly more effective than docusate sodium (dioctyl sodium sulphosuccinate) for stool weight per bowel motion, stool water content, total stool output, frequency of bowel movement and stool-softening ability. This stool-softening effect increased over the two-week treatment period. The researchers therefore concluded that psyllium is a much more efficient laxative compared to docusate due to its stool-softening effect and, as a hydrophilic colloid, its ability to retain water makes it a more favourable choice when treating chronic idiopathic constipation.

**Probiotics**

IBS often develops following GI infection and/or antibiotic therapy. A great deal of attention has been given to the use of probiotics as an adjuvant treatment or in the post-treatment of certain GI disorders, such as bacterial infections, Crohn’s disease, post-infectious IBS, and following antibiotic therapy.

Barbara et al proposed that there might be an increased risk of long-term symptoms of IBS as a result of antibiotics prescribed for the treatment of acute bacterial gastroenteritis. Further, they concluded from prospective studies that 7–32 per cent of individuals who suffer enteritis as a result of Campylobacter, Salmonella or Shigella demonstrate post-infectious IBS symptoms.

A cohort study found that patients who suffered gastroenteritis were 10 times more likely to develop IBS in the 12-month post-infection period. Furthermore, based on animal studies, it has been proposed that probiotics might be of benefit in the treatment of enterocolitis and functional GI disorders. These studies demonstrated that alterations in intestinal commensal bacterial led to both morphological abnormalities and gut motor dysfunction and, based on experimental evidence, probiotics such as Lactobacillus and Bifidobacterium might play a valuable therapeutic role in the treatment of IBS. Furthermore, L. breve, L. delbruekii, L. casei, L. fermentum, L. longum, L. infantis, L. plantarum and Streptococcus thermophilus have efficacy in the treatment of IBS — see JCM 2005;4(3):46–9.
Botanical medicine

Madisch et al\(^4\) randomly allocated 208 participants into one of four treatment groups: STW 5 (Iberogast; Steigerwald Arzneimittelwerk, Darmstadt, Germany), containing a mixture of aqueous–ethanoic extracts from bitter candytuft aerial parts (*Iberis amara*), chamomile flowers (*Matricaria recutita*), peppermint leaves (*Mentha piperita*), caraway seeds (*Carum carvi*), liquorice root (*Glycyrrhiza glabra*), lemon-balm leaves (*Melissa officinalis*), greater celandine aerial parts (*Chelidonium majus*), angelica root (*Angelica archangelica*), milk thistle seeds (*Silybum marianum*); STW 5-II, which was a combination of the above except greater celandine, angelica and milk thistle; BCT, a bitter candytuft monopreparation (aqueous–ethanoic extract); or placebo [see *JCM* 2004;3(4):73–4].

After two weeks of treatment, a significant decrease in total IBS symptoms was noted in participants who received treatments STW 5 or STW 5-II. A further decrease in IBS symptoms was noted after four weeks, and differences between the treatment group and placebo increased. The improvement noted in both the IBS-symptom and abdominal-pain scales was not limited to any one subgroup, but occurred in all three treatment groups. However, differences observed in the monopreparation treatment group failed to reach statistical significance. Nevertheless, two of the herbal mixtures provided results that were statistically significant, and the researchers concluded that these preparations were highly effective in the treatment of IBS.

Peppermint (*Mentha piperita*) as an infused tea, tincture, fluid extract or essential oil is probably one the most prominent botanicals used in treating the symptoms of abdominal pain and discomfort in IBS. Traditionally, peppermint has been used as both a GI antispasmodic and carminative. Its principal active constituent, menthol, acts as a calcium-channel blocker in intestinal smooth muscle.\(^{45,46}\) As menthol may relax the gastro-oesophageal sphincter, resulting in oesophageal reflux\(^47\), the active constituent was delivered to the small intestine in an enteric-coated peppermint-oil capsule (Colpermin; Tillotts Pharma AG, Switzerland) in a placebo-controlled trial.\(^48\)

In this study, symptom improvement in IBS patients taking Colpermin was statistically significant, as was the case in a study in children\(^49\), in which severity of IBS symptoms improved in 76 per cent taking peppermint oil (Colpermin) compared to 19 per cent in the placebo group. However, these studies were of short duration, with trials lasting only 2–4 weeks; longer periods are required to confirm positive results. When Pittler and Ernst\(^50\) conducted a meta-analysis of the efficacy of peppermint oil on IBS treatment, their results were equivocal.

Red pepper (*Capsicum spp.*) contains the alkaloid capsaicin,
which can inhibit release of substance P, which is involved in the function of visceral nociceptive C-type fibres. The capsaicin in red peppers may thus reduce the intensity of dyspeptic symptoms. Based on this assumption, a five-week study was conducted to determine the potential of red pepper as a therapy for functional dyspepsia, with one patient group receiving 2.5 g of red-pepper powder each day (equivalent to 0.7 mg/day of capsaicin) in an encapsulated form. The results showed a significant reduction in the overall symptoms of epigastric fullness, epigastric pain and nausea. This was proposed to be a result of capsaicin. Although the exclusion criteria included IBS and gastro-oesophageal reflux disease, this treatment may still have potential specifically for those in the IBS-C subgroup who do not suffer gastro-oesophageal reflux, gastritis or peptic ulcers [see JCM 2003;2(1):67].

One analysis of patients using **artichoke-leaf extract** found 84 per cent reported a significant reduction in the severity of three out of five IBS symptoms of abdominal cramps, abdominal pain, bloating, constipation or flatulence; 96 per cent also found artichoke-leaf extract to be comparable to, or even better than, previous treatments.

Another study reported a significant decline in the occurrence of IBS symptoms (by 26.4 per cent), and changes in alternating defaecation patterns (IBS-A) towards normal following artichoke-leaf extract treatment. The proposed mechanism of action was not discussed and should form the basis of subsequent experimental studies.

Traditionally, there are a number of other Western herbs used in the treatment of GI [see ‘Gastrointestinal herbarium’ table, above].

<table>
<thead>
<tr>
<th>Colic (carminatives/spasmolytics)</th>
<th>Diarrhoea (mild astringents/demulcents/spasmolytics)</th>
<th>Constipation (mild cathartics/purgatives)</th>
<th>Flatulence (carminatives/spasmolytics)</th>
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<tbody>
<tr>
<td>Aniseed (<em>Pimpinella anisum</em>)</td>
<td>Agrimony (<em>Agrimonia eupatoria</em>)</td>
<td>Aloe (<em>Aloe barbadensis</em>)</td>
<td>Cardamom (<em>Elettaria cardamomum</em>)</td>
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<tr>
<td>Cardamon (<em>Ellettaria cardamomum</em>)</td>
<td>Bayberry (<em>Myrica cerifera</em>)</td>
<td>Butternut (<em>Juglans cinerea</em>)</td>
<td>Cinnamon (<em>Cinnamomum zeylanicum</em>)</td>
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<td>Cinnamon (<em>Cinnamomum zeylanicum</em>)</td>
<td>Bistort (<em>Polygonum bistorta</em>)</td>
<td>Cascara (<em>Rhamnus purshiana</em>)</td>
<td>Coriander (<em>Coriandrum sativum</em>)</td>
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<tr>
<td>Coriander (<em>Coriandrum sativum</em>)</td>
<td>Black catechu (<em>Acacia catechu</em>)</td>
<td>Dandelion (<em>Taraxacum officinale</em>)</td>
<td>Dandelion (<em>Taraxacum officinale</em>)</td>
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<tr>
<td>Cramp bark (<em>Viburnum opulus</em>)</td>
<td>Cramp bark (<em>Viburnum opulus</em>)</td>
<td>Linseed (<em>Linum usitatissimum</em>)</td>
<td>Slippery elm (<em>Ulmus fulva; see pp 83–4</em>)</td>
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<tr>
<td>Dill (<em>Anethum graveolens</em>)</td>
<td>Cranesbill (<em>Geranium maculatum</em>)</td>
<td>Senna (<em>Cassia senna/ C. angustifolia</em>)</td>
<td>Turkey rhubarb (<em>Rheum palmatum</em>)</td>
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<td>Ginger (<em>Zingiber officinale</em>)</td>
<td>Goldenseal (<em>Hydrastis canadensis</em>)</td>
<td>Slippery elm (<em>Ulmus fulva; see pp 83–4</em>)</td>
<td>Yellow dock (<em>Rumex crispus</em>)</td>
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<tr>
<td>Wild yam (<em>Dioscorea villosa</em>)</td>
<td>Oak bark (<em>Quercus robur</em>)</td>
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<td></td>
<td>Raspberry leaf (<em>Rubus idaeus</em>)</td>
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<td></td>
<td>Tormentilla (<em>Potentilla erecta</em>)</td>
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<td>Slippery elm (<em>Ulmus fulva; see pp 83–4</em>)</td>
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<td>Wild yam (<em>Dioscorea villosa</em>)</td>
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### Caution – anthraquinone glycosides

Precautions should be taken with long-term (>2–4 weeks) use of laxative herbs containing anthraquinone glycosides, such as aloe vera, cascara, frangula, rhubarb, senna and yellow dock. They are contraindicated in abdominal pain of unknown origin, including acute inflammatory intestinal diseases, e.g. Crohn’s disease, ulcerative colitis, etc.

### Chinese and Ayurvedic medicine

According to traditional Chinese medical theory, there are five patterns of IBS, for which herbs are usually individually prescribed and dispensed in complex multicomponent formulae to rebalance these imbalances of energy (*chi*):

- **chi** stagnation and blood stasis — *Ge Xia Zhu Yu Tang*, which contains herbs such as peony, safflower and angelica, among others;
- “damp heat in the Middle Burner meridian — *Ge Gan*
Qin Lian Tang, containing skullcap and liquorice; or Ma Zi Ren Wan, containing rhubarb and magnolia;
• deficiency of spleen and kidney yang — Si Shen Wan, which includes nutmeg and schizandra; or Fu Zi Li, with aconite, ginseng and ginger;
• spleen and liver disharmony — Tang Xie Yao Fang, which contains tangerine peel; or
• spleen yang deficiency — Xiang Sha Liu Jun Zi Tang, with poria and penilla; or Wen Pi Tang, with aconite, rhubarb and codonopsis.

In the Ayurvedic traditional medicine system of India, IBS symptoms are associated with an imbalanced increase in the Vata dosha, which is primarily located in the colon. As with traditional Chinese medicine, individualised mixtures of herbs are prepared by Ayurvedic practitioners to rebalance the doshas [see JCM 2004;3(6):28–32]. For IBS, these include amalaki (Emblica officinalis), asafoetida (Ferula asafoetida), ashwagandha (Withania somnifera), bibhitaki (Terminalia belerica), black pepper (Piper nigrum), clove (Eugenia caryophyllata), coriander (Coriandrum sativum), cumin (Cuminum cyminum), fennel (Foeniculum vulgare), ginger (Zingiber officinalis), guduchi (Tinospora cordifolia), haritaki (Terminalia chebula), long pepper (Piper longum), manjista (Rubia cordifolia), oregano (Origanum vulgare), nutgrass (Cyperus rotundus), rosemary (Rosmarinus officinalis), sandalwood powder (Santalum album), shatavari (Asparagus racemosus) and turmeric (Curcuma domestica).

The efficacy of many Chinese and Ayurvedic herbs has yet to be established because, in general, they are not supported by strong scientific controlled studies. An exception is an Australian double-blind, placebo-controlled trial by JCM Editorial Board member Prof Alan Bensoussan. In this study, 116 IBS patients were randomly allocated to individualised, standardised or placebo treatments. After 16 weeks, patients in the active groups had significant improvements in bowel symptoms scores and globally, as rated by patients and gastroenterologists, compared to the placebo group. Interestingly, individually tailored formulations were no more effective than standard herb treatments. However, on 14-week follow-up, only the individualised treatment group maintained improvement.

Conclusion
This article has revealed discrepancies in the use of exclusion diets, differences of opinion in the use of fibre — particularly bulking agents — and the efficacy of herbal medicines in the treatment of IBS. S4 medications carry the risk of adverse reactions and it is hoped that by incorporating a complementary medicine approach, a safer alternative-treatment regime will be employed as one of the firstline treatment choices. Alternatively, combining complementary medicine with conventional treatments might reduce the amount of prescribed S4 medication, and thus reduce the possibility of adverse drug reaction.

One theme noted by some researchers is that fibre supplements require gradual introduction. Increasing fibre intake too quickly exacerbates the symptoms of abdominal bloating, flatulence and pain in those suffering IBS. The rationale behind the use of bulking agents in IBS or chronic idiopathic constipation is to re-tone the colonic musculature. Bulking agents might thus — with their stool-softening effect — improve colonic contractile ability, assist in a more complete evacuation of the bowel and lead to a decrease in pain, abdominal bloating and distension as a result of an improved passage of rectal gas.

By correcting slow transit time in IBS patients, the symptoms of abdominal bloating, flatulence and pain are greatly reduced or settled. The main goal is to have the patient empty the bowel well, as this equates to an overall improvement of symptoms. Bulking agents, prescribed in a suitable dose, may also be of value in treating the IBS-D-predominant subgroup, as they may help form stools, and thus lessen frequency of bowel movement.

It would be far more beneficial if patients could manage IBS symptoms with bulking agents alone. This would reduce the dependency on laxatives, particularly in IBS-C-predominant subgroups.

Furthermore, it would be logical to assume that by excluding sulphur-containing foods in the diet, a reduction in fermentation will result, and thus a reduction in colonic gas and subsequent pressure exerted on the upper abdomen and stomach. This is consistent with the suggestion that foods that contain sulphur groups increase the symptoms of bloating, colic and flatulence in IBS. In addition, patients who experience anorexia and/or gastro-oesophageal reflux as part of their IBS symptomatology might benefit by decreasing the level of pressure exerted on the stomach by excluding foods that contain sulphur groups. In all cases, it would seem logical to adjust treatment according to changes in the symptoms shown in the different IBS subgroups; thus it would not be unreasonable to see treatment changed as symptoms resolve.
References