Systematic review: complementary and alternative medicine in the irritable bowel syndrome

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SUMMARY

Background
Complementary and alternative medical therapies and practices are widely employed in the treatment of the irritable bowel syndrome.

Aim
To review the usage of complementary and alternative medicine in the irritable bowel syndrome, and to assess critically the basis and evidence for its use.

Methods
A systematic review of complementary and alternative medical therapies and practices in the irritable bowel syndrome was performed based on literature obtained through a Medline search.

Results
A wide variety of complementary and alternative medical practices and therapies are commonly employed by irritable bowel syndrome patients both in conjunction with and in lieu of conventional therapies. As many of these therapies have not been subjected to controlled clinical trials, some, at least, of their efficacy may reflect the high-placebo response rate that is characteristic of irritable bowel syndrome.

Of those that have been subjected to clinical trials most have involved small poor quality studies. There is, however, evidence to support efficacy for hypnotherapy, some forms of herbal therapy and certain probiotics in irritable bowel syndrome.

Conclusions
Doctors caring for irritable bowel syndrome patients need to recognize the near ubiquity of complementary and alternative medical use among this population and the basis for its use. All complementary and alternative medicine is not the same and some, such as hypnotherapy, forms of herbal therapy, specific diets and probiotics, may well have efficacy in irritable bowel syndrome. Above all, we need more science and more controlled studies; the absence of truly randomized placebo-controlled trials for many of these therapies has limited meaningful progress in this area.

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INTRODUCTION

Irritable bowel syndrome (IBS) is a common but potentially disabling disorder which may affect as many as 20% as the adult population in western Europe and North America.1 Typical symptoms include abdominal pain, bloating, abdominal distension and altered bowel habit. Until recently, therapy has focused on symptomatic relief and on pain, diarrhoea and constipation, in particular. However, evidence for long-term efficacy of any pharmacological agent employing this approach in IBS was lacking. While some new compounds have been developed which offer promise of greater efficacy, these are not widely available, as yet.2 It should come as no surprise, therefore, given the frequency and disabling nature of IBS symptomatology, that recourse to complementary and alternative medical (CAM) remedies and therapies has long been common place among IBS sufferers. Interest in CAM is not unique to IBS; indeed, such therapies have attracted the attention of the mainstream literature in many areas of medicine of late.1

Our goal was to perform a systematic review of the use of CAM in IBS. To achieve this we performed a Medline search using ‘irritable bowel syndrome’ as one keyword linked (by ‘and’) to either ‘complementary’, ‘alternative’, ‘herbal’, ‘mind–body’, ‘hypnotherapy’, ‘probiotic’, or other CAM modalities. Review articles were also searched for additional references. Emphasis was placed on controlled trials.

COMPLEMENTARY AND ALTERNATIVE MEDICINE

CAM is defined by the National Center for Complementary and Alternative Medicine (NCCAM) as medical practices that are not currently considered to be a part of conventional medicine.4 It must be stressed at the outset that this definition is somewhat arbitrary and cultural, ethnic, social, religious, educational, economic and other factors, as well as the prevailing attitude of the local medical profession will influence what is and what is not regarded as CAM.

Complementary medicines or medical practices are, by definition, taken or used in conjunction with conventional medicines; as illustrated, for example, by the use of aromatherapy as an aid to pharmacological analgesia in the post-operative patient. Alternative medicines or medical practices, in contrast, are taken or used in place of conventional medicines or practices; an example here would be choosing a special diet rather than surgery, radiation therapy or chemotherapy in the management of cancer. The term integrative medicine refers to an approach to patient care that combines ‘mainstream’ and CAM practices and/or therapies; some high quality evidence already exists for the safety and efficacy of this method in several areas.5, 6

CAM practices may be conveniently divided into five main categories.4

1 Manipulative and body-based methods: These therapies such as massage, chiropractic and osteopathic manipulation are based on the application of manipulation, pressure or movement to one or more parts of the body.

2 Mind–body interventions: This form of CAM involves a variety of techniques such as meditation, hypnosis, cognitive therapy, patient support groups and prayer, which are designed to enhance the capacity of the mind to influence or control bodily functions and relieve symptoms.

3 Biologically based therapies: These CAM therapies employ substances such as herbal products, dietary constituents or additives that are found in nature, so-called ‘natural’ products, to achieve relief.

4 Energy healing therapies: There are two forms of CAM therapy that employ some form of energy.

a Biofield therapies that are intended to affect the energy field that surrounds and penetrates the human body. Examples of this approach include Qi gong, acupuncture, reiki and therapeutic touch methods.

b The second form of energy therapy involves the use of bio-electromagnetic fields and includes such methods as pulsed field therapy, magnetic field therapy and the application of direct or alternating current fields.

5 Alternative medical systems: These systems such as homeopathy, or traditional Chinese medicine (TCM), involve an all-encompassing theory and practice of medicine and may include several different therapeutic approaches.

The use of CAM has increased dramatically in many countries in recent decades. In one survey performed in the United States the use of some type of CAM product or practice for medical benefit or general well being had increased from 25% to 42% of the entire population between 1990 and 1997.7 In the same survey the number of visits to CAM practitioners actually exceeded those to traditional primary care doctors during 1997 and the annual cost of professional
services related to the delivery CAM had increased to 21 billion US dollars,\textsuperscript{7} by 1997. Furthermore, patients expressed equal confidence in CAM and conventional medical practitioners.\textsuperscript{7, 8}

It is clear that the public and the medical profession have markedly differing views on CAM. Consumers, on the one hand, find CAM attractive as they perceive many modalities to be based on what they regard to be a more holistic approach, which allows patients to feel they are more actively participating in their own health care. In addition, they believe that natural therapies will be safer and more effective than synthetic pharmaceuticals.\textsuperscript{8} On the other hand, allopathic practitioners often dismiss CAM, based on what they believe to be a lack of sufficient scientific evidence to support their effectiveness, and attribute their perceived efficacy, by patients, to the high-placebo response rates associated with many of the disorders for which CAM is most commonly employed. The fact that few CAM therapies have been submitted to scientific study in the form of a randomized-controlled trial\textsuperscript{9} and that many of those that have been so evaluated were concluded in a manner that would be regarded as of low quality,\textsuperscript{10} has not helped to increase acceptance of CAM among the medical profession. In one review of over 5000 trials of CAM only 258 met generally accepted standards for the conduct of a randomized-controlled clinical trial. Over 90% were neither truly randomized nor blinded. The mean score for trial quality for the 258 that were acceptable was only 44.7 (s.d.: ±14.3) on a 100-point scale.\textsuperscript{11} The interpretation of CAM data are further complicated by the observation that most clinical trials performed in Asia and eastern Europe from where many trials in CAM emanate provide a favourable response.\textsuperscript{12}

**CAM IN IRRITABLE BOWEL SYNDROME**

Public awareness and usage of CAM in IBS and other functional disorders have also increased in the developed world in recent years. In one survey, performed on a total of 1409 subjects at a local supermarket, the incidence of CAM use was 49.5% for subjects with inflammatory bowel disease, 50.9% for those with IBS and 20% among those with other gastrointestinal diseases.\textsuperscript{13}

Koloski \textit{et al.} tried to define the predictors of conventional and alternative care seeking for IBS.\textsuperscript{14} Two hundred and seven community-based patients were included in the study. One hundred and three (49.9%) patients had sought conventional care for IBS in the last 12 months. Only 43 (20.8%) pursued an alternative medicine pathway and the rest of the patients did not seek any care. Frequent abdominal pain and greater satisfaction with the doctor–patient relationship were identified as independent predictors of conventional healthcare use. Being a female, independently predicted alternative healthcare use.

Is, as some will assert, CAM no more than a placebo in IBS? This is an important issue given the high prevalence of a placebo response in clinical trials in IBS; this averages 47% for all trials and approximately

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38%, if Rome I or II criteria were used to define IBS prior to entry into the study. Pitz et al. sought to determine the components of IBS clinical trials that correlated with higher levels of placebo response. Placebo responses for global symptom improvement and for decreased abdominal pain were assessed. Higher rates of global improvement correlated with frequency of administration of study intervention, duration of the study and overall treatment effect of the active agent being studied. Higher rates of decreased abdominal pain correlated with the frequency of intervention and overall treatment response. On multivariate analysis, global improvement in the placebo group was associated with intervention frequency and overall treatment response. Decreased abdominal pain was associated with frequency of intervention and overall treatment response. They suggested that in designing IBS trials, it may be possible to minimize the placebo response by less frequent dosing. Conversely, in treating patients with IBS, it may be possible to harness the placebo response and maximize therapeutic response rates by more frequent dosing. In CAM, many therapies are administered frequently and are often accompanied by significant contact with the therapist, another factor which may increase the placebo response.

**MANIPULATIVE AND BODY-BASED METHODS IN IBS**

A small number of studies have evaluated the role of reflexology in IBS management. One single-blinded trial was carried out on 34 Rome II-positive IBS patients in primary care. Participants were allocated to receive either a reflexology foot massage or a non-reflexology type of foot massage. No clinical benefit was found in relieving abdominal pain, constipation, diarrhoea or abdominal distention. In another study, Herbert Benson’s relaxation response meditation (RRM) program was tested as a possible treatment for IBS. Sixteen adults were included; 13 participants completed the treatment programme. Patients were taught the mediation technique and asked to practice it twice a day for 15 min. At the end of the treatment period, significant within-subject improvements were noted for flatulence and bloating. At follow-up 3 months later, significant improvements in flatulence, belching, bloating and diarrhoea ($P = 0.03$) were revealed from evaluation of symptom diaries. The same group of patients later participated in a 1-year follow-up study to determine whether the effects of RRM on IBS symptom reduction were maintained over the long-term. Ten of the 13 who completed the original protocol participated; significant reductions, from pre-treatment, were now noted for the symptoms of abdominal pain, diarrhoea, flatulence and bloating. Continued use of meditation appeared, therefore, to be particularly effective in reducing the symptoms of pain and bloating.

**MIND–BODY INTERVENTIONS IN IBS**

Of these approaches, hypnotherapy has been the most widely used in the treatment of IBS. In one study, 250 unselected IBS patients were treated with hypnotherapy. Patients underwent 12 sessions of hypnotherapy over a 3-month period. At the end of the study, marked improvements were seen in all symptom scores, as well as in quality of life, and scores for anxiety and depression. All subgroups of patients appeared to do equally well, with the notable exception of males with diarrhoea. In another study, a total of 78 IBS patients completed a validated symptom-scoring questionnaire, the Hospital Anxiety and Depression (HAD) Scale and the Cognitive Scale for Functional Bowel Disorders (FBDs), before and after 12 sessions of gut-focused hypnotherapy. Hypnotherapy resulted in significant improvements in symptoms, quality of life and scores for anxiety and depression. IBS-related cognitions also improved, with a reduction in the total cognitive score and all component themes related to bowel function. This study showed that symptom improvements, in IBS, in relation to hypnotherapy are associated with cognitive changes.

Tan et al. reviewed a total of 14 published studies on the efficacy of hypnosis in treating IBS (eight with no control group and six with a control group). They concluded that hypnosis consistently produces significant results and improves the cardinal symptoms of IBS in the majority of patients, as well as positively affecting non-colonic symptoms. When evaluated according to the efficacy guidelines of the Clinical Psychology Division of the American Psychological Association, the use of hypnosis in IBS qualifies for the highest level of acceptance as being both efficacious and specific. With regard to putative mechanisms of action, evidence for both physiological and psychological effects exists.

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BIOLOGICALLY BASED THERAPIES AND ALTERNATIVE MEDICINE

Herbal therapies have been commonly used for a variety of disorders since ancient times. A recent study of patients using CAM modalities for gastrointestinal disorders showed that 48% used some form of herbal therapy.23

Traditional Chinese medicine has long used combination herbal therapy, whereby TCM herbal formulae are individualized based upon a given patient’s pattern of symptoms, rather than being generic for a specific disease process. Furthermore, formulae may be modified over time, as the pattern of symptoms changes. These factors render comparisons between studies impossible and militate against blinded, placebo-controlled studies. Variations in quality between studies or, even from day-to-day, in the same center, further complicate the interpretation of these studies.

Herbs that have been used in TCM formulae for IBS have included many common foods such as rhubarb, barley, tangerine peel, cardamom and liquorice; most formulae include five or more herbs. While these therapies have been used in China for thousands of years, there have been few studies of their efficacy in the western literature. That this can be achieved, despite all of the aforementioned obstacles, is illustrated by one well-designed trial in which 116 patients were randomized into three groups: placebo (an inert formula looking and smelling just like the herbal treatment), a formula individually formulated for each patient by a trained TCM practitioner, or a standardized formula developed for IBS.9 About 42% of those patients who received either of the herbal treatments had a greater improvement in their symptoms than those taking the placebo (16%). No differences in improvement rates for symptoms were found between individualized and standardized Chinese herbal formulae at 16 weeks.

Peppermint oil is commonly used, as both a component of prescription medicines and as a constituent of several over-the-counter remedies, for the treatment of IBS.24,25 The most common and, potentially distressing, side-effect of peppermint oil treatment is heartburn. Earlier, several small trials showed that peppermint was variably superior to placebo in improving abdominal discomfort, bloating and overall IBS symptoms.26–28 However, these trials were small in size, usually of short duration and would be regarded, nowadays, as substandard. Not surprisingly, therefore, a recent review and meta-analysis of all available trials using peppermint oil in IBS concluded that the data were insufficient to justify its use.29

Various dietary modifications and food supplements have been used in IBS. These have included elimination diets, fibre supplements and probiotics. As IBS patients commonly report the precipitation of their usual symptoms by various foods and food constituents, it should come as no surprise that exclusion diets have been tested in IBS patients, although with varying results. The usual approach involves an initial limitation of diet to a very small number of specific foods followed by a gradual introduction of potentially implicated foods on a one-by-one basis. Response rates to elimination diets have varied markedly from as low as 6% to as high as 58% in various studies; as a consequence no generalized recommendations can be made with regard to the use of elimination diets in IBS.30

More recently, attempts have been made to define food sensitivities based on immunological studies. While tests involving immunoglobulin E (IgE) antibody titres have not proven predictive, two recent studies have demonstrated more promise for IgG-based antibodies. Zar et al. found high levels of IgG antibodies to milk, eggs, wheat, beef, pork and lamb among their IBS patients. Exclusion of these substances was associated with significant symptomatic improvement.31 Whorwell and colleagues randomized 150 out-patients with IBS to receive, for 3 months, either a diet excluding all foods to which they had raised IgG antibodies or a sham diet excluding the same number of foods but not those to which they had antibodies. After 12 weeks, the exclusion diet based on the IgG test resulted in a 10% greater reduction in symptom score than the sham diet.32

Probiotics have several actions that could be of benefit in IBS. These include antibacterial, immune modulating and mucosal barrier protective effects.33 Probiotics can also induce quantitative and qualitative changes in the gut flora and alter stool mucus and bile salt composition. Qualitative changes in the flora could, in turn, reduce the abnormal colonic fermentation that has been reported by some authors,34 in IBS. Evidence now accumulates to suggest efficacy for certain probiotics, at least, in IBS. Nobaek et al. evaluated the response of symptoms and the colonic flora to supplementation, for 4 weeks, with a rose-hip drink containing 5 × 10⁷ cfu/mL of Lactobacillus plantarum (DSM 9843) and 0.01 g/mL oat flour.25 When evaluated 1 year later and when compared with a placebo-treated group, the probiotic group experienced a significant reduction in flatulence but not in abdominal pain or bloating. Kim et al.
investigated the effects of 8 weeks of treatment with the probiotic cocktail, VSL#3, on gastrointestinal transit and symptoms in 25 patients with Rome II-positive IBS with predominant diarrhoea. While treatment with VSL#3 resulted in a reduction in abdominal bloating scores, there were no effects on other IBS symptoms such as abdominal pain, gas and urgency. In a further trial, the same group found that VSL#3 reduced flatulence scores and retarded colonic transit but without altering bowel function among a group of patients with IBS and bloating. In the most promising study to date, O’Mahony et al. compared the responses of symptoms and peripheral blood mononuclear cell cytokine ratios in IBS patients to ingestion of milk-based probiotic preparations containing either a Lactobacillus or a Bifidobacterium with a placebo in an 8-week study. Patients who were randomized to B. infantis 35624 reported a greater reduction in symptom scores; composite and individual scores for abdominal pain/discomfort, bloating/distention and bowel movement difficulty were significantly lower than for placebo for those randomized to B. infantis 35624 for most weeks of the treatment phase. No consistent benefits were associated with therapy with the Lactobacillus. Clues to the possible mode of action of the Bifidobacterium were provided by cytokine assays. At baseline, patients with IBS demonstrated an abnormal interleukin (IL)-10/IL-12 ratio, indicative of a proinflammatory Th-1 state; this was normalized in the Bifidobacterium group alone. If these results are replicated in larger studies and if probiotics can be delivered in an encapsulated, consistent and quality-controlled manner, these ‘food supplements’ may well move from the CAM category into that of mainstream pharmaceuticals.

ENERGY HEALING THERAPIES

Acupuncture is another area that has been studied in IBS management. Acupuncture, originated from ancient Chinese medicine, is based on channels of energy (Qi), called meridians, which run through the body. On the meridians lie 360 acupuncture points. Although claims for efficacy for acupuncture in IBS exist, there is little data. One pilot study of just seven patients reported improvements in bloating and general well being.

A prospective, blinded, sham-controlled trial of traditional Chinese acupuncture was conducted on 60 IBS patients at a single postgraduate teaching hospital in Europe. The primary end point was a predefined fall in symptom score at 13 weeks. Patients in treated and sham groups improved significantly during the study, mean improvements in scores being equal (−1.9) and significant for both. There was a small numeric but non-significant difference between the response rates in patients receiving acupuncture (40.7%) and sham treatment (31.2%). Several secondary end points marginally favoured active treatment, but an improved symptom score occurred more often with sham therapy (65.6% vs. 59.2%).

CONCLUSIONS

It is abundantly clear that recourse to CAM is widespread among IBS patients; doctors must recognize this and attempt to understand this reliance on therapies which, in many instances, do not have a scientific basis. The high-placebo response rate in IBS renders studies difficult; it has indeed been suggested that CAM is the new placebo. All CAM is not the same and some, such as hypnotherapy, forms of herbal therapy and probiotics, may well find a place in the armamentarium of the gastroenterologist and primary care doctor caring for IBS sufferers (Table 1). Above all, we need more science and more controlled studies; the absence of truly randomized placebo-controlled trials for many of these therapies has limited meaningful progress in this area.

ACKNOWLEDGEMENT

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REFERENCES

4. National Center for Complementary and Alternative Medicine. Available at:


23 Langmead I, Chatnis M, Rampton DS. Use of complementary therapies by patients in IBD may indicate psychosocial distress. *Inflamm Bowel Dis* 2002; 8: 174–9.


