

Treatment of Irritable Bowel Syndrome Using Complementary and Alternative Medicine

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The therapeutic objectives for irritable bowel syndrome (IBS) patients are to improve their functioning in society. Accordingly, recommended management is to develop a logical strategy including a positive diagnosis, consideration of the patient's agenda and emotional state, critical appraisal of the efficacies of various drugs and a graded therapeutic response. Unfortunately, none of the currently available drugs (e.g. antispasmodics, antidiarrheals, osmotics, cathartics, bulking agents, tranquilizers, sedatives) are globally effective in treating all IBS symptoms, and the advanced receptor-targeted drugs are not always successfully and safely marketed. Consequently, more than half of patients may seek complementary and alternative medicine (CAM) to treat the annoying bowel symptoms. Physicians have considered these CAM measures to have an "enhanced placebo effect". For example, many herbal medicine and plant products are globally used to treat IBS, whereas their efficacies are often inconclusive because of small sample sizes, inadequate data analyses and lack of standardized preparations. Meta-analyses do not establish their true efficacy. Acupuncture has long been employed by patients themselves to treat functional gastrointestinal disorders with satisfactory response, but its effect on IBS does not seem to be promising. Peppermint oil, melatonin and clay-like materials are effective in treating some IBS symptoms, while their true pharmacology remains enigmatic. In conclusion, IBS treatment is usually tailored to the individual's manifestations, ranging from reassurance to psychotherapy. Apart from conventional medications, CAM may be considered individually as a supplement or alternative to treat IBS patients that is at least equal in effect to placebo if patients do not exhibit any intolerable or serious side effects. [*J Chin Med Assoc* 2009;72(6):294–300]

Key Words: acupuncture, complementary and alternative medicine, functional gastrointestinal disorder, herbal medicine, irritable bowel syndrome

Introduction

IBS treatment

Irritable bowel syndrome (IBS) belongs to the family of commonly presented functional gastrointestinal disorders (FGIDs).¹ According to the Rome III definition, IBS is the functional bowel disorder in which abdominal pain and discomfort are associated with defecation or a change in bowel habit, and with the features of disordered defecation.² Because of the differences in culture and language in each country, the comprehensive characterization of each IBS patient as manifesting abdominal pain, discomfort or annoyance is sometimes difficult.³ Also, many IBS subjects have extracolonic

symptoms with obvious comorbidity in terms of insomnia, anxiety, depression, myofascial pain, and dysuria.^{4,5} Today, FGIDs including IBS as well as central sensitive syndrome (CSS) are seen as the final presentation of a conceptual model based on biopsychosocial disorders.^{1,6} This means that many of these manifestations coexist, e.g. IBS, headache, chronic fatigue syndrome, myofascial pain, migraine, and tension type headache. Current IBS pathogenesis consist of visceral sensorimotor dysfunction, dysfunctional brain-gut interaction, genetic and early-life factors, enteric inflammation/immune activation by altered gut flora, autonomic dysfunction and psychosocial stress with cognitive factors.^{2,7,8} Hence, many conventional treatments for IBS



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basically target these disorders. For the purpose of treatment, the exact pathophysiology that is at work in each IBS subject is hard to determine. On the other hand, IBS patients believe that their bowel symptoms are primarily induced by anxiety, dietary factors, and depression. In addition, they tend to be very concerned about potential future development into either cancer or inflammatory bowel disease.⁹ Due to their severe bowel symptoms and coexisting CSS, IBS subjects often experience a poor quality of life and work absenteeism, and they consume more medical care services and have other related out-of-pocket expenses.^{4,5,10}

Before a therapeutic plan is provided to IBS patients, any alarming symptoms or diseases that may be associated with IBS should first be excluded, and the patient provided with comprehensive education and the opportunity for discussion in order to mitigate their major concerns.^{8,11,12} Clinically, further study of the tentative underlying pathophysiology for each IBS patient would seem to be a waste of time. Apart from reassurance, today's conventional therapeutic measures to treat IBS target the main bowel symptoms by using antidiarrheals, antispasmodics, prokinetics, osmotics, and bulking agents; psychotropics including tranquilizers, and behavioral therapy are also recommended in severe and intractable patients.^{2,8,11-13} Unfortunately, there is a limitation to conventional therapy as no drug is effective against all IBS symptoms and show good safety and tolerability, and some IBS patients remain non-responsive even when using up to 4 drugs simultaneously.¹³⁻¹⁵ Moreover, a high placebo effect, up to 70%, is usually obtained in many IBS trials.¹⁶⁻¹⁸ It would be of interest to know if the new drugs based on receptor design are efficacious against IBS. In the last decade, the newly developed 5-hydroxytryptamine agonists or antagonists have been very effective in the treatment of IBS. Unfortunately, their serious side effects have led to either withdrawal or very cautious use in intractable subjects only.^{12,13} Although there are some promising compounds being developed to treat FGID including IBS, the complex pathophysiology involving motility, sensation and brain-gut interaction means that similar receptor-targeted drugs to treat IBS remain unavailable in terms of effectiveness, safety, tolerability and cost at this moment and in the near future.^{19,20}

IBS patients seek medications other than conventional drugs

Based on the requirement of improving quality of life, unsatisfactory response to conventional drugs, cyclical recurrence, coexisting comorbidity, psychological dysfunction, and drawbacks and safety of new drugs, it is not uncommon for IBS patients to seek complementary

and alternative medicine (CAM) to treat their annoying bowel symptoms.¹⁶ It is estimated that at least 15–50% of IBS subjects have used CAM recently,²¹⁻²³ which is probably related to the chronicity, refractoriness and severity of IBS, and the hope that CAM can give.²² CAM use in IBS is associated with female sex, higher education, unsatisfactory response to conventional medicine, desire for a natural treatment approach to FGID, lack of efficacious conventional medications, recommendations from people other than medical professionals, and even psychological factors.^{22,24} It would be of interest to know whether or not CAM actually has any therapeutic effect apart from its high placebo efficacy for FGID treatment including IBS. Physicians often regard CAM, particularly in the treatment of FGID, as having an “enhanced placebo effect” that heightens the expectation of treatment efficacy, by the high frequency and contact with the therapists resulting in a more positive patient–practitioner relationship.¹⁷ In fact, a meta-analysis of 10 randomized controlled trials (RCTs) indicated that the efficacies of CAM and placebo were 64.1% and 42.6%, respectively, with a benefit odds ratio of 1.46, to show no particular “enhanced placebo effect” exerted by CAM.¹⁶ Today, CAM has seen a rapid growth in the market, even in Western society, and the tendency of physicians to acknowledge and even embrace certain forms of CAM is growing.^{21,23,25} Many patients are willing to pay for CAM (which is often not covered by insurance) out of their own pocket, and as the provision of CAM is subject to the dynamics of consumer demand, CAM has proved to be more cost-effective than conventional care.²⁶ Moreover, patients' confidence in CAM is equal to their confidence in conventional medicine, and it is hard to conclude that the psychological factor is unique for this confidence.^{23,27} Patients believe that CAM operates holistically to their body as they enjoy and actively participate in their own therapy, which appears safer and more effective than those based on synthetic chemicals,¹⁷ whereas physicians usually see CAM as being not scientific and based on many low-quality trials.^{17,26} Till now, no conventional or CAM therapy can be effectively and reliably recommended to treat IBS.^{11,12}

CAM can be defined as the medical practices that are not currently considered a part of conventional medicine; its practice is influenced by cultural, ethnic, social, regional, educational and economic factors.¹⁷ CAM's theories and practices markedly deviate from those of conventional medicine in terms of heterogeneity, disease mechanisms, diagnostic approaches, therapeutic measures and judgment of efficacies.²⁵ It is exactly dissociated from regular medicine, with cultural rebellion

against known biomedical techniques, in particular avoiding high technology, and inexpensiveness with harness of power. The most discussed pathways of CAM involve mind-body interventions and body-based energy delivery that rely on ancient experiences of practice with “natural remedies” that are perceived to be less toxic than conventional medications, leading to self-healing by the body.^{17,25} Overall, CAM consists of a broad spectrum of integrative medicine of herbal drugs including Chinese, Indian, Ayurvedic and Tibetan preparations, acupuncture, aloes, ginger, homeopathy, probiotics, peppermint oil, reflexology, massage, colon irrigation, holistic medicine, aromatherapy, *qi gong*, and bioelectromagnetic field therapy.^{16,17,24,25,28} Their therapeutic actions are suggested to depend on body-based pathways such as massage, chiropractics and osteopathic manipulation, mind-body interventions via meditation, hypnosis and prayer, biological pathways using herbs and dietary constituents/additives, and energy healing via *qi gong*, acupuncture, and bioelectromagnetic fields.¹⁷ Since FGIDs including IBS are biopsychosocial disorders, it is unknown as to whether or not the therapeutic approach of CAM targets IBS based on the proposed theories of CAM with respect to the body. Although there is some evidence for the efficacy of CAM for IBS, most were from poor-quality studies. Physicians are less likely to have confidence and interest in CAM due to their professional education and clinical practice. However, we should not ignore the existence of CAM since our patients may seek CAM when conventional medicine fails. Accordingly, CAM can be seen to mean complementary but not against regular medicine; it may be a useful ally, through its philosophical or lifestyle values, in healing patients, particularly FGID subjects with biopsychosocial disorders. Gastroenterologists should be familiar with CAM, at least to the extent that their IBS patients are.¹⁷ It should be remembered that CAM is not without side effects, so critical safety and effectiveness evaluation should be undertaken before CAM is recommended.^{17,24}

Available CAM

Herbal drugs

Clinically, more than 80% of the population of developing countries depend on herbal drugs for their primary care. Apart from well-known consumption in China and India, its usage is also common in European countries.^{28,29} Herbal drugs for the treatment of IBS is usually not a single preparation because an extract of a single herb is claimed to be useless.^{30–33} Thus, many

preparations are provided as a drug cocktail. According to the traditional Chinese philosophy of maintaining and restoring balance, some herbs are suggested to treat the main disease and others are used to enhance the therapeutic effect and diminish the toxicity of the main drugs, whereas others have a harmonizing effect to guide the drugs to the proper organs.³⁴ In addition, herbal drug treatment is seldom standard for all individuals and throughout the whole course of treatment. Many herbalists will tailor the treatment to an individual's particular symptoms and alter the mix of herbs as treatment progresses.^{29,33}

For most of the herbal constituents, their true pharmacology is unknown, while some components obviously display the pharmacologic effects of acetylcholine antagonist, histamine and sedative, with particular side effects on the central nervous system, liver and kidney; some even induce cancer.³³ Compared to conventional medications, the major drawbacks of herbs include lack of quality control, precisely identified botanical plants, chemical standardization, biological assay, preclinical animal tests and absence of extensive and critical clinical proof.^{33,34} Accordingly, the use of herbs is based on the patient's belief, ignoring modern pathophysiology and pharmacology, and relying on ancient practices and natural remedies; it is perceived to be less toxic than conventional drugs to the patient's own self-healing ability, and finally, is usually applied individually.^{25,35}

Till now, the efficacy of herbs to treat IBS remains controversial. For instance, an RCT with Caucasian IBS patients conducted in Australia indicated that the herbs studied had a very promising effect over placebo in relieving bowel symptoms even after discontinuation.^{32,35} In contrast, a herbal mixture used to treat Chinese IBS patients in a Hong Kong RCT did not have any effect on either global symptoms or individual bowel symptoms.³¹ Based on a meta-analysis of 22 IBS trials of herbs, Shi et al³⁰ concluded that an extract of a single herb has no effect even though local publications usually document an effective response, and few are good for either diarrhea-predominant (D-IBS) or constipation-predominant (C-IBS) IBS, whereas the placebo effect reaches up to 40%. Therefore, some herbs previously shown to be effective for treating IBS are likely to be effective placebos only.¹⁷ With regard to side effects, neither serious events nor obvious abnormalities were reported in many IBS herb trials.^{30–33} Overall, very few studies of herbal drugs for IBS were of good quality or RCTs.^{30–33}

Indian Ayurvedic preparations are also effective for pain relief in subjects with D-IBS compared to placebo, but an effect on gas-predominant symptoms

or long-term efficacy was not observed.³⁶ Similarly, a Tibetan herbal formula was found to be effective for constipation, abdominal pain/distension, flatus, incomplete evacuation and daily activity of C-IBS subjects when compared to placebo after 3 months of use; the only side effect was loose stool with no laboratory abnormality.³⁷ The aloe vera plant produces latex and gel that exhibit anti-inflammatory properties in the treatment of ulcerative colitis.³⁸ However, its effect versus placebo to treat D-IBS was only to display a non-significant trend.³⁹ Sometimes, aloe is used for C-IBS without conclusive evidence.²⁴ Recent NICE guidelines do not recommend aloe to treat IBS.¹² Overall, it remains inconclusive as to whether the suggestive benefit of herbal drugs to treat IBS is a pharmacologic effect or a placebo response.

Acupuncture

Acupuncture is one of the most well-known traditional Chinese medicines, with a long history of more than 2,500 years.⁴⁰ Briefly, it is a holistic approach that uses a puncture needle to target several of 360 acupoints in the body to promote circulation of *qi* and restoration of *yin* and *yang*, with the purpose of maintaining body health.⁴¹ Acupuncture has gradually been accepted by the Western world in recent decades.⁴² Although the acupuncture philosophy looks mysterious, it does exhibit certain gut physiologic responses in terms of neuro-, humoral, opioid and serotonergic pathways. Hence, normalized motility, inhibited acid output, antinociceptive effect via activation of autonomic pathways, reduced rectal hypersensitivity and altered 5-hydroxytryptamine functions are reported.⁴⁰⁻⁴³ Clinically, it is claimed to be useful for nausea, vomiting, poor gastric emptying, some FGIDs, peptic ulcer, Crohn's disease and postoperative ileus, although many of the reports are heterogeneous and lack proper controls.^{41,42} Because of its effect on rectal sensation, it would seem that acupuncture can treat IBS. An early pilot study did indicate its effectiveness.⁴⁴ Acupuncture plus massage was superior than either used alone in IBS subjects.⁴⁵ It has been indicated that different acupoints may have effects on D-IBS, C-IBS, constipation and abdominal pain.⁴⁰ However, acupuncture applied to Israeli IBS subjects only resulted in abdominal pain relief in the 1st procedure but not again in the 2nd session when compared to the sham procedure.⁴⁶ In an RCT, acupuncture was not effective when compared to the sham procedure.⁴⁷ Meta-analysis of 6 sham-controlled RCTs also found that acupuncture has no effect on general wellbeing and individual bowel symptoms.⁴⁸ Interestingly, 2 trials without sham control indicated that acupuncture was more effective

than herbs for IBS patients.⁴⁸ It is suggested that certain IBS patients who benefit from acupuncture have their gut physiology restored by acupuncture, but this effect is not always observed. Overall, NICE guidelines do not recommend acupuncture to treat IBS.¹²

Peppermint oil

Peppermint oil (PO) is one of the most commonly used over-the-counter remedies. Its antispasmodic action is achieved via the movement of calcium ions across the cell membrane.^{49,50} PO is therefore indicated to treat abdominal pain and distension of functional dyspepsia/IBS, particularly in subjects with flatulence.⁵¹ On the other hand, PO may have side effects such as heartburn, anal burning and discomfort.⁵² Some RCTs confirmed its efficacy over placebo to treat IBS, with improved quality of life and bowel symptoms with regard to diarrhea, constipation, urgency, incomplete defecation, pain and bloating.^{49,52-54} PO appears to be a promising and safe CAM in the treatment of IBS.

Melatonin

Melatonin is also an over-the-counter remedy with the pharmacologic functions of promoting sleep and helping the body adjust to jet lag.⁵⁵ In addition to modulating gonadal function, providing neuroprotection and regulating biological rhythm, its gut action is likely activated via central, sympathetic and parasympathetic pathways, hence the gut functions of motility and sensation may be modulated.^{56,57} Some Singaporean RCT trials indicated that melatonin compared to placebo decreased abdominal pain score and increased rectal pain threshold among IBS patients, whereas it had no effect on bloating, stool type/frequency, colon transit time, anxiety/depression, and sleeping parameters.^{58,59} Another RCT also demonstrated improvement of overall IBS symptoms and quality of life.⁶⁰ Although only a few studies have shown its efficacy, melatonin appears to be a good option to treat IBS.

Colon hydrotherapy

Colon hydrotherapy (CHT) has been used worldwide to treat constipation or incontinence since 1500 BC. It appears to be a minimal access technique.⁶¹ Now, CHT is commonly employed in the United Kingdom by well-trained hydrotherapists.^{61,62} Subjects who suffer from constipation and anxiety/depression commonly look to CHT as it is inexpensive.^{61,62} Based on the supposition that bacterial toxic waste can sometimes be retained in the colon and certain high molecular substances absorbed here, the colon should be cleaned frequently; CHT should subsequently improve mental state.⁶³ It is not known how many IBS subjects

undergo CHT to treat their bowel symptoms. For IBS patients in whom conventional therapy has failed and their bowel symptoms remain, particularly constipation, straining and fear of toxicity retained in their colon, they may find CHT attractive. However, CHT is not always safe—serious side effects of rectal bleeding, pelvic abscess, perforation and gangrene have been reported.^{62,64,65}

Reflexology and relaxation training

Reflexology is the massage of reflex points in the feet in a particular way that brings about a functional effect on an area of the body that is quite distant, for example, the bowel to treat constipation.⁶⁶ Unfortunately, reflexology was found to have no effect on abdominal pain, bloating, constipation and diarrhea in IBS subjects.⁶⁶ On the other hand, relaxation training provides brief psychological intervention for a group or individuals with nonspecific attention and support.⁶⁷ A 90-minute training session reduced IBS symptom severity even at 12 months, which was accompanied by a reduced number of physician visits and diminished drug consumption, with improved quality of life.⁶⁷ However, NICE guidelines do not recommend reflexology to treat IBS.¹²

Clay substances

Various non-organic clay-like substances are available to treat diarrhea. For example, smectite compared to placebo was useful in the short-duration treatment of children with acute diarrhea, leading to weight gain.⁶⁸ A meta-analysis of 9 RCTs also confirms its efficacy with rapid cure in children.⁶⁹ In chronic diarrhea, smectite reduced stool frequency with solidified stool consistency, and its effect persisted even after discontinuation.⁷⁰ With regard to D-IBS, smectite compared to placebo was effective in terms of global assessment and abdominal pain.¹⁸

Why can this non-organic, non-absorbable preparation treat diarrhea-related symptoms in both acute and chronic patients? A study indicated that its pharmacologic effect on the gut is probably mediated via neutralized bacterial toxins.⁷¹ Beidellite montmorillonite, the purified clay of aluminum and magnesium silicate, was also effective in relieving abdominal pain/discomfort in C-IBS patients, as measured by subjective and objective evaluation, whereas the stool number of the study subjects was unchanged.⁷² Its action may be via the coating's ability to absorb gas and to provide protection, leading to modification of sensory inputs from luminal stimulation.⁷² Accordingly, clay substances can be considered in the treatment of certain IBS symptoms.

Conclusion

With regard to CAM, physicians usually think of it as possessing an enhanced placebo effect in treating IBS subjects. Many herbal and plant products are used to treat IBS even though their true efficacy is often unknown due to the fact that the clinical studies have small sample sizes, inadequate data analyses and non-standardized preparations. Meta-analyses have not established their true efficacy either. Acupuncture has long been effective in the treatment of FGIDs, with a satisfactory response, but its effect on IBS is not so promising. PO, melatonin and some clay-like non-organic materials are effective and safe for the treatment of certain IBS symptoms, although their pharmacology remains enigmatic. Practicing physicians usually tailor IBS treatment to the symptomatic manifestations of the individual, with treatment ranging from simple reassurance to psychotherapy. Apart from conventional medications, CAM may be considered individually as a supplement or alternative if they do not exhibit any intolerable or serious side effects.

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