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## Utilization of Complementary and Alternative Medicine in Irritable Bowel Syndrome



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As gastroenterologists trained in Western medicine, our fund of knowledge and sensitivity to the concepts and applications of integrative, complementary, alternative, holistic, naturopathic or herbal medicines is quite limited. When endoscopic procedures, imaging and pharmacologic therapies fail to alleviate a patient's symptoms, we find ourselves with few options in what we can offer our patients. There are numerous complementary modalities that can be considered as treatment for patients when western therapies fail or as adjunctive treatment in settings of partial responders. In the field of gastroenterology, there is scant evidence-based-medicine available for review in regards to alternative therapeutic options to treat or manage gastrointestinal disorders. Finding double-blinded randomized clinical trials for alternative treatments is almost impossible for multiple reasons, including the extensive funding needed to orchestrate such studies, although the new Center for Complementary Medicine at the NIH will potentially be a source of funding for these types of studies. The intent of this article is to first bring awareness to fellow gastroenterologists that numerous complementary therapies and alternative modalities to treat gastrointestinal disorders do exist and then to emphasize that utilizing such treatments may be of some benefit to our patients, specifically in patients with irritable bowel syndrome.

### INTRODUCTION

In the past few decades, there have been an increased interest and utilization of complementary and alternative medicine (CAM) for treatment of all medical issues, including gastrointestinal disorders. There is a vast array of different terminology used when speaking of CAM ranging from holistic medicine, homeopathy, herbal medicine, botanical medicine, essential oils, aromatherapy, nutritional supplements

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including vitamins and minerals, probiotics, acupuncture, biofeedback therapy, Arurvedic therapy and body-mind therapy, to name a few. Most of these modalities have been used for thousands of years prior to the existence of modern western medicine by civilizations all over the world. Many patients may be utilizing CAM but forget to tell their physicians unintentionally or, most times, intentionally because they fear that their physicians will tell them that they should not take it or participate in such therapies for various reasons. For the most part it is true that there is limited evidence-based medicine available for CAM but also, many physicians are not aware or knowledgeable

of such therapies, thus not recommending CAM to their patients. Recently there was an article published in the American Journal of Gastroenterology that found that CAM was used by 42% of respondents with a GI condition from the 2012 National Health Interview Study and over 80% of patients who used CAM found it helpful.<sup>1</sup> The GI conditions mentioned in the study were abdominal pain, acid reflux/ heartburn, digestive allergy, liver condition, nausea/vomiting and ulcer. The most commonly used modalities were herbs, supplements and mind body and manipulative therapies. Because of this explosive utilization of CAM therapies in recent years, the Center of Complementary and Alternative Medicine in National Institutes of Health has engendered opportunities to support rigorous scientific research in relevant topics and help integrate proven complementary and alternative approaches into conventional medicine.<sup>2</sup> This will undoubtedly lead to more scientific and more rigorous controlled trials to increase credibility for CAM.

Irritable bowel syndrome (IBS) is recognized to occur in about 15% of people in the United States and up to 75% are females. IBS is defined as chronic or recurrent abdominal pain that is associated with constipation, diarrhea or both. The etiology of this disease is unclear and multifactorial in nature but has been found to be associated with abnormal peristalsis, infections, food insensitivities, altered neural sensitivity and inflammation. There have been studies indicating that up to 50% of patients suffering from IBS have utilized CAM therapy.<sup>3</sup> In this article, we will review specific modalities of CAM that have been found to be beneficial in IBS beginning with the traditional first line approach- fiber- which actually relies on this CAM concept.

## Fiber

Increasing fiber intake through either diet or via supplementation is most often the first recommendation we give to IBS patients.<sup>4</sup> Soluble fiber, but not insoluble fiber, is thought to be beneficial. Soluble fiber consists of pectins, gums and mucilages but is usually administered as psyllium. Psyllium husk is the outer coat of psyllium seed known in India as ispaghula seed from the plant *Plantago ovata*.<sup>5</sup> It is found in fruits, vegetables, whole grains, seeds and nuts. When mixed with water, it forms a gel and is fermented by colonic bacteria, yielding metabolites that might decrease gut intracolonic pressure and gut transit time. Insoluble fiber which is found in

wheat bran and corn bran, undergoes stool bulk and decreases transit time. Dietary fiber recommendations for adults generally range from 20 to 35 grams/day.<sup>6</sup> Likely benefits from fiber intake include increase stool weight, normalization of defecation frequency, improved glycemic control in patients with diabetes, lower blood cholesterol levels, with protective roles regarding diverticulosis, constipation, colon cancer and cardiovascular disease.<sup>4</sup> The proposed mechanism of action for fiber in the treatment of IBS and constipation is acceleration of oroanal transit and decrease in intracolonic pressures either as a direct effect or by binding bile acids.<sup>7</sup>

Systematic review of clinical trials of fiber for IBS have found no clear beneficial effects for fiber supplementation or bulking agents. The American College of Gastroenterology Functional Gastrointestinal Disorders Task Force recommendations are that fiber is appropriate for the treatment of constipation dominant IBS but may not be recommended for the treatment of all subsets of IBS.<sup>8</sup> A similar meta-analysis of therapies for IBS does not recommend use of bulking agents except as adjuvants.<sup>9</sup>

## Herbals for IBS

The Cochrane Collaboration performed a review of herbal medicines for IBS and found that there were 75 randomized controlled trials in approximately 8000 patients. Although only 3 of those studies were judged to be of high quality, there were several Chinese and Ayurvedic preparations that were found to be better than placebo. There were also no serious adverse effects for any of the herbal preparations.<sup>10</sup>

## Chinese Herbal Preparations – Traditional Chinese Medicine (TCM)

IBS patients were treated with either a standardized combination herbal formula, an individualized herbal formula or placebo. Both treatment groups showed a substantial benefit over placebo after 16 weeks of therapy, and the individualized treatment showed continued benefit 14 weeks after treatment ended. The mechanisms of the herbal formula's action are unknown.<sup>11</sup>

Tong sie yao fang (TXYF) is a combination of commonly used TCM. A meta-analysis of different variations of this formula included 12 Chinese studies examining its use in IBS.<sup>12, 13</sup> TXYF was found to be more effective than placebo but the trials were

heterogeneous, generally of poor quality and the TXYF formula itself was inconsistent. There were 3 trials from the English language literature using different TCM herbal formulas containing TXYF ingredients and two demonstrated efficacy,<sup>11,13</sup> but one did not.<sup>14</sup>

STW 5 (iberogast) and STW 5-II are a combination of nine herbs that are commonly used as digestive aids. A trial compared 208 patients with IBS who received STW 5, STW 5-II, a single-plant extract or placebo. Abdominal pain and IBS symptom scores were significantly improved among patients that received STW 5.<sup>15</sup>

Padma Lax, a Tibetan herbal digestive formula has been used in Europe for decades. In a trial involving 61 constipation-predominant IBS patients, screened for celiac disease or lactose intolerance, reported global improvement in 76% of those using Padma Lax versus 31% of those receiving placebo.<sup>16</sup> In a Cochrane systematic review of herbal medicines for the treatment of IBS, Padma Lax, STW 5, and certain formulations of TXYF were shown to improve global IBS symptoms when compared to placebo.<sup>10</sup>

A systematic review of 22 randomized controlled trials (RCTs) focused on the safety concerns with herbal medicine and demonstrated that adverse events occurred in 2.97% of patients, none of which was considered of a serious nature. Of note, the authors did caution that most of these trials were not of acceptable quality and there might have been underreporting of adverse events. Thus, clinicians should weigh the potential benefits and risks of these therapies when advising patients.<sup>17</sup>

### **Ginger (*Zingiber Officinalis* Roscoe)**

Ginger is one of the most common herbal medicines that are used for a variety of GI conditions, including IBS. Ginger was found to be the most popular alternative medicine in one study of IBS patients<sup>18</sup> but there has not been any well conducted study examining its efficacy.

Ginger root is the rhizome of the perennial plant *Zingiber Officinalis* Roscoe. Ginger contains approximately 1-3% oils. Dosing is usually standardized according to gingerol content which is assumed to have antiemetic, analgesic, sedative and antibacterial effects.<sup>19,20</sup> Ginger is recognized by the American Food and Drug Administration relatively safe and is exempt from premarket review or approval before marketing.

As an antiemetic, studies have shown that ginger is effective in treating nausea and vomiting in pregnancy, after surgery and also during chemotherapy. Ginger

has also been shown to improve gut motility as well as abdominal pain.<sup>21</sup> Therefore, theoretically, ginger may be useful in reducing stool changes in IBS as well as pain.

A double-blinded randomized controlled trial was performed comparing the efficacy of ginger in treating IBS patients compared to placebo.<sup>22</sup> This study had three groups: patients that received 1 gram of ginger daily, 2 grams of ginger daily and/or placebo for 28 days. There were 57.1% responders to placebo, 46.7% to 1 gram and 33.3% to 2 grams of ginger. Adequate relief was reported by 53.3% on placebo as well as both ginger groups combined. Side effects were mild and reported in 35.7% in the placebo group and 16.7% in the ginger groups. This double blind randomized controlled trial suggests that although ginger is well tolerated, it did not perform better than placebo. Larger trials are needed for further evaluation.

### **Peppermint oil (*Mentha Piperita* Linnaeus)**

Peppermint is a leafy, green plant. Peppermint oil, which has been used for thousands of years, is extracted from the leaves and stems.<sup>23</sup> The active ingredients in peppermint are organic oils including menthol, which act as smooth muscle relaxers in the GI tract, likely on calcium channels. Peppermint oil is available in enteric coated capsules (containing 0.2ml of oil) and in liquid dropper form. The capsule form is preferred because direct consumption of the oil can reduce pressure in the lower esophageal sphincter theoretically leading to reflux. The recommended dose is one to two capsules three times daily for adults 15 to 30 min prior to meals.

In a study by Liu et al, IBS patients treated for one month with peppermint oil (Colpermin) had improved abdominal pain, distension, frequency of bowel movements and flatulence over a placebo control group. Symptom improvements after Colpermin were significantly better than after placebo.<sup>24</sup> A meta-analysis of four randomized placebo controlled trials with approximately 400 subjects which showed peppermint oil to be superior to placebo for symptom reduction. The number needed to treat to prevent persistent symptoms was 2.5.<sup>25</sup> Another study that looked at patients taking four capsules daily for four weeks, showed symptom improvement in 75% of patients compared to 38% of those taking placebo ( $P < .01$ ).<sup>26</sup>

Peppermint oil is generally considered safe but there have been reports of renal failure or death if very

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high doses are taken, although the exact doses are not quantified. According to the FDA poisonous plant database, the lethal dose of peppermint oil that would cause death in 50% of the patients was 300 ml/kg. Common side effects at clinical doses include allergic reactions, rash, nausea, vomiting, perianal burning and heartburn. Drug interactions include potential interaction with medications metabolized through the cytochrome P450 1A2 system such as cyclosporine and simvastatin.<sup>27</sup> The safety of peppermint oil during pregnancy has not been demonstrated.

There has been a recent study supporting the use of peppermint oil (IBgard®) which is a capsule of sustained release microspheres of Ultramen®, an ultra-purified peppermint oil, the results of which were presented at the 2015 DDW meeting.<sup>28</sup> IBgard® capsules contain L-menthol, the principal component of peppermint oil, with targeted delivery to the small intestines. A US-based, four week, placebo-controlled, multi-centered, randomized trial was completed which studied 72 patients with IBS-D and IBS-M. 79% of

patients reported a reduction in unbearable or severe abdominal pain at four weeks and even showed a reduction in total IBS symptoms at 24 hours. 93% of patients were satisfied with the relief from their IBS symptoms in a post-study assessment and side effects were comparable to placebo. This agent – IBgard®—is now officially approved for treating patients.

**Mind-body therapies**

Brain-gut interactions are increasingly recognized in the pathogenesis of IBS and almost half of IBS patients have comorbid psychiatric disorders.<sup>29</sup> Mind-body therapies are directed at using the connection between the brain and body to either alter how the mind perceives symptoms or to change the symptoms themselves. A systematic review of psychological treatments included controlled trials of cognitive-behavioral therapy (CBT), biofeedback therapy, stress management, hypnotherapy, progressive muscle relaxation and relaxation; of these, hypnotherapy and CBT are supported by the most clinical evidence.<sup>30</sup>

**Table of Herbal Treatment for IBS**

Name	Description	Use	Evidence
Tong sie yao fang (TXYF)	Combination of commonly used Traditional Chinese Medicine	Treatment for global symptoms of IBS	Inconsistent data due to different formulations Cochrane review showed it performed better than placebo
Iberogast (STW5)	Combination of 9 herbs commonly used Traditional Chinese Medicine	Digestive aid	Abdominal pain and IBS symptom score improved Cochrane review showed it performed better than placebo
Padma Lax	Tibetan herbs	Digestive formula	Was better than placebo in improving global symptoms of IBS Cochrane review showed it performed better than placebo
Ginger	Zingier Officinalis Roscoe	Antiemetic Improve gut motility	Did not perform better than placebo in large double blinded trial
Peppermint oil	Mentha Piperita Linnaeus	Smooth muscle relaxer of GI tract	Inconsistent studies but overall seem to improve IBS symptoms



CBT teaches patients that they have a choice in how they respond to their internal and external environments. Patients undergoing CBT are trained to recognize and correct thoughts and behaviors that amplify symptoms or undermine well-being. This is often combined with psychological strategies for coping with symptoms and illness.<sup>29,31</sup> For example, patients who normally respond to abdominal cramping by anger and frustration may, through CBT, decide to respond to the cramping by sitting down and performing some breathing exercise while calming the mind instead of having his or her usual response.

A review of CBT for IBS found that when looking at 16 trials, all but three showed significant behavioral improvement in IBS symptoms. Most of these studies had small number of patients included in the study. The author concluded that “overall, the weight of evidence from published trials show CBT to be more beneficial than routine medical care for the treatment of IBS, and possibly more beneficial than attention-placebo control conditions (i.e. giving additional support as in education and emotional support)”<sup>32</sup>

Therapeutic suggestions have been given to patients in a state of deep relaxation and narrow focus since the 19<sup>th</sup> century.<sup>33</sup> Gut-directed hypnotherapy is a specific technique that combines suggestions related to emotional well-being and intestinal health. Its use in IBS was first reported in a small trial of 30 patients, in which improvements in symptoms were greater after seven weekly sessions of hypnotherapy than they were with supportive psychotherapy.<sup>34</sup> Hypnosis teaches patients to place themselves in a relaxed state and give themselves suggestions about how their mind or body should respond. For example, patients who have chronic abdominal pain may be asked to associate a color with the pain; patients often choose the color red. A medical hypnotherapist will then work with patients in a relaxed state to image that red, painful color in his or her abdomen slowly changing to a more calming and comfortable blue color, and during that change, imagining the pain also diminishing. Patients will practice this with the hypnotherapist so that when the pain occurs outside the therapist’s office, they can use this technique on their own.<sup>35</sup>

A Cochrane review in 2007 looked at multiple studies using hypnotherapy for IBS.<sup>36</sup> The results were positive in that the studies showed a beneficial effect of hypnotherapy. Another review looked at 14 studies, which found that 80% of the subjects had improvement

of IBS symptoms with hypnotherapy but only six of the included trials had a control.<sup>37</sup> There is strong evidence supporting the use of hypnotherapy for treatment of IBS. Safety and potential long-term benefits add to its appeal.<sup>38</sup> The evidence also suggests that some patients may be more “hypnotizable” than others,<sup>39</sup> but it is reasonable to advise patients to consider a trial with a therapist trained in gut-directed hypnotherapy.

Mind-body therapies are useful modalities for treatment of IBS given they are unlikely to have side effects and most patients respond well, especially in children, where the data is strongest for a positive effect.

## Acupuncture

Acupuncture has been used in Asia for thousands of years and is becoming more and more popular in the United States since the 1970s. Acupuncture is a therapeutic modality in TCM. Acupuncture uses small needles to pierce the skin at designated acupuncture points and is often used with electrical stimulation from devices that are similar to transcutaneous electrical nerve stimulation (TENS) unit. The physiology of acupuncture can be related to local changes in pain chemicals, such as substance P, bradykinin, central release of endogenous opioids, norepinephrine and serotonin. It has been used to treat several gastrointestinal symptoms in functional and organic diseases, and has been shown to influence visceral reflex activity, acid secretion and gastric emptying.<sup>40</sup> Brain-gut disturbances make it reasonable to consider treating the disorder with acupuncture.<sup>40,41</sup>

A study showed that electroacupuncture could attenuate chronic visceral hypersensitivity in rats.<sup>42</sup> Although animal studies have shown positive effects with acupuncture, human trials have had mixed results. There is difficulty in assessing the appropriate controls including needles used, sham procedures utilizing acupuncture points pay also result in some stimulation of these points, and it is difficult to blind either the patients or the clinician as to whether or not patients have had acupuncture. There have been studies that have found that patients treated with acupuncture were equivalent to sham acupuncture where some studies used non-acupuncture points as “sham control” and others used telescopic needles that did not penetrate the skin. Some used a standard set of points for the intervention while others used different points for each patient that was selected after an assessment by a blinded acupuncturist. There has been one study that showed that acupuncture and psychotherapy were more

effective that psychotherapy alone<sup>43</sup> and another study reported that acupuncture was superior to the herbal formula TXYF.<sup>44</sup>

In 2006, the Cochrane Collaboration reviewed 6 acupuncture trials and found that overall the scientific quality of the studies was poor, and the results showed acupuncture to be no more effective than sham acupuncture in treating symptoms of IBS. It had recommended further studies before drawing definite conclusions.<sup>41</sup> There was a subsequent study which showed that the IBS patients in both acupuncture and sham acupuncture groups improved significantly when compared with the waitlist group. However, they found no statistical difference in the change in symptoms between the acupuncture and sham acupuncture groups.<sup>45,46</sup>

Side effects of acupuncture usually tend to be transient and mild; they include sensation, aching at the sites of needle insertion, bleeding and infection.

A new modality, non-needle electroacupuncture, has been described in the literature for treatment of various conditions including nausea, vomiting and gastroparesis. This might be a future direction for the treatment of GI conditions including IBS for patients who are afraid of needles and to decrease possible side effects of acupuncture. In addition, needling acupuncture – typically a vibrating signal from an electrode – can be applied by the patient at home frequently (e.g. before meals). Traditional acupuncture is limited to certain days of therapy and effects cannot be sustained. Finally, the cost of acupuncture is a hurdle for the needle approach in the USA.

## Probiotics

The World Health Organization defines probiotics as “live organisms that when administered in adequate amounts confer a health benefit on the host”.<sup>47</sup> The phenomenon of ingesting probiotic products started 100 years ago, when the first reports showed beneficial effects of probiotic bacteria on human health. Since then, probiotic preparations have become an essential element in the prevention and treatment of certain disease. Probiotic microorganisms are primarily lactic acid-producing bacteria (i.e. Lactobacillus, Bifidobacterium). Some probiotics have been shown to have anti-inflammatory properties, as evidenced by a recent article of efficacy of VSL#3 in Crohn’s patients,<sup>48,49</sup> while others have been shown to modulate visceral hypersensitivity.<sup>50,51</sup>

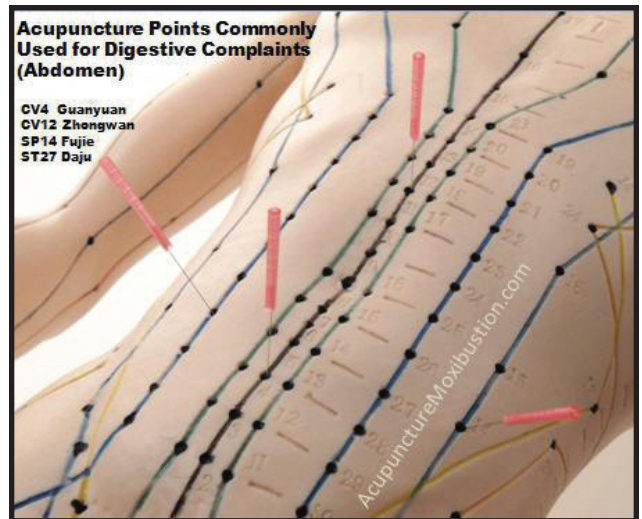


Figure 1.

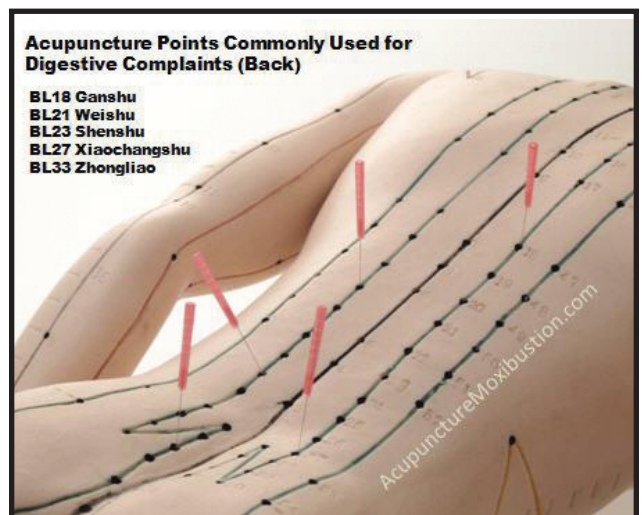


Figure 2.

A systematic review and meta-analysis was completed where 35 RCTs were identified using probiotics in IBS, involving 3,452 patients. Fourteen trials were at a low risk of bias with the remainder being unclear. Nineteen trials used a combination of probiotics; eight used Lactobacillus, three Bifidobacterium, two E.coli, one Streptococcus, one Saccharomyces and one either Lactobacillus or Bifidobacterium. The systematic review and meta-analysis demonstrated that probiotics were effective therapies for IBS, in terms of both improvement in overall symptoms and improvement in global symptom, abdominal pain, bloating and flatulence scores. The number needed to treat to improve symptoms was 7. The most evidence was

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found to support the use of combinations of probiotics and *L. plantarum* DSM 9843. There was also a trend toward beneficial effect of *Bifidobacterium* in terms of improvement in global IBS symptoms and pain scores, although which particular strain or species remains unclear. Adverse effects were rare but more common in the probiotics group when compared to placebo.<sup>52</sup>

Treatment with a probiotic containing *L. plantarum* 299 v (Lp 299 v) significantly reduced the main symptoms of IBS, such as abdominal pain, discomfort and bloating. Lp 299 v was administered once daily for four weeks.<sup>53</sup> Another study showed that long-term supplementation with probiotics like *Bifidobacterium bifidum* MIMBb75 and *Saccharomyces boulardii* could cause up to a 20% improvement compared to the placebo group.<sup>54,55,56</sup> It has been found that formulations containing VSL#3 have reduced flatulence while *Lactobacillus GG* may potentially reduce the risk of diarrhea. The clinical effects of *B. infantis* 35,624 strain have been confirmed to be beneficial as well, showing that a preparation administered to patients at a dose of 100,000,000 CFU showed at least 20% decrease in all major IBS symptoms compared to placebo.<sup>57</sup>

General recommendations from the American College of Gastroenterology as well as expert consensus panels from both the United States and in Europe are similar. There is reasonable rationale for why probiotics may work as treatment for IBS and the FDA has granted probiotics GRAS status (generally recognized as safe). A therapeutic trial of probiotics is reasonable. Daily oral doses of 10-100 billion bacteria are most common. Side effects are believed to be negligible but caution is advised in preterm infants, immunocompromised patients, and critically ill patients in the ICU.

### Fecal Enemas

Transplantation of stool for the treatment of gastrointestinal disease was first reported in 4th-century China by Ge Hong, who described the use of human fecal suspension by mouth for patients who had food poisoning or severe diarrhea.<sup>58</sup> In the 16th century, Li Shizhen described oral administration of fermented fecal solution, fresh fecal suspension, dry feces and infant feces for the treatment of severe diarrhea, fever, pain, vomiting and constipation. In the 17th century, fecal microbiota transplantation (FMT) began to be used in veterinary medicine, both orally and rectally, and was later termed "transfaunation".<sup>59</sup>

The pathogenesis of irritable bowel syndrome (IBS) is multifactorial and now believed to involve a complex interplay among the brain-gut axis, immune system and intestinal microbiota.<sup>60</sup> Perturbation of the intestinal microbiota has been shown to result in altered GI motility and visceral hypersensitivity, which have been observed in patients with IBS and are thought to play a role in disease pathophysiology.<sup>61</sup> Additionally, observations have been made that link preceding gastroenteritis, small bacterial overgrowth (SIBO) and IBS, further implicating intestinal microbiota in the development of IBS.<sup>60</sup> Probiotics have been reported to improve post infectious IBS in animal models.<sup>62</sup> Hence there has been interest in restoring the intestinal microbiota in IBS patients. FMT, or donated feces, may prove more beneficial, since they are the ultimate human probiotic.

In a series of 55 patients with IBS and IBD treated with FMT, cure was reported in 20 (36%) patients, decreased symptoms in 9 (16%) patients, and no response in 26 (47%) patients. In another series, 45 patients with chronic constipation were treated with colonoscopic FMT and subsequent fecal enema infusions, 89% of whom (40 of 45 patients) reported relief in defecation, bloating, and abdominal pain immediately after the procedure. Normal defecation, without laxative use, persisted in 18 (60%) of 30 patients who were contacted 9 to 19 months later. In a recent study of 13 patients who underwent FMT for refractory IBS (9 IBS-diarrheal, 3 IBS-constipated, 1 IBS-mixed), 70% of patients reported improvement or resolution of symptoms, including abdominal pain (72%), bowel habit (69%), dyspepsia (67%), bloating (50%) and flatus (42%).<sup>63</sup> FMT resulted in improved quality of life in 46%. Conclusions of all these trials are limited by the lack of any control arm.

In another study of patients with refractory IBS, FMT resolved or improved symptoms in 70% of our patients with refractory IBS, including abdominal pain (72%), bowel habit (69%), dyspepsia (67%), bloating (50%) and flatus (42%). FMT also resulted in improved quality of life (46%).<sup>63</sup>

In 2013, the US Food and Drug Administration (FDA) announced that fecal microbiota would require an investigational drug application (IND) to perform FMT for any indication. This decision to apply IND requirements made FMT largely unavailable to the community physician. Currently, FDA regulations permit a treating physician to perform FMT for



*Clostridium difficile* infection (CDI) in patients who are unresponsive to standard therapy, without an IND, provided that the physician obtains adequate informed consent. The FMT product must be obtained from a donor known to either the patient or the treating licensed healthcare provider. Finally, the donor and the donor's stool must be qualified by screening and testing performed under the direction of the licensed healthcare provider. The FDA still requires an IND for the use of FMT to treat all other GI and non-GI diseases.<sup>64</sup>

In the only long-term follow-up study of FMT in IBS patients to date, which was a combined effort from 5 medical centers, 77 patients who had had FMT and were followed for more than 3 months experienced and maintained a 91% primary cure rate and a 98% secondary cure rate, the latter defined as cure enabled by use of antibiotics to which the patient had not responded before the FMT or by a second FMT.<sup>64,65,66,67</sup>

In summary, FMT in IBS is undoubtedly work in progress. The patient may inquire with our Dr. Google society, yet at this stage there is no controlled trial data. Therefore our recommendation regarding this treatment is "let's wait".

## CONCLUSION

This is an attempt at a brief overview of the most common alternative therapies available to treat IBS. Although it is in no way comprehensive, gastroenterologists should be aware of the various alternative treatments available for our patients. There are many instances where our IBS patients come to us already on various Western medications and they are responding to some degree but are searching for more improvement in their quality of life or they initially responded well but now seem to be less sustained by usual medical approaches. At these encounters when the patients says, "Doctor, should I go to the Mayo Clinic?" the answer should be a resounding "No. We have a lot more options to try, specifically the following..." At that point, you can consider trying various complementary therapeutic options, often in the setting of the patient personally requesting alternative treatment approaches.

One important concept to emphasize from the beginning is the necessity to establish a good doctor-patient relationship and hence trust. To enhance this relationship, the clinician must remember to first and foremost listen to their patients. Although we are specialists in gastroenterology, we must not forget that in the end, we are treating the whole patient, not just

their GI symptoms. To achieve this goal, the patient must be an active participant in his or her treatment strategy. IBS is a life-long disease where the goal is to maximize the good days since there is no magic cure. All possible approaches and therapies may be needed and in this review, we endorse and subscribe to them all, including those treatments with evidence supporting nontraditional therapies. ■

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