European Journal of Integrative Medicine 12 (2017) 117–121

Contents lists available at ScienceDirect

European Journal of Integrative Medicine

journal homepage: www.elsevier.com/locate/eujim

Short review

Irritable Bowel Syndrome: The effect of FODMAPs and meditation on pain management

Shannon M. Cearley[a], Supriya Immaneni[b], Padmini Shankar[c,*]

[a] 1017 Iris Glen Drive, Evans, GA, 30809, USA
[b] Northwestern University, Feinberg School of Medicine, 333 East Ontario St., Apt 2513 B, Chicago, IL 60611, USA
[c] Georgia Southern University, P.O. Box 8076, Statesboro, GA 30460, USA

ARTICLE INFO

Keywords:
Irritable Bowel Syndrome
Integrative medicine
FODMAPs
Transient receptor potentials
Meditation

ABSTRACT

Introduction: Irritable Bowel Syndrome (IBS) is a highly prevalent gastrointestinal disorder. Symptoms include abdominal pain, diarrhea, constipation, and bloating. IBS can significantly impact quality of life for patients. Similarity in symptoms can be attributed to other diseases, and the varied symptomatic manifestation among patients can cause physicians to have difficulty in providing a differential diagnosis, prolonging suffering. The heterogeneity of the disorder often forces physicians and patients to primarily focus on symptomatic management with pharmaceuticals, which can eventually lead to patient dissatisfaction due to the undesirable side effects sans quality of life improvement.

Methods: We used articles found in PubMed, National Institutes of Health, and the Centers for Disease Control and Prevention to provide a review of literature that focuses on two alternative approaches to symptom management, meditation and diet. Evidence suggests these alternative approaches to pain management can be integrated with conventional therapy to attenuate pain in IBS by inhibiting transient receptor potential channels.

Results: Within the last century, low FODMAP diets, along with relaxation through meditation, are areas that have received increased attention among medical professionals. Evidence suggests that dietary interventions, along with discovery and understanding of transient receptor potentials, have provided new insight into the mechanisms of action that are attributed to nociception in IBS.

Conclusion: In this opinion paper, we offer information on evidence-based complementary therapies that have been reported to improve patient satisfaction in the management of pain related to IBS. It would behoove physicians and patients to utilize an integrative approach that includes conventional and proven alternative therapies for IBS treatment.

1. Introduction

In the United States, Irritable Bowel Syndrome (IBS) is the most prevalent gastrointestinal (GI) disorder affecting approximately 30 million people, the majority of whom are women [1,2]. IBS has been historically referenced in various ways, but was most notably described in 1849 by Dr. William Cumming as “the bowels are at one time constipated, another lax, in the same person. How the disease has two such different symptoms I do not profess to explain” [3]. The first reference to the term ‘irritable bowel syndrome’ was made much later in 1950 in an issue of the *Rocky Mountain Medical Journal*, but the first formal diagnostic criteria was created by Manning and colleagues in the 1970’s, which was later replaced by the ROME criteria [4]. The most updated version is the ROME III criteria, which states that recurrent abdominal pain or discomfort must be present for three or more days a month within the past three months and includes two or more of the following symptoms: 1) pain/discomfort relieved by defecation, 2) onset associated with stool frequency changes, or 3) onset associated with stool appearance [4]. IBS primarily affects the large colon causing abdominal pain or discomfort, and common symptoms include diarrhea, constipation, bloating, and cramping [1,2]. The diagnosis of IBS can be challenging due to the overlapping of its symptoms with many other GI disorders, which causes patients to frequently go undiagnosed [5]. While the exact cause of this disorder is idiopathic, contributing factors may include food sensitivity, self-reported gastroenteritis or food poisoning, GI motor difficulties, visceral hypersensitivity, stress or psychological problems, genetics, and hormonal changes [6,4].

In addition to physical pain and discomfort, the psychological factors associated with IBS have been considered an important part of the disorder even from its earliest days of diagnosis [7]. Evidence

* Corresponding author.
E-mail addresses: smc2278@yahoo.com (S.M. Cearley), supriyaimmaneni@gmail.com (S. Immaneni), pshankar@georgiasouthern.edu (P. Shankar).

http://dx.doi.org/10.1016/j.eujim.2017.05.003
Received 21 March 2017; Received in revised form 12 May 2017; Accepted 16 May 2017

suggests that approximately 40–80% of IBS patients also suffer from at least one psychiatric disorder, with studies having correlated major life trauma and early adverse life events with the onset of IBS [8]. Additionally, patients who suffer with IBS often experience higher rates of anxiety and depression than their healthy counterparts [9–11]. Not only does IBS affect the psychological well-being of sufferers, but the psychological stress can exacerbate symptom flare-ups [8]. This is due to the bi-directional communication between the central nervous system and the enteric nervous system, which influences their interaction [8] and can have an overall negative impact on different aspects of life such as "general health, vitality, social functioning, bodily pain, diet, sexual function, sleep, and is associated with lost time from work" [12]. Furthermore, patients have reported that during flare-ups, the stress and anxiety related to daily life (shopping, vacation, work) causes them to limit their activities due to the constant need of having to stay near a bathroom [12]. Currently there is no single cure for IBS and treatments are intended to mainly alleviate its multifactorial symptoms.

2. Methods

A systematic review of several databases including PubMed and MEDLINE, and reliable websites on the internet including National Institutes of Health and the Centers for Disease Control and Prevention, was conducted to identify literature related to two alternative approaches to pain management in IBS, namely meditation and diet. Articles between 2000 and 2017 that discussed the following were selected: 1) the nature of IBS, 2) discovery and understanding of transient receptor potential (TRP) ion channels as the mechanisms of pain, 3) dietary interventions that included low FODMAP intake, and 4) meditation as a viable alternative to conventional pharmaceutical therapies. The keywords used individually or in combination, irritable bowel syndrome, integrative medicine, meditation, transient receptor potentials, FODMAPs, were variously combined in the search list. In this opinion paper, we conducted a literature review to identify evidence-based complementary therapies that have been reported to improve patient satisfaction with integrative pain management techniques for those who suffer with pain from IBS. We found evidence that the elimination of FODMAPs and the inclusion of daily meditation are both effective in pain management in IBS because they inhibit TRP channels. These therapies can be integrated with conventional treatment modalities to improve outcomes in patients. In this opinion article, we provide a review of literature about the efficacy of integrative therapy, along with reports of patient satisfaction with these integrative approaches to pain management.

2.1. Symptomatic treatment in Irritable Bowel Syndrome

The pathophysiology of IBS is heterogeneous; therefore, treatment is variegated among patients. Conventional therapies target the symptoms of IBS and consist of allopathic treatments such as alosetron, which relaxes the colon, and lubiprostone, which increases fluid secretion in the intestines [1]. These are the only two medications specifically approved for IBS. Other pharmacological treatments that are typically utilized are antidepressants, selective serotonin reuptake inhibitors, probiotics, and antibiotics [13]. However, many of these drugs can have deleterious side effects, as long term PPI usage can inhibit absorption in the body and can cause nutrient deficiencies such as vitamin B12 deficiency [14]. Additionally, it has been reported that nearly 15% of patients are resistant to medical treatment [7]. Due to the growing dissatisfaction with conventional treatment, approximately 50% of patients turn to integrative medicine for treatment of IBS [15].

Research discussing integrative medicine is abundant, showing that the use of herbal treatments has both adverse and therapeutic effects [16]. Integrative medicine includes a wide variety of diverse non-conventional methods, including dietary supplements, herbal medications, diet-based therapies, osteopathic/chiropractic manipulations, acupuncture, yoga, massages, deep breathing, and meditation [17]. Herbal therapies such as garlic, ginger, and peppermint oil are the most frequently used, and have been found to alleviate GI upset for thousands of years [16]. However, the efficacy of such treatments is unclear due to a lack in sufficient clinical trials that can provide adequate controlled data [18,19]. For example, in 2008, Shi et al., examined 22 clinical trials for efficacy and safety of herbal medicine in IBS and found 18 of them were of poor quality [20]. More recently, the use of probiotics in the treatment of IBS has been gaining attention; however, there is limited evidence of efficacy regarding any specific probiotic strain [21]. There exists some research that does suggest significance of efficacy when using probiotic over placebo [22,23]. Regarding herbal treatments, however, some research suggests that herbal treatments used to treat IBS (i.e. Ayurvedic, fumitory, turmeric) are no more effective than placebo [24,25]. Although patients believe that herbal treatments are safe, both physicians and patients should understand that herbal treatments can have side effects, such as liver failure or adverse interactions with prescription medications [16,18].

As a way to safely manage symptoms of IBS, physicians are now looking at ways to incorporate certain proven methods of integrative therapies to complement pharmaceutical treatment [26]. These include dietary modifications, and relaxation through mindfulness meditation. Dietary modifications that have been used in IBS treatment include increasing the amount of fiber consumed daily and avoiding foods that are known to be high in fermentable oligosaccharides, disaccharides, monosaccharides, and polyols [27,28], because these short-chained carbohydrates can be difficult to digest for patients that suffer with IBS [29–31]. Although a plethora of information exists regarding the use of herbal treatments, our opinion article focuses on dietary modifications and relaxation techniques that have been shown to be effective in alleviating pain associated with IBS.

2.2. Low FODMAP diet as a dietary treatment option for IBS

Originally, the idea that dietary factors are a causative factor in symptomatic pain was met with mixed reactions by physicians, even though patients were quite aware of food triggering symptoms. In 1991 Castiglione et al., reported that diet (primarily increased fiber intake) should be the primary treatment of IBS since symptoms could be attributed to food intolerance, followed by medications [27]. However, in 1998, Shaw and colleagues reported that although symptoms of IBS could be caused by "environmental, psychological and alimentary factors", it was indeterminable whether food allergy or intolerances could be associated with symptoms [32]. In 2001, a study that evaluated 330 patients with IBS comparing them to 80 healthy patients, found that patients with IBS exhibited higher rates of discomfort after consuming foods high in carbohydrates and fat, as well as after consuming coffee, tea, alcohol, and hot spices [33].

More specifically, foods high in fermentable oligo-, di-, and monosaccharides and polyols (FODMAPs) have been reported to be problematic for some IBS patients [29]. FODMAPs are short-chain carbohydrates that are not well-absorbed in patients with IBS [29–31], and have been implicated in the symptomatic etiology of IBS [29]. Other problematic short-chain carbohydrates include fructo-oligosaccharides and galacto-oligosaccharides due to their incomplete absorption in the gastrointestinal tract [29,34]. Polyols are highly osmotic sugar alcohols that are found in some fruits and sugar alcohols, and 70% or more are poorly absorbed in the gastrointestinal tract even in healthy people [35]. This is because fructans are difficult for the human body to break down, and it has been reported that only 5–15% is absorbed due to limited enzymatic hydrolyzation of glycosidic linkages [35]. As a result, bloating and diarrhea ensues because more water is drawn into the colon [35]. Fructose intolerance has been found in individuals with and without IBS, and while most non-IBS patients could absorb small amounts (15–25 g) of fructose, fewer than 30% of were able to absorb large amounts (50 g) [35]. It has been estimated that approximately