



# Complementary and Alternative Medicine for the Management of Interstitial Cystitis/Bladder Pain Syndrome: a Recent Update

Xibei Jia<sup>1</sup> · Tess Crouss<sup>2</sup> · Neha Rana<sup>3</sup> · Kristene E. Whitmore<sup>4,5</sup>

Published online: 11 June 2020

© Springer Science+Business Media, LLC, part of Springer Nature 2020

## Abstract

**Purpose of Review** Interstitial cystitis and/or bladder pain syndrome (IC/BPS) affect many women in the USA and management of IC/BPS can be challenging for the providers. In addition to conventional treatment options outlined by the American Urologic Association (AUA) guidelines, many complementary and alternative medicines (CAM) have been gaining popularity. Our study aims to review recent publications on CAM and management of IC/BPS.

**Recent Finding** Our literature search included all studies that addressed complementary or alternative methods of treating IC/BPS patients from the last 5 years. We have identified studies that involve the following categories: diet therapy, acupuncture therapy, mind-body intervention, pelvic floor physical therapy, and massage. We have found that intensive dietary manipulation can improve symptoms of IC/BPS, and the effect can last up to a year. Acupuncture therapy can be effective in managing IC/BPS symptoms in the first 3 months after intervention, but the effect decreased over time. Mind-body interventions can be used as an adjunct to the usual care in the treatment of IC/BPS, and it helped improve the Global Response Assessment scores. Lastly, Thiele massage demonstrated negative impact in the perception of pain in patients with IC/BPS and should not be used as a monotherapy.

**Summary** Current studies are limited by small number of patients and mixed quality of evidence. Larger, high-quality studies are needed to evaluate the effect of CAM on IC/BPS symptoms. Other forms of CAM as well as combined therapies should also be studied in the future. Our review concluded that providers should consider CAM as an adjunct in the treatment of IC/BPS.

**Keywords** Complementary and alternative medicine (CAM) · Interstitial cystitis (IC) · Bladder pain syndrome (BPS)

## Introduction

The American Urologic Association (AUA) and the Society for Urodynamics Female Pelvic Medicine and Urogenital Reconstruction (SUFU) define interstitial cystitis (IC)/Bladder Pain Syndrome (BPS) as “an unpleasant sensation (pain, pressure, discomfort) perceived to be related to the urinary bladder,

associated with lower urinary tract symptoms of more than 6 weeks duration, in the absence of infection or other identifiable causes” [1]. The European Society for the Study of Interstitial Cystitis (ESSIC) uses a similar IC/BPS definition but requires a longer duration of symptoms (more than 6 months) [2].

IC/BPS affects 3.3 to 7.9 million women in the USA of age 18 years or older [3]. The prevalence of IC/BPS increases with

---

This article is part of the Topical Collection on *BPS/Interstitial Cystitis*

✉ Kristene E. Whitmore  
bladder1@aol.com

<sup>1</sup> Department of Obstetrics and Gynecology, Division of Female Pelvic Medicine and Reconstructive Surgery, UMass Memorial Medical Center/University of Massachusetts Medical School, Worcester, MA, USA

<sup>2</sup> Department of Obstetrics and Gynecology, Division of Female Pelvic Medicine and Reconstructive Surgery, Cooper University Healthcare, Camden, NJ, USA

<sup>3</sup> Department of Obstetrics and Gynecology, Division of Female Pelvic Medicine and Reconstructive Surgery, Hospital of the University of Pennsylvania, Philadelphia, PA, USA

<sup>4</sup> Professor of Urology and Obstetrics and Gynecology, Drexel University College of Medicine, Philadelphia, PA, USA

<sup>5</sup> Virtua Female Pelvic Medicine, Marlton, NJ, USA

age, and women are more likely to have IC/BPS symptoms compared with men [1]. There is no observed difference in the prevalence of IC/BPS among different races or ethnicities [1]. No clear etiology of IC/BPS has been identified, but the proposed theories for the etiology of IC/BPS include chronic infection, neurogenic inflammation, autoimmune dysfunction, and increased bladder epithelial permeability [4].

The management of IC/BPS can be difficult and can present challenges for both patients and providers. The AUA gives the general guideline for treatment of IC/BPS “should proceed using more conservative therapies first,” and the recommended first- and second-line treatments focuses on behavioral modification, stress reduction, and pelvic floor physical therapy [1]. Complementary and alternative medicine (CAM) have been gaining popularity in the treatment of IC/BPS and many providers have adopted a multimodality approach involving CAM in conjunction with other conventional medical or surgical therapies for patients with IC/BPS.

Although CAM has been used more frequently in today’s practices for the treatment of IC/BPS, the evidence for its effectiveness is limited. In our paper, we aim to review recent studies that specifically address CAM for the treatment of IC/BPS. From our literature search, we have identified studies that focus on the following area: diet therapy, acupuncture, mind and body interventions, and pelvic floor physical therapy and massage as a complementary and alternative treatment option for IC/BPS.

## Methods

A review of recently published literature from 2015 to 2020 was completed using PubMed. Studies that addressed complementary or alternative methods of treating IC/BPS patients were reviewed for relevance.

### Diet Therapy

Dietary therapy has been recommended by the AUA as the 1st line treatment option for IC/BPS. The Interstitial Cystitis Association has provided an extensive list of IC friendly food on their website ([www.ichelp.org](http://www.ichelp.org)). Dietary manipulation plays an important role as complementary and alternative medicine therapies for the treatment of IC/BPS. Patients were often told to avoid bladder irritants such as caffeine, alcohol, carbonated drinks, and citrus and spicy food at their first visit. Patients were also advised to keep a food diary and write down the food that they think could be potential triggers for IC/BPS.

In a study by Oh-oka, a basic 30-day IC/BPS diet menu was developed and patients with IC/BPS were then randomized to either the intensive systematic dietary manipulation (ISDM) group or non-intensive dietary manipulation group

[5••]. Patients in the study were followed for up to 1 year, and their IC/BPS symptoms were assessed through different questionnaires at baseline, 3 months and 1 year. All patients from the ISDM group had a significant improvement in their IC/BPS related symptom questionnaire scores compared with their baseline scores and to the nonintensive dietary manipulation group at 3 months. In addition, the ISDM has demonstrated continued positive effect as reflected by the IC/BPS-related symptom questionnaire scores at 1 year.

### Acupuncture Therapy

Acupuncture is a form of traditional Chinese medicine, and it has been practiced in China for over 2000 years. Acupuncture is increasingly being used as a complementary and alternative medicine in the USA for the treatment of variety of diseases [6] Acupuncture works by placing needles into different points on the skin that helps facilitate energy flow through the meridians in the body [7••].

A recent single-site MAPP (The Multidisciplinary Approach to the study of Pelvic Pain) Research Network study has recruited 24 male and 29 female participants with IC/BPS, to complete a questionnaire on management strategies for IC/BPS symptom “flare” [8]. The data from the questionnaire demonstrated that 6% of the participants reported using acupuncture therapy as a treatment strategy for IC/BPS symptom exacerbation.

Sönmez et al. conducted a small case series ( $n = 12$ ) examining the effect of acupuncture on patients with refractory IC/BPS [7••]. In this study, refractory IC/BPS is defined as patients who have failed at least 6 months of treatment including IC dietary therapy, pelvic floor physical therapy, oral medications, bladder instillation, and/or bladder hydrodistention. Patients with refractory IC/BPS underwent 10 sessions of acupuncture (twice weekly for 5 weeks) by a certified acupuncturist. IC/BPS related symptom questionnaires were collected at the 1st, 3rd, 6th, and 12th months visit after the completion of the 5-week acupuncture therapy study. The study demonstrated a statistically significant decrease in all symptom scores at the 1st and 3rd month post-acupuncture therapy compared with baseline. However, the effect of acupuncture therapy decreased overtime as reflected in the symptom scores at 6th and 12th months visits. By 12th months, the majority of the symptom scores were not found to be statistically significant compared with baseline.

### Mind-Body Interventions

Mindfulness Based Stress Reduction (MBSR) is a form of CAM that uses standard programs such as meditation or yoga to achieve stress reduction and symptom improvement [9]. An Internet-based survey conducted by the Interstitial Cystitis Association showed that, of the 1967 patients with IC,

60.7%, 66.8%, and 80.5% of the patients reported symptom improvement from yoga, meditation, and stress reduction therapies respectively [10]. Furthermore, the Internet-based survey demonstrated that the perceived effectiveness of certain CAM such as yoga is significantly more helpful in patients diagnosed with IC/BPS within 1 year compared with patients who have been diagnosed for more than 10 years.

In a small randomized control trial by Kanter et al., 20 women with IC/BPS who were undergoing 1st or 2nd line therapies were randomized to either continuation of usual care or usual care plus MBSR classes [11•]. The MBSR course included seven 2-h weekly classes and an all-day retreat in the 5th week, all classes were taught by a certified MBSR instructor. The MBSR course was aimed at teaching participants yoga, meditation, and other relaxation techniques. Kanter et al. found that usual care plus MBSR group has improved posttreatment scores of the Global Response Assessment as well as Pain Self-Efficacy Questionnaire compared with the usual care group. The study concluded that MBSR techniques could be used as an adjunct therapy to usual care for the management of IC/BPS.

Yoga incorporates both physical and mental exercises and has been shown to have a positive effect on multiple medical systems from reduction in cholesterol levels, improvement in lung function to symptom reduction in urologic disorders [12]. A study by Huang et al. involved women age 21 years or older, who reported pelvic pain for at least 6 months with an average pain severity score of at least 4 out of 10 on a 7-day pain log, and women were taught 12 yoga postures over a 6-week program [13]. The participants familiarized themselves with the yoga postures through the twice-weekly group yoga classes and were practicing yoga at home as well. Participants have demonstrated significant improvement in their pain severity, Sexual Health Outcomes in Women questionnaire scores as well as the Impact of Pelvic Pain Questionnaire scores after completing the yoga program compared with baseline. This study demonstrated that women with chronic pelvic pain could potentially use yoga for pain management and improve on quality of life and sexual function.

### **Pelvic Floor Physical Therapy and Massage**

Pelvic floor physical therapy (PFPT) can include several modalities such as manual therapy, Thiele massage, biofeedback, and electrical stimulation [14]. Manual PFPT focuses on the bony pelvis and surrounding muscles and ligaments working to restore proper alignment and function, while Thiele massage focuses on trigger point release and relaxation of the pelvic floor muscles with internal massage [14, 15]. PFPT is now considered part of the core treatment algorithm for those with IC/BPS [15]. The American Urological Association's 2014 guideline on IC/BPS considers it second-line treatment after education and behavioral modification [1]. The guideline

emphasizes the importance of the therapy including manual work that does not involve pelvic floor muscle strengthening in the form of Kegel exercises. A 2016 systematic review on complementary therapies for bladder pain syndrome emphasized the limited high-quality research on this topic [16].

A prospective trial conducted in Egypt evaluated symptoms in patients with nonulcerative IC/BPS before and after 16 weeks of twice weekly Thiele massage [17••]. The massage technique was taught by a female physiotherapist and then conducted twice weekly by the patients. Thirty-six patients completed the study. The authors reported a statistically significant worsening of perception of pain via the Likert visual analog scale, significant worsening of perception of symptoms, and degree of problem via the O'Leary Sant Symptom and Problem Indices, and no change in overall sexual function as measured by the Female Sexual Function Index. They concluded that Thiele massage should not be used as a monotherapy option for those with IC/BPS. While this study was prospective and used validated questionnaires, it is unclear the quality or degree of training that participants received prior to beginning their own therapy. While it is typical for PFPTs to provide their patients with home exercises, this most often is done as an adjunct to several weekly or biweekly sessions prior to exclusive self-treatment.

### **Future Directions**

An Italian study assessed the effect of repetitive Transcranial Magnetic Stimulation (rTMS) on IC/BPS patients with neuropathic pain who were refractory to typical treatment in a randomized, double blind, sham stimulation-controlled, crossover study published in 2018 [18]. Fifteen subjects were randomized, and 13 completed intervention or sham for 2 weeks (5 days of 20-min sessions), then completed a 6 weeks wash-out period, and underwent intervention or sham (whichever they had not previously received). Exams and questionnaires were completed before and after each session. Statistically significant improvements were seen in treatment vs. sham in both pain and lower urinary tract symptom domains. The authors concluded that this therapy improves subjective measures of pain and urinary symptoms and in refractory IC/BPS patients for up to 3 weeks following treatment. They went on to highlight the fact that although this treatment modality is used to treat depression, the treatment effect should not be attributed to an improvement in mood given the fact that Beck's Depression Inventory scores did not change.

### **Conclusion**

Symptoms of IC/BPS can be difficult to manage, often requires a multimodality approach. Even though the available evidence for the effectiveness of CAM on managing IC/BPS symptoms is limited by the small number of participants and

nonrandomized studies, CAM such as diet therapy, acupuncture, mind-body interventions, and pelvic floor physical therapy can still be utilized as an adjunct for the management of IC/BPS.

## Discussion

From the internet-based survey conducted by the interstitial cystitis association (ICA), 2000 of the responders have a diagnosis of IC/BPS, and majority (84%) of these patients had tried CAM [10]. Fifty-five percent of these patients reported that their physicians have recommended CAM. In addition, 84% of patients reported trying at least 1 and 45% reported trying 1 or 2 CAM therapies with 82% of patients tried diet or physical therapy. This demonstrated that most of the patients with IC/BPS are willing to try at least one CAM especially when they are initially diagnosed with IC/BPS.

Diet therapy is probably one of the most popular CAM therapies used for the treatment of IC/BPS. In the same ICA survey, over 87% of patients had eliminated food that caused a flare up episode and greater than 86% of patients had been on a strict IC diet. Shorter et al. examined the effect of comestibles on symptoms of IC in one of the earlier studies and has found that certain foods or beverages exacerbates patients' IC/BPS symptoms as reflected by the IC/BPS symptom questionnaires [19]. These foods were coffee, tea, soda, alcohol, citrus fruits and juices, artificial sweetener, and hot peppers.

In a 2004 prospective pilot study by Oyama et al., patients with both IC/BPS and high tone pelvic floor dysfunction (HTPFD) underwent twice weekly intravaginal Thiele massage for 5 weeks (10 sessions total) by one of the 3 women's health nurse practitioners [20]. Baseline symptoms and exam findings were assessed by validated questionnaires and were repeated immediately posttreatment, and after an average of 4.5 months following treatment. Their findings showed a statistically significant improvement in both IC symptoms and pelvic floor exam findings that persisted to the long-term follow-up.

The Oyama et al. study has several key differences from Egyptian study [17, 20]. In the Oyama et al. study, subjects were required to have a diagnosis of both IC/BPS and HTPFD, as opposed to a diagnosis of IC/BPS alone in the more recent study. In addition, the patients themselves completed the intravaginal massage in the Egyptian study as opposed to trained professionals, and there is no mention of the use of dilators to assist with this. Due to basic body mechanics, intravaginal Thiele massage may be difficult to perform without assistance or dilators. These differences in protocols may in part explain the differences in findings, suggesting that Thiele massage may be more beneficial in IC/BPS patients

with concomitant HTPFD, and may be more effective when administered by a professional or with supervised use of dilators.

In another randomized multicenter clinical trial by FitzGerald et al. comparing pelvic floor myofascial physical therapy (MPT) to global therapeutic massage (GTM) in women with IC/BPS, they found a significantly higher proportion of women reported moderate or marked improvement after MPT compared with GTM [21•]. The MPT groups received targeted internal and external tissue manipulation focused on the muscles and connective tissues of pelvic floor, hip girdle, and abdomen as opposed to the GTM treatment, which is a traditional full-body Western massage program. Both treatment groups have shown improvement in pain, urgency, frequency, and quality of life as demonstrated in the validated questionnaires. Unfortunately, the long-term effect of both treatments cannot be assessed secondary to loss to follow up.

Other forms of complementary and alternative medical therapies utilized by IC/BPS patients include relaxation, stress reduction, meditation, playing and listening to music as well as guided imagery [10]. Unfortunately, very few studies have addressed the effect of these therapies on IC/BPS symptoms. Despite the limited evidence of different CAM therapies in treating IC/BPS, these treatment options can still be discussed between the providers and patients. In a quality analysis study on the role of physicians in addressing psychological aspects of IC/BPS, Kanter et al. found that IC/BPS is a debilitating disease for the patients and patients frequently experienced isolation [22]. The physician's role in treating patients with IC/BPS not only included providing information about the disease, but also acknowledged the difficulty patients experiences living with IC/BPS, giving a variety of treatment options including CAM, and lastly, expressed hope, and encouragement.

In our practice, we do not limit our treatment options to that are outlined in the AUA guidelines. We offer CAM therapies in addition to traditional therapies. We discuss with patients our anecdotal experiences with CAM and the available evidence. We also provide patients with handout information and online resources for IC/BPS. We are privileged to have the opportunity to care for a large IC/BPS population in our practice, and we will continue to provide care for women with IC/BPS.

## Compliance with Ethical Standards

**Conflict of Interest** There are no conflicts of interest.

**Human and Animal Rights and Informed Consent** This article does not contain any studies with human or animal subjects performed by any of the authors.

## References

Papers of particular interest, published recently, have been highlighted as:

- Of importance
- Of major importance

1. Hanno PM, Burks DA, Clemens JQ, et al. American Urological Association (AUA) Guideline: diagnosis and treatment of interstitial cystitis/bladder pain syndrome. 2014;(September):1–45. <https://doi.org/10.1016/j.ctim.2009.01.003>
2. van de Merwe JP, Nordling J, Bouchelouche P, Bouchelouche K, Cervigni M, Daha LK, et al. Diagnostic criteria, classification, and nomenclature for painful bladder syndrome/interstitial cystitis: an ESSIC proposal. *Eur Urol*. 2008;53(1):60–7. <https://doi.org/10.1016/j.eururo.2007.09.019>.
3. Berry SH, Elliott MN, Suttorp M, Bogart LM, Stoto MA, Eggers P, et al. Prevalence of symptoms of bladder pain syndrome/interstitial cystitis among adult females in the United States. *J Urol*. 2011;186(2):540–4. <https://doi.org/10.1016/j.juro.2011.03.132>. **Prevalence.**
4. Hanno PM. Bladder Pain Syndrome (Interstitial Cystitis) and related disorders. In: Campbell-Walsh Urology; 2016. p. 334–370.e18.
5. •• Oh-oka H. Clinical efficacy of 1-year intensive systematic dietary manipulation as complementary and alternative medicine therapies on female patients with interstitial cystitis/bladder pain syndrome. *Urology*. 2017;106:50–4. <https://doi.org/10.1016/j.urology.2017.02.053>. **This trial compared intensive systematic dietary manipulation vs. non-intensive dietary manipulation.**
6. Zhou W, Benharash P. Effects and mechanisms of acupuncture based on the principle of meridians. *JAMS J Acupunct Meridian Stud*. 2014;7(4):190–3. <https://doi.org/10.1016/j.jams.2014.02.007>.
7. •• Sönmez MG, Kozanhan B. Complete response to acupuncture therapy in female patients with refractory interstitial cystitis/bladder pain syndrome. *Ginekol Pol*. 2017;88(2):61–7. <https://doi.org/10.5603/GP.a2017.0013>. **This trial examined the effect of acupuncture on patients with refractory IC/BPS.**
8. Lai HH, Vetter J, Song J, Andriole GL, Colditz GA, Sutcliffe S. Management of symptom flares and patient-reported flare triggers in interstitial cystitis/bladder pain syndrome (IC/BPS)—findings from one site of the MAPP research network. *Urology*. 2019;126:24–33. <https://doi.org/10.1016/j.urology.2019.01.012>.
9. Pang R, Ali A. The Chinese approach to complementary and alternative medicine treatment for interstitial cystitis/bladder pain syndrome. *Transl Androl Urol*. 2015;4(6):653–61. <https://doi.org/10.3978/j.issn.2223-4683.2015.08.10>.
10. O'Hare PG, Hoffmann AR, Allen P, Gordon B, Salin L, Whitmore K. Interstitial cystitis patients' use and rating of complementary and alternative medicine therapies. *Int Urogynecol J Pelvic Floor Dysfunct*. 2013;24(6):977–82. <https://doi.org/10.1007/s00192-012-1966-x>.
11. • Kanter G, Komesu YM, Qaedan F, et al. Mindfulness-based stress reduction as a novel treatment for interstitial cystitis/bladder pain syndrome: a randomized controlled trial. *Int Urogynecol J*. 2016;27(11):1705–11. <https://doi.org/10.1007/s00192-016-3022-8>. **This trial demonstrated mindfulness based stress reduction classes improves IC/BPS symptoms.**
12. Ripoll E, Mahowald D. Hatha yoga therapy management of urologic disorders. *World J Urol*. 2002;20(5):306–9. <https://doi.org/10.1007/s00345-002-0296-x>.
13. Huang AJ, Rowen TS, Abercrombie P, Subak LL, Schembri M, Plaut T, et al. Development and feasibility of a group-based therapeutic yoga program for women with chronic pelvic pain. *Pain Med (United States)*. 2017;18(10):1864–72. <https://doi.org/10.1093/pm/pnw306>.
14. Whitmore KE. Complementary and alternative therapies as treatment approaches for interstitial cystitis. *Rev Urol*. 2002;4(Suppl 1):S28–35.
15. Atchley MD, Shah NM, Whitmore KE. Complementary and alternative medical therapies for interstitial cystitis: an update from the United States. *Transl Androl Urol*. 2015;4(6):662–7. <https://doi.org/10.3978/j.issn.2223-4683.2015.08.08>.
16. Verghese TS, Riordain RN, Champaneria R, Latthe PM. Complementary therapies for bladder pain syndrome: a systematic review. *Int Urogynecol J*. 2016;27(8):1127–36. <https://doi.org/10.1007/s00192-015-2886-3>.
17. •• El-Hefnawy AS, Soliman HMM, Abd-Elbary SOM, et al. Long-standing nonulcerative bladder pain syndrome: impact of Thiele massage on bladder and sexual domains. *LUTS Low Urin Tract Symptoms*. 2019;(April):1–5. <https://doi.org/10.1111/luts.12291>. **This trial concluded that Thiele massage should not be used as a mono-treatment option for those with IC/BPS.**
18. Cervigni M, Onesti E, Ceccanti M, Gori MC, Tartaglia G, Campagna G, et al. Repetitive transcranial magnetic stimulation for chronic neuropathic pain in patients with bladder pain syndrome/interstitial cystitis. *NeuroUrol Urodyn*. 2018;37(8):2678–87. <https://doi.org/10.1002/nau.23718>.
19. Shorter B, Lesser M, Moldwin RM, Kushner L. Effect of comestibles on symptoms of interstitial cystitis. *J Urol*. 2007;178(1):145–52. <https://doi.org/10.1016/j.juro.2007.03.020>.
20. Oyama IA, Rejba A, Lukban JC, Fletcher E, Kellogg-Spadt S, Holzberg AS, et al. Modified Thiele massage as therapeutic intervention for female patients with interstitial cystitis and high-tone pelvic floor dysfunction. *Urology*. 2004;64:862–5. <https://doi.org/10.1016/j.urology.2004.06.065>.
21. • Fitzgerald MP, Payne CK, Lukacz ES, et al. Randomized multicenter clinical trial of myofascial physical therapy in women with interstitial cystitis/painful bladder syndrome and pelvic floor tenderness. *J Urol*. 2012;187(6):2113–8. <https://doi.org/10.1016/j.juro.2012.01.123>. **This trial compared pelvic floor myofascial physical therapy vs Global therapeutic massage for IC/BPS.**
22. Kanter G, Volpe KA, Dunivan GC, et al. The important role of physicians in addressing the psychological aspects of Interstitial Cystitis/Bladder Pain Syndrome (IC/BPS): a qualitative analysis. *Int Urogynecol J*. 2017;28(2):249–56. <https://doi.org/10.1007/s00192-016-3109-2>.

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.