

Complementary and Alternative Treatments for Chronic Pelvic Pain

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Abstract Chronic pelvic pain (CPP) is a significant clinical entity that affects both men and women alike. The etiologies of CPP are multifactorial, and treatments are myriad. Complementary and Alternative Medicine (CAM) refers to non-allopathic health systems, and its use is popular in the United States. In particular, several recent studies have investigated the efficacy of various CAM practices in the treatment of CPP. The authors systematically evaluated recent literature in this area by searching the PubMed database for English-language studies published between January 2007 and August 2012.

Keywords Chronic pelvic pain · Complementary and alternative treatments · Pain

Introduction to Chronic Pelvic Pain

Chronic pelvic pain/chronic prostatitis is defined by the European Association of Urology as pain unrelated to neoplastic process, perceived in structures related to the pelvis

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of either gender that has been recurrent for at least 6 months and often associated with negative cognitive, behavioral, sexual, and emotional consequences [1]. The American College of Gynecology similarly defines chronic pelvic pain as non-cyclic pain for greater than 6 months that localizes to the anatomic pelvis, anterior abdominal wall at or below the umbilicus, the lumbosacral back, or the buttocks, and is of sufficient severity to cause functional disability or lead to medical care [2].

The etiologies of CPP can be urological (eg, bladder, prostate, urethra, scrotum, and penis), gynecological (eg, uterus, vagina, vulva, and endometriosis), neurological (eg, pudendal pain syndrome), gastrointestinal (eg, irritable bowel syndrome, and anorectal), and musculoskeletal in nature [1]. The vast number of etiologies that can cause or be related to CPP can often make the diagnosis difficult. This can lead to a frustrating situation for the patient and physician as well as a large economic impact on society. In the female population, CPP is estimated to affect 15 % of women between the ages of 18–50 and has an economic impact of \$881 million to \$2.8 billion per year [3, 4]. For example, the data indicate that up to 12 % of all hysterectomies and up to 40 % of all laparoscopies are related to CPP [5]. Moreover, women with CPP reported a statistically significant disparity in health distress and interference with activities when compared with others [3]. In the same survey, 61 % of women with CPP for greater than 1 year also reported that the cause of their pain was still unknown [3]. Similarly, in the male population, CPP leads to over 2 million annual visits and costs over \$84 million per year [6]. Therefore, it's important to explore CPP and all of the possible treatment modalities including complementary and alternative medicine.

Innervation

The innervation of the pelvis is via the pelvic splanchnic nerves which arise from the ventral rami of the S2-S4 and

enter the sacral plexus. They then travel to the corresponding inferior hypogastric plexus, located bilaterally on the walls of the rectum. From there, they contribute to the innervation of the pelvic and genital organs. These nerves regulate bowel, bladder, and sexual functions. They contain both preganglionic parasympathetic fibers as well as visceral afferent fibers.

Introduction to Complementary and Alternative Medicine

Complementary and alternative medicine (CAM) is a term used in the United States to refer to a broad set of health care practices, systems, and products that are not part of the country's own tradition and are not integrated into the dominant health care system [7, 8]. The boundaries between CAM and conventional medicine are not absolute, and specific CAM practices may, over time become widely accepted [7]. The 2007 National Health Interview Survey from the U.S. Department of Health showed that 38 % of Americans used CAM therapies in the previous year [9]. This was an increase from their previous survey in 2002 that showed that 33 % of Americans had used CAM therapies in the previous year [9]. In this survey approximately 32 % of adults who used CAM did so to treat different types of pain (back, neck, musculoskeletal) [9]. Given the increase in the utilization of CAM especially for pain, we will discuss a multitude of CAM therapies for CPP.

CAM Therapies

Acupuncture

Acupuncture is a form of traditional Chinese treatment that utilizes the insertion of needles into specific points in the body. The needles can be manipulated manually, with heat, or with electrical stimulation to help relieve pain. The exact mechanism of how acupuncture produces analgesia is unknown but has been thought to be mediated through the CNS [10].

Male

A search through the literature produced several recent journal articles on research relating to acupuncture in treating chronic pelvic pain. One randomized, blinded trial of 89 patients who received acupuncture vs sham procedure was published in 2008. The authors used the National Institute of Health Chronic Prostatitis Index (NIH-CPSI), which utilizes questions about pain, urinary symptoms, and quality of life issues, to measure and assess the severity of CPP in males.

They showed that patients who underwent 20 sessions of acupuncture over a 10-week period were more likely to respond (6-point decrease in NIH-CPSI score at week 10, $P=0.02$) and enjoy long-term benefit (6-point decrease in NIH-CPSI score at week 24, $P=0.04$) than sham group patients [11].

Another recent study evaluated the effect of acupuncture with electrical stimulation for males with chronic pain. In 2009, a 63 patient 3-arm randomized clinical trial evaluated electro-acupuncture (EA), wherein low intensity current is applied to acupuncture needles for CPP. Patients received either EA with advice and exercise, sham EA with advice and exercise, or advice and exercise alone. After 12 biweekly sessions, patients in the EA group were more likely to improve (6-point decrease in NIH-CPSI, $P<0.001$) than either control group. Further analysis revealed that the improvement in NIH-CPSI score was largely driven by pain-related symptoms ($P<0.01$) [12].

In another study, a cohort of 93 patients with CPP was followed prospectively and all received acupuncture for 6 weeks. Eighty-six patients out of 93 (92.47 %) had a decrease of their NIH-CPSI score by at least 50 % as compared with their baseline score at 6 weeks ($P<0.001$), 12 weeks ($P<0.001$), and 24 weeks ($P<0.001$) [13].

Female

A search through the recent literature identified 1 journal article involving acupuncture and the treatment of CPP in women. A pilot study was performed on 33 patients with chronic pelvic pain secondary to pelvic inflammatory disease. The patients were offered acupuncture 2 times per week for 6 weeks. Twenty-nine of the patients in this study had complete resolution of pain and no new attacks of pelvic pain 6 months following the study [14]. This pilot study was encouraging and more controlled, blinded investigations need to be performed with CPP to further elucidate the role of the acupuncture in the female population.

Phytotherapy/Herbal Medicine

Phytotherapy is also known as herbal medicine. Herbal medicine dates back as far as 5000 years ago to the time of the Sumerians [15]. Over history, herbal medicine has been used in India, China, and Greece [15]. In the United States, herbal medicine is one of the most popular forms of CAM. The 2007 National Health Interview Survey revealed that non-vitamin/non-mineral natural products made up 17.7 percent of CAM therapies utilized by American adults [9]. A 2008 analysis of the costs of CAM in the U.S. revealed that Americans spent \$14.8 billion on non-vitamin/non-mineral natural products [16]. Given their popularity, a number of herbal medicines have been used in CPP.

Male

Pollen extract is a mixture of natural components, such as amino acids, carbohydrates, lipids, vitamins, and minerals. Phytosterols and secaliosides are also believed important constituents in the extract. Pharmacodynamic investigations of pollen extract have shown relaxing effects on internal and external sphincter smooth muscles of the bladder and urethra, strong anti-inflammatory effects, and anti-proliferative effects [17].

In a recent double-blind study, 60 patients between 20 and 55 years old with chronic pelvic pain syndrome were randomized to receive pollen extract or placebo for 6 months.

The patients were evaluated at the start of the treatment and after 6 months of treatment with the help of a symptom questionnaire. The patients who received pollen extract had a significantly lower pain score and less voiding symptoms at the end of the 6-month treatment period than the patients who had received placebo ($P<0.05$) [18].

In another study, 139 men were enrolled in a prospective randomized double-blind placebo-controlled study to compare pollen extract with placebo in men with CPP. Patients were randomized to receive pollen extract or placebo for 12 weeks. The NIH-CPSI score used to evaluate patients showed that the total score ($P=0.0126$), pain sub-score ($P=0.0086$), and quality of life sub-score ($P=0.0250$) were significantly improved after 12 weeks of treatment with pollen extract when compared with placebo [19].

Quercetin is a bioflavonoid family found in red wine, green tea, and onions. It is a potent free oxygen scavenger, antioxidant, and anti-inflammatory agent [20]. Quercetin has been studied in a number of patient populations with a particular focus on inflammation and cancer [20]. Quercetin has also been of particular interest in men with prostatitis, benign prostatic hypertrophy, and prostate cancer because this population may have lower plasma levels of quercetin. Men in this population may have lower levels secondary to avoidance of beverages that are known to be rich in quercetin because these beverages often exacerbate their urinary symptoms [20].

One recent non-blinded non-randomized prospective study classified 100 patients with chronic pelvic pain into several different subtypes (urinary, psychosocial, organ specific-prostate, neurologic, musculoskeletal/myofascial). Based on the subtype, the patients were given a specific therapy (urinary=alpha blockers, organ specific/prostate=quercetin). If patients fell into more than 1 subtype they were given all of the respective therapies for these subtypes. At the 50 week follow-up, 84 % of the patients had at least a 6 point decrease in their NIH-CPSI scores. Further analysis revealed that patients who had received quercetin had the

greatest average drop in their NIH-CPSI score (average 14 point drop, $P<0.001$) [21•].

Female

In 1 small study, 20 women were diagnosed with chronic pelvic pain from pelvic congestion syndrome via direct visualization under laparoscopy. The patients had prominent broad ligaments and ovarian veins without evidence of other pathologies to explain the etiology of pelvic pain. The study used a crossover design where half of the women received flavonoid for the first 6 months and the other half received vitamin placebo for the first 6 months. The 2 groups were then switched and received the other drug for 6 months. Statistically significant decreases in pain scores were seen in both groups after receiving flavonoid for 6 months respectively ($P<0.05$) [22].

Mind/Body Medicine and Massage Therapy

Mind and body practices focus on the interactions among the brain, body, and behavior, with the intent to use the mind to affect physical functioning and promote health. Many complementary health practices embody this concept including massage, spinal manipulation, deep-breathing exercises, guided imagery, hypnotherapy, progressive relaxation, qi gong, and tai chi [23]. The 2007 National Health Interview Survey revealed that mind/body therapies made up 31.8 percent of CAM therapies utilized by American adults and that 19.9 percent of Americans had utilized mind-body therapies within the past year [9]. A 2008 analysis of the costs of CAM in the U.S. revealed that Americans spent \$4.1 billion dollars per year on various mind/body therapies [16].

Male

In 1 study, 21 men with CPP were diagnosed with dysfunctional voiding via urodynamic testing and were treated with pelvic floor biofeedback. After 10 weeks of treatment, the patients were reevaluated via NIH-CPSI scores and urodynamics were repeated. The patients had a statistically significant decrease in NIH-CPSI score, including pain symptoms ($P<0.05$), as well as improved urodynamics ($P<0.05$) [24].

Male/Female

Myofascial physical therapy (MPT) is another treatment modality that has been studied in CPP. For instance, 23 men and 24 women with either CPP or painful bladder syndrome were randomized to either myofascial physical therapy or global therapeutic massage (GTM) for 1 hour a

week for 10 weeks. Patients randomized to MPT underwent connective tissue manipulation in clinically diagnosed myofascial trigger points along the abdominal wall, back, buttocks, thighs as well as transvaginally and/or transrectally in an effort to release the trigger points. Patients randomized to GTM received weekly 1 hour massages consisting of effleurage, petrissage, friction, tapotement, vibration and kneading. The results showed that MPT resulted in decreased symptom scores for both painful bladder syndrome and CPP ($P<0.05$). GTM did not provide any significant relief of symptom scores for the painful bladder syndrome group, but resulted in improvements in the CPP group in domains of pain and quality of life ($P<0.05$) [25•].

Female

In a recent study, 6 women with CPP due to tender pelvic floor muscles were treated with Thiele massage. Thiele massage is a technique of transvaginal massage of the levator ani, obturator internus, and piriformis muscles. In this study, the patients underwent Thiele massage for 5 minutes, 1 time per week for 4 weeks. The results showed that in this group of patients their median tenderness score decreased from 3 at the first evaluation to 0 after 1 month of follow-up ($P<0.01$). The patients' mean Visual Analogue Scale and McGill Pain Index scores also decreased from 8.1 and 34 respectively to 1.5 and 16.6 ($P<0.01$) [26].

Mindful meditation has been shown to be helpful in patient with lower back pain, cancer pain, and migraine headaches. In 1 study, 22 women with CPP were enrolled in a mindful meditation program for 8 weeks. Patients in the study were assessed daily with multiple scores that evaluate pain, mindfulness, and symptoms of depression. Only 12 out of the 22 participants who were enrolled completed the program. Overall, the participants that completed the trial had significant improvement in pain scores ($P=0.02$), physical function ($P=0.01$), mental health ($P=0.01$), social function ($P=0.02$), and mindfulness scores ($P<0.01$) [27].

Conclusion/Critical Review

Chronic pelvic pain is a general term that has been used in various parts of the medical literature for pain syndromes that result from different etiologies. Pain grouped in this category can be due to visceral irritation, muscular dysfunction, nerve damage, or genitourinary pain. Ideally, chronic pelvic pain should be studied according to etiology since each condition may respond to different therapeutic modalities. Conversely, it may be argued that despite various etiologies, chronic pelvic pain results from a common pathway; therefore all or most pain types would respond to similar treatments. Many of the studies reviewed were not

blinded or randomized, resulting in data that is harder to replicate. Furthermore, the studies used small sample sizes and need to be further powered to improve external validity. The recent literature for CPP in men is more extensive and focuses on herbal and acupuncture options. The literature in female patients is more centered on mind-body therapies. The field of chronic pelvic pain would benefit from more prospective, well-powered studies that explore promising complementary and alternative medicine therapies.

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