Acupuncture and Traditional Chinese Medicine for the management of a 35-year-old man with chronic prostatitis with chronic pelvic pain syndrome

Bahia A. Ohlsen DC, MS, MBA*

Chiropractic Physician, Chiropractic, Acupuncture and Yoga Center LLC, Buffalo Grove, IL

Received 21 January 2013; received in revised form 27 April 2013; accepted 14 May 2013

Key indexing terms:

Chronic prostatitis with
chronic pelvic pain
syndrome;
Acupuncture;
Oxidative stress;
Anti-inflammatory
agents

Abstract

Objective: The purpose of this case report is to describe the resolution of pain in a patient with chronic prostatitis and chronic pelvic pain syndrome after receiving a course of management using acupuncture and Chinese herbal medicine.

Clinical features: A 35-year-old man presented with chronic prostatitis with chronic pelvic pain syndrome. He scored 38 out of a possible 43 on the National Institutes of Health/Chronic Prostatitis Symptom Index (NIH/CPSI) that rates pain, urinary symptoms, and quality of life impact, indicating severe symptoms. The patient had experienced recurrent episodes of nonbacterial prostatitis over a 3-year period, and this was the most severe.

Intervention and outcome: After 8 acupuncture treatments over an 8-week period and daily use of Ba Zheng San and Yi Guan Jian, the patient scored his symptoms 9 on the NIH/CPSI. The patient was then put on a supportive anti-inflammatory regimen of green tea. He rated his symptoms 4 on the NIH/CPSI 4 months later, 2 on the NIH/CPSI 8 months later, and 0 on the NIH/CPSI 1 year later.

Conclusion: This case demonstrated that the patient experienced long-lasting relief from chronic prostatitis with chronic pelvic pain syndrome after a course of 8 treatments of acupuncture and Chinese herbs.

© 2013 National University of Health Sciences.

Introduction

Studies report that up to 10% to 15% of the male population has chronic prostatitis with chronic pelvic

pain syndrome (CP/CPPS) at any one time,¹ and it accounts for 2 million outpatient visits per year. The etiology of CP/CPPS is unknown, and yet it is the most common clinical entity of the National Institutes of Health's (NIH) prostatitis categories (Table 1). It is characterized by pelvic pain for more than 3 of the previous 6 months, urinary symptoms, and ejaculatory pain in the absence of uropathogens. The impact on

* Corresponding author. 1625 Barclay Blvd, Buffalo Grove, IL 60089. Tel.: +1 847 400 7598; +1 847 279 0601.

E-mail address: bahia.ohlsen@caycenter.com.

Table 1 Prostatitis categories according to the NIH

Category	Description	Findings	Treatment
I	Acute bacterial prostatitis	(+) Bacteria culture	Antibiotics
II	Chronic bacterial prostatitis	(+) Bacteria culture of same uropathogen	Low-dose suppressant antibiotics therapy or treatment when symptomatic
III A	Inflammatory chronic pelvic pain syndrome Pelvic pain for over 3 mo, urinary symptoms, and painful ejaculation	(-) Bacteria culture (+) Leukocytes	Trial of antibiotic therapy, discontinue after 2-4 weeks if ineffective. Therapy is focused on symptom relief, typically anti-inflammatories and α -blockers.
III B	Noninflammatory chronic pelvic pain syndrome	(-) Bacteria culture (-) Leukocytes	No consensus regarding role of antibiotic therapy. Pain management.
IV	Nonsymptomatic prostatitis	Often found in a workup for infertility, benign prostatic hypertrophy, or prostate cancer.	No consensus regarding role of antibiotic therapy. Typically left untreated.

quality of life associated with CP/CPPS is comparable to that of angina, Crohn disease, or a previous myocardial infarction.^{1,2} There is no known cure for this condition.

The use of acupuncture for CP/CPPS is not widely accepted, although some recent studies show that acupuncture therapy may be beneficial because of the anti-inflammatory and neuromodulatory mechanisms of pain relief.³⁻⁵

The NIH-funded Chronic Prostatitis Collaborative Research Network developed a questionnaire to evaluate intensity, frequency, and location of pain; voiding symptoms both irritative and obstructive; and impact on quality of life. This self-administered questionnaire, called the *Chronic Prostatitis Symptom Index* (CPSI), considered “psychometrically robust,” evaluates valid clinical outcome measures and is useful in both clinical and research settings.^{1,6,7} This questionnaire is considered the international standard for prostatitis symptom evaluation (Fig 1).¹

Gram-negative bacteria, specifically *Escherichia coli*, are the most common causative uropathogens in Categories I and II, acute and chronic bacterial prostatitis.¹

Higher levels of oxidative stress have been found to be present in prostate tissue not only when pathogenic bacteria are identified but also in inflammatory and noninflammatory prostatitis (Categories III A and III B), that is, independent of leukocyte and bacteria counts.⁸⁻¹⁰ Although this does not shed light on the unknown etiology of Category III A and III B prostatitis, studies are now confirming a correlation between measurements of lowered markers of oxidative stress and successful outcomes of treatment in all categories.⁹⁻¹¹

These findings are important because they broaden the possible treatment options and also because chronic inflammation is considered a risk factor for benign

prostatic hypertrophy¹² and a higher percentage of men diagnosed with benign prostatic hypertrophy are also diagnosed with prostatitis.^{8,13} It is suggested that chronic inflammation can promote prostate growth¹³ or prostate growth may predispose a patient to bladder and prostate infections by causing incomplete bladder voiding.⁸ Although a link has not been made between acute or chronic prostatitis and prostate cancer in humans, oxidative stress has been shown to lower levels of tumor suppressor gene Nkx3.1 in mice.¹³

At present, there are very few case studies that specifically describe treating CP/CPPS with acupuncture¹⁴ and no known case reports that describe the combination of acupuncture with Chinese herbal medicine. Therefore, the purpose of this case report is to describe the care of a patient with CP/CPPS using a treatment regimen of acupuncture and Chinese herbal medicine.

Case report

A 35-year-old man presented with pain and discomfort in the perineum that were worse with standing, and lower back pain and pain that radiated down both inner thighs. His vitals included the following: weight, 165 lb; height, 5'8"; waist circumference, 31 in; body mass index, 25.1 kg/m²; blood pressure, 114/71 mm Hg; and oral temperature, 97.6°F. He experienced pain with urination and ejaculation, urgency to urinate, and incomplete voiding. On a scale of 1 to 10, 10 being the worst, he rated the pain on a numeric pain scale as 7 to 8. The patient was a physical fitness enthusiast and an avid runner, and he was no longer able to run because of the pelvic pain he experienced while he was running. He was diagnosed with chronic recurrent nonbacterial prostatitis by a urologist. Urine cultures for bacteria were negative. It is

Pain or Discomfort

1. In the last week, have you experienced any pain or discomfort in the following areas?

	Yes	No
a. Area between rectum and testicles (perineum)	☐ ₁	☐ ₀
b. Testicles	☐ ₁	☐ ₀
c. Tip of the penis (not related to urination)	☐ ₁	☐ ₀
d. Below your waist, in your pubic or bladder area	☐ ₁	☐ ₀

2. In the last week, have you experienced:

	Yes	No
a. Pain or burning during urination?	☐ ₁	☐ ₀
b. Pain or discomfort during or after sexual climax (ejaculation)?	☐ ₁	☐ ₀

3. How often have you had pain or discomfort in any of these areas over the last week?

- ☐₀ Never
☐₁ Rarely
☐₂ Sometimes
☐₃ Often
☐₄ Usually
☐₅ Always

4. Which number best describes your AVERAGE pain or discomfort on the days that you had it, over the last week?

Urination

5. How often have you had a sensation of not emptying your bladder completely after you finished urinating, over the last week?

☐₀ Not at all
☐₁ Less than 1 time in 5
☐₂ Less than half the time

☐ ₀	☐ ₁	☐ ₂	☐ ₃	☐ ₄	☐ ₅	☐ ₆	☐ ₇	☐ ₈	☐ ₉	☐ ₁₀
NO PAIN									PAIN AS BAD AS YOU CAN IMAGINE	

☐₃ About half the time
☐₄ More than half the time
☐₅ Almost always

Fig 1. National Institutes of Health Chronic Prostatitis Symptom Index (NIH/CPSI).^{6,7}

6. How often have you had to urinate again less than two hours after you finished urinating, over the last week?

- ☐ ₀ Not at all
- ☐ ₁ Less than 1 time in 5
- ☐ ₂ Less than half the time
- ☐ ₃ About half the time
- ☐ ₄ More than half the time
- ☐ ₅ Almost always

Impact of Symptoms

7. How much have your symptoms kept you from doing the kinds of things you would usually do, over the last week?

- ☐ ₀ None
- ☐ ₁ Only a little
- ☐ ₂ Some
- ☐ ₃ A lot

8. How much did you think about your symptoms, over the last week?

- ☐ ₀ None
- ☐ ₁ Only a little
- ☐ ₂ Some
- ☐ ₃ A lot

Quality of Life

9. If you were to spend the rest of your life with your symptoms just the way they have been during the last week, how would you feel about that?

- ☐ ₀ Delighted
- ☐ ₁ Pleased
- ☐ ₂ Mostly satisfied
- ☐ ₃ Mixed (about equally satisfied and dissatisfied)
- ☐ ₄ Mostly dissatisfied
- ☐ ₅ Unhappy
- ☐ ₆ Terrible

Scoring the NIH-Chronic Prostatitis Symptom Index Domains

Pain: Total of items 1a, 1b, 1c, 1d, 2a, 2b, 3, and 4 =

Urinary Symptoms: Total of items 5 and 6 =

Quality of Life Impact: Total of items 7, 8, and 9 =

Fig 1. (continued)

unknown whether the prostatitis was inflammatory, NIH/NKKD Category III A, or noninflammatory, NIH/NKKD Category III B, as leukocyte presence was not tested. He scored a 38 out of possible 43 on the NIH/CPSI, indicating severe symptoms and impact on quality of life.

The patient was first seen by a urologist 3 years prior; and although he was diagnosed with nonbacterial prostatitis, he was put on a 2-week regimen of fluoroquinolones that only temporarily resolved his symptoms. A urine culture at that time was negative for bacteria. Between the initial and the current episode, he had mild to moderate recurrent symptoms. The most recent episode was the most intense, which prompted a second visit to the urologist who again diagnosed nonbacterial prostatitis. His medical history was unremarkable except for dietary gluten sensitivity. As a result, the patient did not consume gluten-containing products. Careful questioning of the patient revealed that, when he was a teenager, after working a long shift on a job involving hard labor, he would notice lower pelvic pain. At that time, he had no urinary or ejaculatory symptoms; and he ignored the symptoms, as they were not debilitating or intense.

Traditional Chinese Medicine diagnosis

The patient's pulse was full and wiry, weaker in the left third position ("chi" third kidney position); his tongue had a red body and an even redder tip in the heart position; the coat was thin and greasy in the posterior kidney position. Associated symptoms included feeling hot all the time although hands and feet were cold, lower back pain, anxiety, and insomnia. He woke up 2 to 3 times a night to urinate, experiencing urgency and dribbling after voiding. When he did urinate, the flow was interrupted and incomplete, referred to as *strangury*. He was anxious and experienced pain around his ribs, the hypochondriac region. He had a sticky feeling in his mouth. The patient's symptoms worsened with physical exercise. The Traditional Chinese Medicine (TCM) diagnosis was a root of kidney qi deficiency, specifically kidney and liver yin deficiency with a branch of bladder damp heat and blood stasis in the lower jiao. The treatment principles were to clear and transform heat and dampness, eliminate blood stasis, and nourish kidney essence and liver yin.

Treatment

The patient was not prescribed any antibiotics for the CP/CPPS by his urologist. Treatment involved using

both acupuncture and herbal medicine. The patient was put on Yi Guan Jian/All The Way Through Brew (2 tablets 2 times per day, 90-caplet bottle, Great Nature Classics, Blue Poppy Enterprises) and Ba Zheng San/Eight Ingredients Rectification Powder (2 tablets 2 times per day, 90-caplet bottle, Great Nature Classics, Blue Poppy Enterprises, Boulder, CO). The patient received 1 acupuncture treatment per week for 8 weeks. Although acupuncture is typically prescribed 2 to 3 times a week, the patient's schedule was constrained. Ba Zheng San clears heat, drains fire, promotes urination, and unblocks painful urinary dribbling¹⁵⁻¹⁷ and is classically used for rectifying the function of the lower burner.¹⁶ It is prescribed for dysuria and prostatitis.¹⁷ Yi Guan Jian is used to enrich the yin and spread liver Qi and is traditionally used for yin deficiency of the liver and kidneys with Qi stagnation.^{16,17}

The following points were used in treatments 1, 2, 3, and 4: K 7 (Fuliu), SP 10 (Xuehai), SP 6 (Sanyinjiao), SP 9 (Yinlingquan), CV 3 (Zhongji) and PC 6 (Neiguan), LI 11 (Quchi)—13 needles; the patient was in a supine position. In treatments 5, 6, 7, and 8, point selection was changed as follows: PC 6 (Neiguan), LVR 5 (Ligou), SP 9 (Yinlingquan), ST 36 (Zusanli), BL 18 (Ganshu), BL 28 (Panguangshu) and BL 23 (Shenshu)—14 needles; the patient was in a prone position. MAC 0.30-mm × 40-mm sterile single-use needles (Mac Co., Roslyn Hts, NY) were used. The needles were not stimulated.

Point function:

K 7—tonifies kidney Yang and regulates water passages, treats bladder damp heat with underlying kidney deficiency, promotes urination.

SP 10—dispels stasis and cools the blood, treats painful urinary dysfunction.

SP 6—treats disharmony of LV, SP, and K, accumulation of damp heat in bladder, kidney deficiency and liver Yin deficiency, essential treatment point of all urinary disorders. Meeting point of three Yin meridians, SP, LV, and K.

SP 9—regulates the spleen, opens and moves water passages, benefits the lower jiao, and treats all disorders of dampness and damp heat.

ST 36—fortifies the spleen, resolves dampness, tonifies qi, nourishes blood and yin, clears fire, and calms the spirit.

CV 3—front Mu point of bladder. Meeting of conception vessel with SP, LV, and K channels. Drains damp heat from bladder, dispels stasis in lower jiao.

PC 6—confluent point of the Yin Wei Mai, clears heat, treats stagnation of liver Qi, and anxiety; the path of the Yin Wei Mai traverses the areas of the patient's symptoms, the inner thighs through the hypochondrium.

BL 18—spreads liver qi, cools fire, and clears damp heat.

BL 28—regulates the bladder, clears damp heat from the lower jiao.

BL 23—tonifies the kidneys, regulates the water passages and benefits urination, nourishes kidney yin, firms kidney qi.

After completing 1 bottle of herbs of both Ba Zheng San and Yi Guan Jian, the patient's symptoms were reported to be reduced by 80%. His pulse and tongue findings still indicated excessive heat. Therefore, a second round of herbs was prescribed; and after completion, symptoms were reported to be 90% to 95% resolved. He scored 9 on the NIH/CPSI. A regimen of anti-inflammatory supplements was then started: Green Tea-70 (1000 mg green tea leaf extract, *Camellia sinensis*, DaVinci Laboratories, Essex Junction, VT).

Treatment change from herbs to anti-inflammatory supplements was made once a subjective 90% to 95% reduction in urogenital pain was achieved and the patient reported decreased sensations of heat. The reduction in heat was noted objectively in a change of the pulses and tongue appearance; the pulses were no longer full, and the tongue was no longer red. Table 2 shows clinical outcomes over time.

Pulses before treatment: full, "wiry" left second position ("Guan" liver position), weak left third ("Chi" kidney position). Pulses after 2 rounds of herbs: fullness no longer present, left second "Guan" position no longer "wiry", left third "Chi" position still weak but improved. Patient reported he now felt cooler, and the acute CP/CPPS symptoms were reduced from a total score of 38 to a total score of 9 on the NIH/CPSI index.

He rated his symptoms 4 on the NIH/CPSI 4 months later, 2 on the NIH/CPSI 8 months later, and 0 on the NIH/CPSI 1 year later. The author recommended to the patient that the anti-inflammatory supplements be continued indefinitely to lower the patient's global oxidative stress levels. The author also recommended periodic acupuncture checkups and treatments if indicated when CP/CPPS symptoms recur.

Discussion

There is an increased interest in the use of alternative therapies in the management of CP/CPPS.¹⁸

It is the author's hope that this case report adds new information to the literature and helps describe conservative treatments to address this common condition. The following discussion provides additional information about CP and CPPS including biomedical and acupuncture/TCM approaches.

Acupuncture is considered safe and effective for managing many painful conditions. Promising studies showing the efficacy of acupuncture in managing pain in patients with CP/CPPS have recently been published.^{3-5,19,20} The association of CP/CPPS with higher cytokine levels in the prostate gland as a marker for both severity of symptoms and response to treatment offers an additional strategy into possible management options.^{9,10,21} Studies now show that oxidative stress plays an important role in CP/CPPS and management with antioxidant therapy, or other methods to lower global oxidative stress and cytokine levels, could be effective in alleviating pain in this population.^{11,21-23}

Categories of prostatitis

In 1999, the NIH and National Institute of Diabetes and Digestive and Kidney Diseases categorized prostatitis as follows:

Category I—acute bacterial prostatitis, characterized by a sudden onset of fever and dysuria. Antibiotic

Table 2 Patient's CPSI scores before, during, and after treatment

	December 2011	February 2012 (after Chinese herbs)	April 2012	August 2012	December 2012
Pain	17	4	4	2	0
Urinary symptoms	10	2	0	0	0
Quality of life impact	11	3	0	0	0
Pain and urinary score	27	6	4	2	0
Total	38	9	4	2	0

treatment is considered mandatory and usually successful to treat the uropathogens. *Escherichia coli* is the most common uropathogen, followed by *Pseudomonas* and *Klebsiella*. Acute bacterial prostatitis is considered relatively rare.

Category II—chronic bacterial prostatitis, characterized by relapsing episodes of urinary tract infections. Usually, the same uropathogen is cultured; and the patient is typically asymptomatic between infections. The standard of care is antibiotic therapy. There is a variable success rate. A 4- to 6-week course of oral fluoroquinolones (ciprofloxacin) is reportedly effective in 60% to 80% of *E coli* cases. Relapses and reinfections are common and typically managed with low-dose suppressant antimicrobial therapy or treatment when symptoms recur.

Categories I and II, clearly associated with uropathogens, comprise 5% to 10 % of all cases of prostatitis. Category III A—inflammatory CPPS, characterized by white blood cells but no uropathogens found in expressed prostatic secretions, post-prostate massage urine specimens, or semen. Previously referred to as *prostadynia*, this category was renamed because of uncertainty surrounding whether the pain was actually from the prostate gland. Antibiotics may be tried and continued if successful. It is thought that, although bacteria are not found in the culture, some may still be present that are not detectable through current methods of analysis or an unidentified mechanism of pain relief is at work. Typical treatment consists of a 2- to 4-week trial of oral fluoroquinone therapy instituted to determine the patient's response; and, if positive, a total treatment period of 4 to 6 weeks is recommended. What distinguishes this category from Categories I and II is the absence of pathogenic bacteria and the presence of genitourinary pain, or pelvic pain, and ejaculatory pain.

Category III B—In noninflammatory CPPS, patients report genitourinary pain and ejaculatory pain; however, no white blood cells and no uropathogens are found in any cultures. There is no consensus regarding the role of antibiotic treatment, and pain management is usually the goal of intervention.

Categories III A and III B comprise more than 90% of the cases of prostatitis. Controversy surrounds the need to differentiate these categories because there is no correlation between leukocyte presence and symptoms.

Category IV—Nonsymptomatic prostatitis is diagnosed incidentally in a workup for infertility,

elevated prostate-specific antigen, or another chief concern such as benign prostatic hyperplasia. There is no consensus regarding the role of antibiotic treatment.

Chronic prostatitis with CPPS, being referred to by some researchers as *male interstitial cystitis*, affects men of all ages, takes a significant toll on physical and mental health, and is associated with significant sexual dysfunction²⁴⁻²⁷ and infertility.¹ It has also been reported to be worse in the winter months.²⁸

The etiology of CP/CPPS, a nonbacterial prostatitis, remains unclear; and treatment is similarly controversial. It is the most common of the NIH/National Institute of Diabetes and Digestive and Kidney Diseases Prostatitis categories, a condition which affects up to 10% to 15% of the male population at any one time.¹ It is associated with significant pain and burden on quality of life. Bacterial and leukocyte counts do not correlate with symptom severity.²⁹ However, reductions in cytokine counts in the prostate gland through antioxidant therapy do correlate with measureable symptomatic improvement in pain and quality of life scores.⁹⁻¹¹

TCM approaches to prostatitis

In TCM, the chief organ affected by CP/CPPS is the kidney. According to the Five-Element Theory, the kidney's element is water and its season is winter; it is most stressed under cold weather conditions. Furthermore, vigorous exercise burns yin fluids and can thereby overly tax kidney Qi, leading to kidney Qi and kidney Yin deficiency. As the kidney is the source of Yin for all the organs, the kidney is also the mother of liver in the Five-Element Cycle; a kidney Yin deficiency can lead to a vacuity of liver Yin. The liver meridian encircles the genitalia and is traditionally used to treat diseases of the reproductive system in TCM. Kidney and liver yin deficiencies also lead to heart Yin deficiency, evident by the patient's red tongue that was redder at the tip and his symptoms of anxiety and insomnia.

The root of this patient's CP/CPPS, according to TCM diagnostics, arrived at by pulse palpation, tongue findings, and symptom descriptions, were kidney Qi, specifically Yin, and liver Yin deficiencies. Traditional Chinese Medicine treatment, through acupuncture and Chinese herbals, involved nourishing the kidney and liver Yin.

In strangury, the branch of this patient's CP/CPPS, urination is difficult, painful, dribbling, urgent, and

incomplete. Traditional Chinese Medicine treatment involves smoothing the flow of urine. For damp heat diseases, the treatment strategy is to clear heat and disinhibit dampness. A specific formula for stangury and damp heat is Ba Zheng San (Eight Ingredients Rectification Powder).^{16,17} When using medicinals to dry dampness and clear heat, the branch of the disease, a TCM practitioner also has to carefully preserve and nourish kidney and liver yin and, in so doing, treat the root of the disease. Yi Guan Jian (All The Way Through Brew) was used for this purpose.^{16,17}

The patient also experienced anxiety and insomnia, heart Yin deficiency. This was treated through the choice of liver and kidney yin nourishing acupuncture points, in particular PC 6 (Neiguan), and the above-mentioned yin-nourishing herbs.

The acupuncture treatments are believed to relieve pain in 3 different ways: local endorphin release around the areas of pain, spinal or segmental analgesic affects, and central descending inhibitory affects.^{19,30,31} CV 3 (Zhongji) in the lower abdominal area was a local point used, and needling this point could conceivably lead to endorphin release around the areas of pain and change the proprioceptive input into the spinal cord. The effects of BL 32 (Ciliao) include stimulating the posterior ramus of the S2 nerve, thereby inhibiting segmental pain.^{3,5} Recent studies reported that acupuncture of BL 33 (Zhongliao) reduced urinary incontinence and urgency in patients with overactive bladders and that acupuncture of CV 3 (Zhongji) led to increased stream velocity and decreased duration in healthy subjects.³⁰ Another study demonstrated the effectiveness of acupuncture of BL 32 for CP/CPPS caused by intrapelvic venous congestion.³²

Limitations

Although the selection of acupuncture points and Chinese herbs discussed in this case worked particularly well in relieving this patient's symptoms, this is not a general prescription for all patients with CP/CPPS. Particular care must be exercised when using Chinese herbs. Traditional Chinese Medicine diagnostics must match the need for the therapeutic effect of the herbal prescription, or symptoms can become worse. Chinese herbs were selected for this patient, in addition to acupuncture, because of the severity of his symptoms and also because dampness is a challenging pathogen to dispel. There always remains the possibility that the patient would have recovered without any intervention. Another limitation of this study is that it documents the

response of only one patient to acupuncture and Chinese herbs.

Conclusion

For this case, the combination of acupuncture to relieve pain and Chinese herbs to resolve dampness and clear heat in this patient seemed to be particularly effective. They were discontinued once an objective change in pulse palpation and tongue appearance, indicating decreased heat signs, was noted. A supportive regimen of anti-inflammatory supplements was started once the 90% to 95% improvement in symptom relief was obtained. This case report describes a patient who responded positively to acupuncture and Chinese herbal medicine and suggests that these approaches may play a role in alleviating pain in patients with CP/CPPS.

Funding sources and potential conflicts of interest

No funding sources or conflicts of interest were reported for this study.

References

1. Murphy AB, Macejko A, Taylor A, Nadler RB. Chronic prostatitis: management strategies. *Drugs* 2009;69(1):71–84, <http://dx.doi.org/10.2165/00003495-200969010-00005>.
2. Nickel JC, Downey J, Hunter D, et al. Prevalence of prostatitis-like symptoms in a population based study using the National Institutes of Health Chronic Prostatitis Symptom Index. *J Urol* 2001;165(3):842–5.
3. Lee SH, Lee BC. Use of acupuncture as a treatment method for chronic prostatitis/chronic pelvic pain syndromes. *Curr Urol Rep* 2011;12(4):288–96.
4. Lee SW, Liong ML, Yuen KH, et al. Acupuncture versus sham acupuncture for chronic prostatitis/chronic pelvic pain. *Am J Med* 2008;121(1):79.e1–7.
5. Lee SH, Lee BC. Electroacupuncture relieves pain in men with chronic prostatitis/chronic pelvic pain syndrome: three-arm randomized trial. *Urology* 2009;73(5):1036–41.
6. Litwin MS, McNaughton-Collins MM, Fowler Jr FJ, et al. The National Institutes of Health Chronic Prostatitis Symptom Index: development and validation of a new outcome measure. Chronic Prostatitis Collaborative Research Network. *J Urol* 1999;162(2):369–75.
7. Litwin MS. A review of the development and validation of the National Institutes of Health Chronic Prostatitis Symptom Index. *Urology* 2002;60(6 Suppl):14–8 [discussion 18–9].

8. Yoon BI, Kim S, Han DS, et al. Acute bacterial prostatitis: how to prevent and manage chronic infection? *J Infect Chemother* 2012;18(4):444–50.
9. Shahed AR, Shoskes DA. Oxidative stress in prostatic fluid of patients with chronic pelvic pain syndrome: correlation with gram positive bacterial growth and treatment response. *J Androl* 2000;21(5):669–75.
10. Kullisaar T, Türk S, Punab M, Mändar R. Oxidative stress—cause or consequence of male genital tract disorders? *Prostate* 2012;72(9):977–83.
11. Shoskes DA, Zeitlin SI, Shahed A, Rajfer J. Quercetin in men with category III chronic prostatitis: a preliminary prospective, double-blind, placebo-controlled trial. *Urology* 1999;54(6):960–3.
12. Khalili M, Mutton LN, Gurel B, Hicks JL, De Marzo AM, Bieberich CJ. Loss of Nkx3.1 expression in bacterial prostatitis: a potential link between inflammation and neoplasia. *Am J Pathol* 2010;176(5):2259–68 [Epub 2010 Apr 2].
13. Penna G, Mondaini N, Amuchastegui S, et al. Seminal plasma cytokines and chemokines in prostate inflammation: interleukin 8 as a predictive biomarker in chronic prostatitis/chronic pelvic pain syndrome and benign prostatic hyperplasia. *Eur Urol* 2007;51(2):524–33 discussion 533. [Epub 2006 Jul 28].
14. Rosted P. Chronic prostatitis/chronic pelvic pain syndrome and acupuncture—a case report. *Acupunct Med* 2007;25(4):198–9.
15. Wiseman N, Ye F. A practical dictionary of Chinese medicine. P. 148 & P. 151. Second edition, 1998. Paradigm Publications.
16. Scheid V, Bensky D, Ellis A, Barolet R. Formulas and strategies. P. 381 & P. 713. Second edition, 2009. Eastland Press, Inc.
17. Chen J, Chen T. Chinese herbal formulas and applications, pharmacological effects & clinical research. P. 657 & P. 1106. 2009. Art of Medicine Press, Inc.
18. Herati AS, Moldwin RM. Alternative therapies in the management of chronic prostatitis/chronic pelvic pain syndrome. *World J Urol* 2013;31(4):761–6 doi: 10.1007/s00345-013-1097-0. [Epub 2013 Jun 6].
19. Kawakita K, Shinbara H, Imai K, Fukuda F, Yano T, Kuriyama K. How do acupuncture and moxibustion act? Focusing on the progress in Japanese acupuncture research. *J Pharmacol Sci* 2006;100(5):443–59.
20. Yang ZX, Chen PD, Yu HB, Pi M, Luo WS, Zhuo YY. Study strategies for acupuncture treatment of chronic nonbacterial prostatitis. *Zhong Xi Yi Jie He Xue Bao* 2012;10(3):293–7.
21. Pontari AM. Inflammation and anti-inflammatory therapy in chronic prostatitis. *Urology* 2002;60(6 Suppl):29–33.
22. Schwartz ES, Kim HY, Wang J, et al. Persistent pain is dependent on spinal mitochondrial antioxidant levels. *J Neurosci* 2009;29(1):159–68.
23. Cross CE, Halliwell B, Borish ET, et al. Oxygen radicals and human disease. *Ann Intern Med* 1987;107(4):526–45.
24. McNaughton Collins M. The impact of chronic prostatitis/chronic pelvic pain syndrome on patients. *World J Urol* 2003;21(2):86–9 [Epub 2003 Apr 2].
25. Marszalek M, Wehrberger C, Hochreiter W, Temml C, Madersbacher S. Symptoms suggestive of chronic pelvic pain syndrome in an urban population: prevalence and associations with lower urinary tract symptoms and erectile function. *J Urol* 2007;177(5):1815–9.
26. Müller A, Mulhall JP. Sexual dysfunction in the patient with prostatitis. *Curr Urol Rep* 2006;7(4):307–12.
27. Davis SN, Binik YM, Carrier S. Sexual dysfunction and pelvic pain in men: a male sexual pain disorder? *J Sex Marital Ther* 2009;35(3):182–205.
28. Hedelin H, Jonsson K, Lundh D. Pain associated with the chronic pelvic pain syndrome is strongly related to the ambient temperature. *Scand J Urol Nephrol* 2012;46(4):279–83.
29. Schaeffer AJ, Knauss JS, Landis JR, et al. Leukocyte and bacterial counts do not correlate with severity of symptoms in men with chronic prostatitis: the National Institutes of Health Chronic Prostatitis Cohort Study. *J Urol* 2002;168(3):1048–53.
30. Carlsson C. Acupuncture mechanisms for clinically relevant long-term effects—reconsideration and a hypothesis. *Acupunct Med* 2002;20(2–3):82–99.
31. Chen R, Nickel JC. Acupuncture ameliorates symptoms in men with chronic prostatitis/chronic pelvic pain syndrome. *Urology* 2003;61(6):1156–9 [discussion 1159].
32. Honjo H, Kamoi K, Naya Y, et al. Effects of acupuncture for chronic pelvic pain syndrome with intrapelvic venous congestion. *Int J Urol* 2004;11(8):607–12.