Chronic Pelvic Pain—Part 2: An Integrated Management Approach

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ABSTRACT

PURPOSE: To review an integrated approach to management of patients with chronic pelvic pain (CPP).

EPIDEMIOLOGY: CPP is believed to affect 4% to as many as 40% of women who seek primary care, making this symptom at least as common as asthma and back pain. CPP is responsible for 10% of all referrals to gynecologists, 12% of all hysterectomies, and more than 40% of all laparoscopies.

REVIEW SUMMARY: Part I of this series discussed the prevalence, etiology, and evaluation of patients presenting with CPP. This article addresses effective treatment of CPP, which requires parallel consideration of 3 factors: addressing underlying conditions that were initially responsible for the pain, ameliorating secondary muscular reactions that may become a continuing source of pain, and optimizing emotional well-being. These goals may be accomplished via pharmacologic and nonpharmacologic methods, including treatments for specific underlying conditions, analgesics, physical therapy, psychotherapy, and surgery when appropriate. Treatment endpoints are minimization of pain and psychologic distress and improvement in functioning—not necessarily cure or determination of a definitive diagnosis.

TYPE OF AVAILABLE EVIDENCE: Systematic reviews, randomized-controlled trials, nationally recognized treatment guidelines.

GRADE OF AVAILABLE EVIDENCE: Fair.

CONCLUSION: CPP is common, burdensome, and costly, taking a toll on women and their families. A multidisciplinary, integrative approach is needed that considers CPP as encompassing a spectrum of potentially coexisting diseases and conditions. With an integrated approach, patients will benefit from a renewed sense of hope that substantial improvement can be achieved even when previous specialists' efforts have not succeeded.

(*Adv Stud Med.* 2005;5(7):360-366)

Chronic pelvic pain (CPP) in women is a condition that substantially affects quality of life and has an economic impact approaching US $2 billion annually. CPP is believed to affect at least 4% and in some studies as many as 40% of women who seek primary care. CPP is responsible for 10% of all referrals to gynecologists, 12% of all hysterectomies, and more than 40% of all laparoscopies.[1-4] Part 1 of this 2-part series addressed the prevalence, etiology, and evaluation of patients presenting with this complex symptom. This article completes the series with a discussion of integrative management of patients with CPP.

Recent findings strongly suggest that a team-oriented, multidisciplinary approach is more effective than the traditional strategies that have frequently been employed in the past.[1] Traditional approaches to patient care tend to focus on organ systems and not the whole person; they tend to emphasize making a definitive

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Conflict of Interest: Dr Learman reports having no financial or advisory relationship with corporate organizations related to this activity.

Off-label Product Discussion: The author of this article discusses off-label/unapproved use of oral and injectable contraceptives for alleviation of chronic pelvic pain, medroxyprogesterone for endometriosis pain, and intravesical bacillus Calmette-Guerin and oral hydroxyzine for interstitial cystitis.

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diagnosis rather than improving function and well-being, and the ultimate diagnosis received by a patient is skewed heavily toward which specialist the patient sees. A patient with CPP whose pain worsens with menstruation but who also has bloating and urinary frequency/urgency might receive a very different evaluation depending on which specialist she chooses to see. The traditionally trained gynecologist might consider endometriosis, the gastroenterologist irritable bowel syndrome (IBS), and the urologist interstitial cystitis (IC). To avoid doing a diagnostic disservice to the patient, it is imperative that physicians—whether they are primary care clinicians or specialists—consider and screen for disorders across various disciplines, and also consider myofascial and neuropathic sources of pain as well as comorbid depression. With regard to the latter, a mental health referral should not be considered as a last resort only. Depression and pain go hand in hand. Whereas most patients will have understandable mood symptoms, others with a predisposition will experience the symptoms of a major depressive episode. Screening should occur early in the evaluation so appropriate care can be instituted.

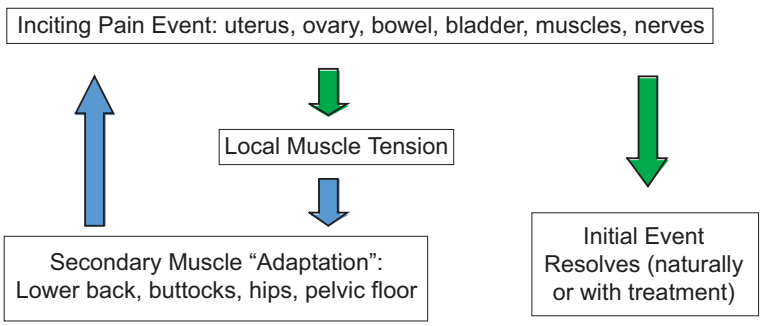
A more innovative and integrative approach to treatment of CPP calls for 1 clinician to coordinate the diagnosis and management of the patient—to serve as "team captain"—if multiple etiologies and/or specialists are involved. Although this individual may know more about the diseases in his or her specialty area, the lead clinician must also be able to screen for and treat uncomplicated versions of conditions traditionally addressed by other specialists. This approach focuses the workup on 3 issues in concert: (1) finding and treating the inciting causes; (2) optimizing mental health; and (3) correcting muscular adaptations to the inciting causes that may have become chronic causes of myofascial pain. The multidisciplinary approach also defines treatment endpoints in terms of improved functioning and well-being, including sexual functioning and quality of life. Asking, "What things would you like to be able to do that you can't do because of the pain?" can help create a list of concrete behavioral endpoints to supplement the patient's subjective impressions of whether the pain is improving.

A randomized comparison of different treatment approaches for CPP—one heavily traditional, the other more innovative—shows striking differences in success. In the standard approach (N = 49), tests were performed to rule out common causes, followed by psychologic evaluation and then routine laparoscopy. In the second, an integrated approach (N = 57) was used. Evaluation was conducted in parallel by a gynecologist, psychologist, physical therapist, and nutritionist, and laparoscopy was undertaken only if there was a specific indication. The percent who improved at 1 year was higher in the group that received integrative care. General pain was reported in 41% of the integrative group vs 75% in the standard treatment group; pain scores were 51% vs 61%; disturbance of daily activities was 37% vs 68%; and associated symptoms were 27% vs 75%, respectively.[5]

General Principles for Treatment of Chronic Pelvic Pain

Pain management may include several different strategies, including opiates and nonsteroidal anti-inflammatory drugs (NSAIDs), as well as adjunctive medications for neuropathic pain. A single around-the-clock medication, such as an NSAID, accompanied by an opioid for breakthrough pain has been shown to be effective, although opioid tolerance, and less commonly dependence or addiction, may occur. At least 3 different NSAID regimens should be implemented before abandoning them for medications with more potential for adverse effects.[2,6,7] There is no evidence that cyclooxygenase-2 specific blockers (COX-2 inhibitors) are more effective analgesics. Although evidence from randomized trials is lacking, antidepressants in low doses taken at bedtime may reduce pain of myofascial and neuropathic etiologies. Likewise, the antiepileptic drug gabapentin in doses of 300 mg to 600 mg 3 times daily may be a helpful adjunct for neuropathic pain (usually described as burning, shooting, or aching pain). Combination pharmacotherapy with 2 or more drugs that have different mechanisms of action and/or act at different sites of the nervous system (eg, analgesics, muscle relaxants, antidepressants,

Figure. Cycle of Muscular Adaptations



Chronic pelvic pain may result from a cycle of muscular maladaptations in which an inciting pain event in the pelvic and/or related structures leads to persistent muscle tension even after the inciting event resolves.

etc) may have a synergistic effect.[2] Centers run by pain medicine specialists may help determine the optimal combination of medications.

Nonpharmacologic procedures also may be utilized to blunt or eliminate pain. Neuroablation of affected nerves involves surgical interruption or chemical ablation of S2-4 autonomic fibers via presacral neurectomy, laparoscopic uterine nerve ablation, and paracervical denervation. These approaches appear to benefit patients with central pelvic pain and dysmenorrhea more so than those with other etiologies of CPP.[8] The potential for success may be predicted by attempting local anesthetic nerve block prior to ablation. However, the long-term risks of neuroablation are poorly understood. Reports of sphincter or motor dysfunction (temporary dysesthesia and limb apraxia) argue for using this approach sparingly and only after other approaches have failed.[9]

Because pain ultimately feeds into a vicious cycle of muscular responses (Figure), hypertonus and tenderness are common among women with CPP. Initially, the surrounding muscles react to an inciting event with tension, tightening, and tenderness. The secondary muscles (of the pelvis, abdomen, back, and buttocks) then react to prevent strain upon the primary muscles. However, even after the acute event runs its course and resolves, the patient may continue to have a chronic source of muscular pain that interferes with posture, strength, and balance. It is beneficial to refer these patients to physical therapists who specialize in pelvic floor muscle symptomatology, because they employ advanced techniques such as myofascial release, biofeedback, and ultrasound therapy and can teach the patient to improve symptoms through positioning, pelvic floor training, strengthening, and flexibility exercises. Additional physical therapy techniques include hot or cold applications, traction, massage, and transcutaneous electrical nerve stimulation.[10]

Whatever the treatment or combination of treatments utilized in designing a regimen for the patient with CPP, patient education plays a critical role. Patients should be made aware of the fact that chronic pain requires chronic therapy, and thus, in most cases, short-term treatment options may not be effective or feasible. Furthermore, any treatment discussion should explicitly address the patient's view of illness and accompanying fears and concerns. Asking, "Do you have any thoughts or concerns about what might be causing the pain?" can help elicit the patient's view of illness. Asking whether the patient knows anyone else with CPP also can lead to a fruitful discussion of potential causes. Often patients fear that they may have a serious disease or that their disease has been diagnosed incorrectly.[11] If such fears are not recognized, reassurance and guidance cannot be offered.

Treatment Strategies for Select, Common Causes of Chronic Pelvic Pain

It is important to recognize substantial overlap within the family of diseases explaining CPP. Patients with CPP commonly also meet criteria for clinical diagnoses of endometriosis, IC, and/or IBS.[6] Secondary muscular etiologies and psychologic comorbidities must be effectively treated in order to break the cycle of pelvic pain, so that pain does not persist after the original source has been rectified.

Endometriosis and Adhesions

A detailed discussion of endometriosis is beyond the scope of this article. However, endometriosis is the most common cause of gynecologic-related pelvic pain, and its treatment can be approached either medically or surgically. Four randomized placebo-controlled comparisons reveal similar treatment effectiveness after gonadotropin-releasing hormone (GnRH) analogue, danazol, medroxyprogesterone, and laparoscopic laser vaporization with uterine nerve ablation and lysis of adhesions. The number need to treat (NNT) to improve 1 patient's pain with any of these approaches for 3 to 6 months is 2 to 2.5 patients[12-15]; however, pain recurrence occurs soon after treatment is discontinued. Three randomized trials comparing one endometriosis treatment to another show none to be superior, whether comparing danazol vs medroxypro-gesterone,[15] GnRH agonist vs combined oral contraceptives,[16] or laparoscopic laser ablation with uterine nerve ablation vs without nerve ablation. One trial comparing lesion excision and lysis of adhesions with presacral neurectomy vs without presacral neurectomy showed 1 year of benefit after presacral neurectomy (NNT = 3) with 30% to 40% recurring within 3 years.[8]

That nonsurgical treatments of endometriosis work equally well allows primary consideration to be given to risks and side effects. Combined oral contraceptives and other progestins may be used as primary treatments and are generally effective as long as they are continued. Patients with refractory symptoms may benefit from a GnRH analogue or danazol, but long-term use of these agents is likely to be limited by systemic side effects. For example, the androgenic agent danazol may cause weight gain, bloating, fluid retention, acne, and mood changes, and masculinizing effects such as decreased breast size, increased muscle mass, increased facial and body hair, deepening of the voice, and clitoral enlargement.[17] Danazol also can cause gastrointestinal upsets, depression, and liver disease. GnRH analogues, by virtue of their antiestrogen effects, also may produce adverse effects (eg, menopausal symptoms such as hot flushes, vaginal dryness, headaches, depression, loss of libido, and night sweats). They also can develop complications such as

osteopenia. Long-term use therefore is not recommended without add-back therapy.[17] It is important to note that ovarian endometriomas do not respond to hormonal treatments and must be removed surgically. Hysterectomy is highly effective for CPP caused by endometriosis, but only if a bilateral oophorectomy also is performed. In one study of 138 cases at Johns Hopkins Hospital hysterectomy without bilateral oophorectomy had a 62% risk of recurrent pain and a 31% risk of reoperation, whereas hysterectomy with removal of the ovaries had a 10% risk of recurrence and 4% risk of reoperation.[18]

The capacity of pelvic adhesions to contribute to pain is controversial and has been supported primarily by case series and uncontrolled studies reporting symptom improvement after lysis of adhesions. Recent efforts to map pain to adhesions have met with limited success. A 2003 randomized comparison of laparoscopic lysis of adhesions vs diagnostic laparoscopy alone showed no difference in postoperative resolution of pain measured every 3 months for 1 year. Both groups improved to an equal extent. This has led some experts to recommend abandoning lysis of adhesions for CPP other than to treat bowel obstruction or to facilitate other operations of proven value.[19,20]

Bladder Pain: Interstitial Cystitis

IC may be treated with intravesical therapies, oral medications, or a combination of the two. The mainstay of treatment for many years has been intravesical hydrodistention of the bladder. In addition, a variety of medications or other agents (eg, dimethyl sulfoxide or bacillus Calmette-Guerin [BCG])[24] may be instilled intravesically with some success. Peters tested BCG in a small group of women with IC and found an 89% response rate upon follow-up of up to 33 months.[24] Oral therapy with sodium pentosan polysulfate and hydroxyzine also has been utilized (the former to repair the inflamed mucosal layer of the bladder), although Sant's study of 121 subjects failed to reveal a clear benefit of oral therapy over placebo.[25] Studies are ongoing that utilize other substances, such as botulinum toxin, resinferatoxin, and leukotriene inhibitors, which may be used to either deaden the pain of sensitive nerves or calm inflammation.

Gastrointestinal Pain: Irritable Bowel Syndrome

In general, relief of the symptoms of IBS can be accomplished by tailoring approaches to specific complaints.[26] Pain, gas, and/or bloating refractory to dietary modification warrant antispasmodic therapy. Increased roughage intake often helps in mitigating diarrhea, and pharmacologic treatment with loperamide is helpful in refractory cases. If constipation is predominant, psyllium is helpful. A meta-analysis of 5 randomized trials of peppermint oil suggests this over-the-counter remedy is effective for a variety of IBS-related symptoms, including bloating, stool frequency, and flatulence.[27]

Although randomized trials to validate these dietary treatments are lacking and the regimens difficult to follow, dietary treatments have been the mainstay of therapy for IBS. They sometimes call for exclusion of lactose, sorbitol and fructose, caffeine, alcohol, carbonated products, cigarettes, and gum, as these products cause swallowing of air that leads to distension, or they increase rectal urgency or are generally irritating to the intestinal tract. After taking a thorough dietary history to discover possible offending agents, physicians may counsel the avoidance of dairy products, fatty foods, spices, or caffeine, but restrictive diets or complicated efforts to discover what the cause of the symptoms may be often are counterproductive. As with dietary interventions, the use of medications (ie, laxatives, antidiarrheals, antispasmodic drugs, bulking agents—depending on the symptoms) is supported by little evidence, but may be prescribed in an attempt to improve symptoms for those patients whose quality of life is impaired (eg, in the case of the patient with CPP, antispasmodic medicines or bulking agents).[28]

Myofascial and Neuropathic Pain

It is essential to address perpetuating mechanisms of pain. Patients with myofascial pain should be referred to physical therapists specializing in pelvic floor muscle work.[29] These therapists prescribe exercis-

Criteria for Considering Hysterectomy in Complex Cases of Chronic Pelvic Pain

(1) Physical examination should localize tenderness to within the peritoneal cavity (negative Carnett's test of tender areas on abdominal examination)
(2) Myofascial sources of pain should be successfully treated
(3) Symptoms of IC and IBS should be addressed
(4) Somatization should be considered and ruled out, especially in women with symptom onset before age 30
(5) If depression is present, it should be successfully treated to the point of remission so that the full benefits of hysterectomy can be anticipated
(6) Patients should agree to concomitant bilateral oophorectomy if endometriosis is found (the failure rate of hysterectomy alone is unacceptably high)

Important Note: Patients should be strongly urged to consider reevaluation aimed at detecting nongynecologic causes of CPP. A multidisciplinary approach often finds causes of pain that are not appropriately treated with hysterectomy.[21-23]

IC = interstitial cystitis; IBS = irritable bowel syndrome; CPP = chronic pelvic pain.

es to improve muscle strength and flexibility, perform myofascial release, and use biofeedback techniques to increase patients' awareness of elevated resting tone in pelvic floor muscles. Improved muscle awareness may restore control over muscle tension that previously the patient was not consciously able to manipulate.

Trigger points can be disrupted via ultrasound energy, myofascial release, or injections using either 10 cc to 15 cc of lidocaine 1% or bupivacaine 0.25% to 0.50%—introduced into the fascia until the trigger point is localized. Trigger point injection has been reported to be from 60% to 90% successful, although patients must be prepared for the fact that injections are initially very painful. Repeated injections often are necessary over several days to weeks.[30]

Analgesics and medications effective for neuropathic pain (ie, imipramine, amitriptyline, nortriptyline, gabapentin) may be used as adjuncts, but should not be used as a substitute for pelvic physical therapy. For the few patients who actually have a frank pelvic floor muscle spasm, short-term use muscle relaxants may be helpful. With regard to potent pain medication or antidepressant therapy, patients should be made aware that doses may need to be titrated over time and that it may take a couple of weeks (depending on the medication), to notice an effect and/or to adjust to any adverse effects, for instance, drowsiness.

Depression and Somatization

Because few women's health specialists or primary care clinicians can offer psychotherapy in their practices, pharmacologic treatment more often is recommended. The safety profile of the selective serotonin reuptake inhibitors and bupropion make them ideal for treatment of depression in patients with CPP. Unfortunately, treatment for psychologic comorbidity may be a challenge for the woman who is seeking an organic explanation for her pain. It is crucial to introduce the mental health impact of pain at the very first visit. By telling the patient that "depression and pain go hand in hand" she will be more likely to accept treatment for depression. If somatization is suspected, a mental health referral is required to make a definitive diagnosis. Somatization is a subconscious phenomenon and should not be confused with malingering for secondary gain. Patients with CPP due to somatization may benefit from psychosocial support and avoidance of potentially harmful interventions, including surgery.

Long-term Care and Follow-up

In summary, phase I of treatment generally includes 3 considerations in parallel: inciting causes, muscular maladaptations, and psychologic comorbidities. Treatments for inciting causes vary according to the clinician's impressions. For example, if symptoms are dysmenorrhea predominant, a regimen may be prescribed to cease menstruation (eg, continuous-cycle oral contraceptives, medroxyprogesterone acetate, or a GnRH agonist). Patients with prominent symptoms of IBS could be started on dietary/behavioral modification and symptom-specific medications; those with prominent bladder symptoms could be started on empiric treatment for IC, or they might be referred for cystoscopic evaluation. If the pain arises from a trigger point, the patient can be injected with local anesthetic. If myofascial sources of pain are present, the patient should be referred to a physical therapist skilled in pelvic pain evaluation and management. If criteria are met for a major depressive disorder, treatment should be initiated without delay.

In phase II, which follows 1 to 3 months later, improvement is documented in terms of both level of pain and functioning. If no improvement is apparent, medications can then be adjusted and adherence encouraged, especially with treatments for myofascial pain and depression. If endometriosis or other visceral pathology is suspected, laparoscopy may be considered to provide diagnostic information and initiate treatment. Alternatively, presumptive treatment for endometriosis can be initiated.

By phase III, 3 to 6 months from initial presentation, most patients will have experienced substantial improvement in their symptoms. For patients who have not experienced any improvement and who have completed childbearing, hysterectomy has a good chance of success if certain conditions are met: (1) physical examination should localize tenderness to within the peritoneal cavity (negative Carnett's test of tender areas on abdominal examination); (2) myofascial sources of pain should be successfully treated; (3) symptoms of IC and IBS should be addressed; (4) somatization should be considered and ruled out, especially in women with symptom onset before age 30; (5) if depression is present, it should be successfully treated to the point of remission so that the full benefits of hysterectomy can be anticipated; and (6) patients should agree to concomitant bilateral oophorectomy if endometriosis is found (the failure rate of hysterectomy alone is unacceptably high). Most importantly, patients with complex multifactorial pelvic pain should elect hysterectomy over reevaluation aimed at detecting nongynecologic causes that were not apparent at initial evaluation. This should be done with the knowledge that, according to multiple clinical studies, a multidisciplinary approach often finds causes of pain that are not appropriately treated by hysterectomy.[21-23]

Patients suffering from years of chronic pain frequently look to surgery as the "definitive therapy." However, surgical treatments including hysterectomy do not work optimally in all CPP patients, but rather in those whose pain can be localized to an intraperi-

toneal source, those who are not depressed, and in complex cases in which multidisciplinary care including physical therapy has been unsuccessful.

Psychosocial Issues and the Therapeutic Relationship

Unfortunately, CPP is likely to affect a woman's relationship with her romantic partner. Intercourse may be painful, and may lead to avoidance of intimacy due to fear of further discomfort or the possibility of exacerbating an underlying condition. Couples who may not engage in vaginal intercourse, including lesbian couples, can still experience difficulties with their sexual relationship or other aspect of the sexual response (eg, libido, arousal, orgasm). Clinicians should frankly and openly discuss issues related to sexuality with patients in an attempt to determine if the pain has indeed affected an intimate relationship; methods for minimizing discomfort should be discussed. For improving comfort with intercourse, the patient is encouraged to communicate with her partner to determine what will be mutually pleasurable. Using positions that allow the patient to control the depth, direction, and pace of intercourse may be helpful. Patients who have abstained from sex due to pain should first practice insertion using a dildo or vaginal dilator before resuming vaginal intercourse with a partner.

Most important of all, a caring therapeutic relationship needs to be established between the clinician and the patient. Expectations must be made clear to the patient from the onset that treatment success should be defined not by "cure" but by improving functioning and well-being while minimizing distress. In most practices evaluation and counseling regarding treatment options will need to be extended over several visits. Patients benefit from a renewed sense of hope that substantial improvement can be achieved even when previous specialists' efforts have not succeeded.

Future Directions for Treatment of Chronic Pelvic Pain

Additional research is needed in many aspects of CPP treatment. Practitioners use medications and surgical interventions deemed "promising" in uncontrolled studies before they are rigorously studied in randomized-controlled trials. Such trials are uncommon in CPP yet are crucial for identifying the best evidence-based interventions for this condition. Whereas there is enthusiasm for integrative models of care, improving the efficiency of this approach will be difficult until the most essential and effective components of care are distinguished from less effective components. For example, logic and clinical experience support the value of physical therapy for myofascial pelvic pain; however, the most effective physical therapy techniques are unknown. Regarding hysterectomy, better prospective data comparing outcomes of alternative treatments will improve our ability to counsel patients on how best to create sustained improvements in their quality of life, functioning, and well-being.

Conclusion

CPP is common, burdensome, and costly—not only in terms of economics, but in terms of the toll it takes on women and their significant others. It is unfortunate that for many patients with CPP, the choice of specialist may dictate which diagnoses are sought and treatments considered. Historically, the gynecologic approach has included hormonal treatments, laparoscopy, and hysterectomy. The gastroenterologic approach traditionally encompasses colonoscopy or sigmoidoscopy, dietary modification, and possibly pharmacologic treatment for IBS or inflammatory bowel disease; and the urologic approach usually relies on a complete urologic assessment, including cystoscopy. If all tests are negative, generally patients are referred to a mental health specialist. In such situations, a referral may be interpreted as a last resort and not as a routine component of care, which can send patients the message that their pain is not real, and, as a result, make them less likely to accept referral to mental health counseling.

Instead, a multidisciplinary, integrative approach is necessary—one that considers CPP as encompassing a spectrum of potentially coexisting diseases and conditions. The most often overlooked sources of pain are myofascial and neuropathic abnormalities, and the most often omitted components of care are pelvic floor physical therapy and identification and treatment of abdominal and vaginal trigger points. Both pharmacologic and physical interventions have proven helpful for these. Innovative approaches address mental health issues early—rather than waiting until after other diagnoses/treatments have failed—and should be a part of a multifaceted approach that also includes treating the inciting causes and breaking the cycle of pain and muscle adaptation.

Useful Web Sites

- www.pelvicpain.org — International Pelvic Pain Society
- http://www.ichelp.org — Interstitial Cystitis Association
- http://digestive.niddk.nih.gov/ddiseases/pubs/ibs_ez/index.htm — National Digestive Diseases Information Clearinghouse (information about Irritable Bowel Syndrome)
- www.nva.org — National Vulvodynia Association

Finally, in terms of patient education and support, online resources are excellent adjuncts to clinician visits and give patients a means of acquiring knowledge about pelvic pain as well as possibly gaining a cohort of support. When all of these diagnostic and therapeutic avenues and a multidisciplinary approach are used, treatment success for CPP at 1 year ranges from 60% to 75%.[5]

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