Review

Management of interstitial cystitis/ Bladder Pain Syndrome: a short review

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INTRODUCTION

Interstitial cystitis/bladder pain syndrome (IC/BPS) is a chronic bladder condition which is characterized by bladder pain, urinary frequency, and nocturia. IC/BPS had been considered a progressive disease that may evolve from early to late stages[1]. According to the American Urological Association (AUA) guidelines, IC/BPS is diagnosed if symptoms are present for a period of more than 6 weeks[2]. The underlying etiology of IC/BPS is not well understood and it is likely that a number of mechanisms are involved in the development of the condition. The urothelium/transitional epithelium is thought to play a fundamental role in the pathogenesis of IC/BPS[3]. The protective layer of glycosaminoglycans (GAG) on the surface of the urothelial cells provides a barrier against solutes in the urine. Components of this layer include hyaluronic acid, chondroitin sulfate, heparin sulfate, dermatan sulfate and keratin sulfate[4]. GAG layer has been shown to be defective in some patients with IC/BPS[5].

Since other medical conditions may mimic IC/BPS symptoms, careful multi-disciplinary evaluation of the pelvic organs should be needed in order to rule out other conditions, including urological (infections, stone disease, malignancy), gynecological (endometriosis, painful menstrual periods), gastrointestinal (diverticulitis, irritable bowel syndrome, inflammatory bowel disease) and others.

Treatment of IC/BPS often depends upon clinician's preferences and experience rather than upon scientific studies mainly because the cause of IC/BPS is not clear. Most patients will need several treatments to improve their symptoms[6]. The need to reduce the pain may be significant only during flares, when symptoms are bothersome or even severe. It is not always clear why flares develop and some triggers we suggested as promoting exacerbations: beverages such as alcohol and coffee, spicy foods, certain body positions and medical conditions including gastrointestinal problems and infections[7].

Management of IC/BPS is staged and includes several steps[8].

TREATMENT

General measures

Reassurance – Often the patients wander between different care providers and seek help for years before diagnosis is made. Acknowledging patients distress and the effects on their quality of life, encourage many of them to advance to next step of seeking relief. On-line support groups such as the Interstitial Cystitis Network (www.ic-network.com) give the patients a valuable information.

Changing life habits – stressful way of life may exacerbate the flares of IC/BPS. A relaxing activity including Pilates or Yoga may reduce amount and severity of the flares[9]. Changing body positioning from sitting to working at standing desk may also give some relief.

Diet changes – There are reports that spicy, acidic and caffeine enriched diet may worsen the pain among IC/BPS patients[7]. There is a controversy whether to reduce aggravating foods only during flares or to recommend a regular restrictive diet.

Psychological guidance – since pain can be worsened by anxiety and stress[10], and it has been suggested that unsolved events from the past may promote chronic pain, psychosocial support can be helpful in dealing with IC/BPS[11]. In addition, living with pain can cause difficulties in day to day life such as at work and personal relationships, which could be ameliorated by psychological guidance. Psychotherapy may include participation in support groups for sharing difficulties or private meetings with a social worker, a psychologist or a psychiatrist[12].

Physiotherapy – IC/BPS patients suffer from groin and perineal muscle spasms. Pelvic floor physiotherapies include training the muscles to relax and decrease the tone, pressing on trigger points, and controlling movements of the connective tissues and related muscles[13,14].

Bladder hydrodistention – hydrodistending the bladder through a cystoscope under epidural or general anesthesia to the maximal bladder capacity, is a combination of diagnostic and treatment procedure[15]. Diffused glomerulations over the bladder endothelium that may be seen, would be strengthening the diagnosis of IC/PBS. Some patients report pain relief after the procedure[16,17] including a prolong relief up to 12 months[18].

Oral medications

Pentosan polysulfate sodium (Elmiron) is the only oral medication that has been approved by the US Food and Drug Administration (FDA) to treat interstitial cystitis/bladder pain syndrome (IC/BPS). It affects by repairing the lining of the bladder[19]. It reduces symptoms in some patients with IC/BPS, although mostly the symptoms do not totally disappear. Studies reported promising results as a single therapy or combined with other oral medications[20,21,22]. The side effects include abnormality of liver function tests, gastrointestinal symptoms, and hair loss that reduce the compliance among patients.

Cimetidine (Tagamet) have been used to treat IC/BPS, with variable results[23,24]. This medication can cause diarrhea, fatigue and muscle pain that reduce the compliance among patients.

Amitriptyline (Elavil) is an antidepressant that is used to treat chronic pain as well as mood disorders. The drug reduces pain perception when used in low doses, but the exact mechanism of its benefit is unknown. The results reported are quite conflicting[25]. Side effects include decrease in blood pressure, fatigue, dry mouth or weight gain that reduce the compliance among patients.

Other medications – include narcotics and NSAIDS medications as part of the pain management. Different anecdotal drugs were used including Sildenafil[26], Cyclosporine A[27] and others without any promising results.

Bladder Instillations

Dimethylsulfoxide (DMSO) – is the only bladder liquid instillation that has been approved by the US FDA to treat IC/BPS. It probably acts by promoting repair of the lining of the bladder[28]. The induction is for 6-8 weeks on a weekly basis and if it proves to be beneficial, it may be followed by a monthly instillation. The liquid is held in place for approximately 20-60 minutes. Studies show that DMSO can temporarily improve bladder pain[29,30]. Side effect is a garlic-like odor of the compound that reduces the compliance among patients.

Other bladder instillations – Several "cocktail" combination instillations were suggested to improve the effect on IC/BPS. These include among others: DMSO, lidocaine, heparin, sodium bicarbonate and antibiotics (mostly Garamycin)[31]. The aim of the combined instillations is to decrease nerve sensitivity in the bladder with improving the bladder lining. The treatment is offered either as a series twice to three times a week or a single treatment to reduce a severe flare[32]. The patient is instructed to hold as much as possible, up to two hours before urinating. The duration of pain reduction is very heterogenic and lasts up to several weeks.

In one small study, approximately 80 percent of patients had decreased pain for at least four hours after one treatment with heparin, sodium bicarbonate, and lidocaine. In other series patients experienced reduced pain for days or weeks after bladder installations[31].

Intravesical botulinum toxin type A (Botox) injections – Injecting botulinum toxin type A to the detrusor muscle is well-established routine in the overactive bladder management guidelines. A cystoscope with a special needle is used intravesically to inject in 10-20 spots along the detrusor using 100-200 units of Botox. Studies using the same technique for IC/BPS patients showed promising results after single treatment[33,34,35,36] as well as after repeated applications of injections[37,38].

Electrical Stimulation

Electrical Stimulation offers an alternative option of treatment for IC/BPS. The less invasive mode is by evoking the tibial nerve passing next to the lateral calcaneus transcoutaneously either with delicate needle or plug connected to a battery and sending electrical signals[39]. This wire sends a mild electrical pulse which ascends up to the sacral nerve. This pulse is thought to interrupt signals from the brain that trigger pain, urgency, and frequency in people with IC/BPS.

A different approach is a direct stimulation of the sacral nerve by placing a small wire under the skin just above the tailbone. It is first attached externally by a wire that is placed next to the nerve in the low back, then tunneled out of the skin and connected to a small battery (about the size of a pager) that is worn on the waist. The wires are taped securely to the skin. If it shows benefit in reducing pain, a permanent battery is attached to the wire, and the battery and wire are then surgically implanted under the skin of the upper buttock. This trademark instrument, called Interstim, is FDA approved for overactive bladder, but can be used in the arsenal treatments for IC/BPS patients as well[40,41]. The side effects reported included local dermal symptoms, bleeding, pain as well as battery exhausting needed additional surgery to replace it. There are numerous trials showing improvement of symptoms among IC/BPS patients.

Surgery

Most patients with IC/BPS are not good candidates for major surgery. Surgical options of cystectomy with ileal conduit or neobladder for a non-respondant patients are quite unusual since it is not guaranteed the pelvic pain may be relieved and the morbidity of the procedure is high[42].

CONCLUSION

In summary, IC/BPS is a pain disorder that affects the quality of life of the patients and since no treatment proved a dominant effect, a combined behavioral, psychological and pharmacological treatment is needed to reduce the flares exacerbations.

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