QUESTION

I was diagnosed with Interstitial Cystitis over 10 years ago. I have been home for six years dealing with this awful illness. I have no social life, had to give up many foods/alcohol and rely on pain medication. I find there are so many people who have never heard of it or don't believe how serious it can be. My daughter was diagnosed with it last year. Can you tell me about new treatments for it? Is it hereditary?

ABSTRACT

Questions and answers from patients to educate them with information regarding interstitial cystitis. Discussion on pathology, genetics, course of disease, symptoms and treatments.

KEYWORDS

Interstitial cystitis**,** BPS, UCPPS, IC, painful urination, gene FZD8, KCL, phenylacetylglutamine, hydro distension, APF, pelvic PT, biofeedback, sacral stimulation,

ANSWER

Interstitial cystitis also known as bladder pain syndrome (shortened to "BPS/IC") or Urologic Chronic Pelvic Pain Syndromes (UCPPS) is a disease of the bladder linked with pain, painful urination, increased frequency of urination, urination at night, urgency and hesitancy.**(1)** Other complaints include bladder and pelvic floor pressure, pain on sexual intercourse as well as pain in doing activities of daily living (ADL) like driving, working and travelling. BPS/IC affects men and women of all cultures, ages, social and economic backgrounds. Growing numbers of men and women are being diagnosed in their twenties and younger. BPS/IC is more common in females than in men. BPS/IC affects 1 in 100,000 to 5 in 1,000 of the general population. **(2)**

Pathology- The pathology is not known although several theories have been suggested including- autoimmune (the body attacking itself) genetic, allergy mechanisms and neurologic mechanisms .**(3)** Despite the cause it is found that most of these patients suffer with a damaged bladder lining often following several bladder infections, excess caffeine and soda intake as well as past bladder injuries. This allows the chemicals in the urine to get into bladder muscle causing swelling and pain. Recently it has been found that the FZD8 and PAND genes have a role in a small percentage of patients. The FZD8 gene **(4)** causes production of a protein called anti proliferative factor that slows down the cells of the bladder lining to grow and repair. In patients with this gene, the bladder lining cannot form or repair as normal.**(5)**

Diagnosis- In 2006 the European Society for study of IC proposed diagnosis guidelines for the disease. This consisted of pain in the bladder plus one other urinary complaint. A history and physical exam would need to confirm this as well as a urine dipstick test, urine cultures and prostate specific antigen levels in men over 40. Also advised was ultrasound scanning of post urination bladder volume and urine flow study. If these tests pointed to interstitial cystitis then the gold standard of cystoscopy (inserting a fiberoptic camera in to the bladder via the urethra) and hydro distension (filling the bladder with saline) with biopsy would be used to confirm. **(6)** There is also a "potassium chloride sensitivity" test where the bladder lining is exposed to potassium chloride (KCL) via a catheter placed in the bladder causing pain in patients with interstitial cystitis.**(7)** In 2009 Japanese researchers found a marker chemical called phenylacetylglutamine that could be used for early diagnosis.**(8)**

Treatment-As with most pain syndromes there are multiple factors involved in the cause of it. Therefore multiple different approaches are usually necessary for controlling the symptoms. These are as follows-

Medication- Pentosan polysulphate (Elmiron) (PPS) is an oral bladder coating drug that has been helpful in some patients to provide relief of pain. (PPS) remains the main of drug therapy for most patients. Although the exact way PPS works on the bladder is not completely clear, it is felt to function by coating the bladder lining and reducing potassium leak into the bladder muscle. Patients using PPS need to be aware that the full effect may not be seen for 6–9 months, but they can be reassured that many patients see improvement in as little as 4 weeks. **(9)** Intra vesicular (in the bladder) installation of other coating drugs like Uracyst and Cystistat have also found to be helpful. There is a lot of excitement about bladder instillations via a catheter for acute attacks that consist of Elmiron, heparin lidocaine and sodium bicarbonate. This provides great pain relief for acute attacks in 90% of patients. **(10)**

Drugs like Amitriptyline have proved successful in 46% of patients taking this medication. They work by affecting the chemicals in nerve endings. This is thought to reduce nerve firing, irritation and inflammation that cause pain. Also it helps with urgency and frequency.**(11)** If a patient cannot tolerate the side effects of Amitriptyline alternatives like Nortryptiline, Doxepine, Trazadone have been used. There are no placebo controlled trials for Selective serotonin inhibitors use in IC. If there is nerve involvement at the spinal or brain level as often occurs in longstanding pain then adding Neurontin- a drug that affects nerve transmission in the brain and spine may be necessary. **(12)**

Anti histamine drugs are also used to stop cells that cause inflammation and pain. Hydroxyzine hydrochloride remains the most effective drug for the management of this.**(13)**

Traditional painkillers like opioids and synthetic opioids like tramadol are used to treat the severe pain often associated with this condition.**(1)** Inadequate pain treatment can lead to whole body pain and amplification of the pain syndrome.

Pelvic Physical Therapy- There are theories that IC is part of a myofacial pain syndrome where muscles of the pelvic floor are wound up to the point where they are hypersensitive. These knots called trigger points are painful if pressed and cause shooting pain. Therapy is often focused to stretch and loosen these wound up loops of muscles causing them to relax and become less hypersensitive. Most IC clinics will refer to a physical therapist for pelvic PT. This consists of stretching and lengthening the pelvic floor muscles to relax. This is done externally as well as internally. The therapist will also teach exercises to the individual that they can do at home to maintain looseness of the pelvic muscles. **(14)** Daily muscle relaxation audiotapes, stress reduction and anxiety management on a daily basis is also needed. Transvaginal manual therapy of the pelvic floor muscles (Thiele massage) has shown promise in relieving the pain associated with interstitial cystitis in at least one open, clinical pilot study **(15)**

Diet-The foundation of therapy is changing the diet to help patients avoid those foods which can further irritate the damaged bladder wall. Common offenders are highly spiced or acidic foods and include alcohol, coffees, teas, all sodas (particularly diet), fruit juices, chocolate, potassium-rich foods such as bananas, tomatoes, citrus fruit, cranberries, the B vitamins, vitamin C, monosodium glutamate.**(16,17)** The problem with diet triggers is that they vary from person to person: the best way for a person to discover his or her own triggers is to use an elimination diet. Most IC support groups and many urology clinics have diet lists available. One study does show celiac disease causing chronic pelvic pain in a woman who benefited from a gluten free diet. **(18)**

Neuromodulation- This is where nerve signals causing pain are changed and reduced (modulated) in to non painful sensations by the use of small electrical impulses. This can be done outside the body e.g. - TENS unit where a pad is placed over the painful area causing pleasant stimulations that detract from the painful ones.**(19)** Or it can be done more permanently inside the spine by implanting electrode wires in to the lower lumbar or sacral epidural space with a pulse generator implanted in to the buttock pocket area that causes continuous stimulation. This is called a spinal cord stimulator implant. Sacral nerve root stimulation **(20)** has proven to be effective in trial studies. This method is usually kept for patients who have failed other treatments and have undergone a trial placement of the spinal cord stimulator electrodes (usually 1 week) with greater than 50% reduction in their pain scores and increases in activities of daily living.

Surgery- Surgical procedures are rarely used for IC. Even after complete cystectomy (removal of the bladder) many patients continue to experience chronic pelvic pain **(21)** Surgical interventions for IC include transurethral fulguration and resection of ulcers, using electricity/laser; bladder denervation, where some of the nerves to the bladder are cut(Modified Ingelman-Sundberg Procedure) and bladder augmentation. Effectiveness of these procedures is lacking. There are some patients who have had implantation of an intrathecal (spinal) medication infusion device for uncontrolled pain from IC usually because they are on increasing doses of opioids which cause them intolerable side effects like sedation, constipation, confusion, nausea and itching.

Psychology- most patients suffering from pain have psychological issues that worsen the pain experience. Some of the more beneficial therapies for pain control include Cognitive behavior therapy where the patient is taught how to respond to their painful condition in a non defeating, positive and constructive way. They are also taught how to recognize errors in their cognition (understanding) about the condition they have and also how this impacts their daily lives and the lives of the people around them. Biofeedback **(22)** is also used and this is a therapy where the person is trained to control their pulse, blood pressure and breathing in response to pain therefore altering their pain experience. It is also important to identify other psychiatric illnesses that might occur with IC and treat it appropriately e.g. anxiety and depression. **(23)** The doses for antidepressants used to treat depression are usually higher than the doses of anti depressants used to treat pain. In a 19 patient study using breathing techniques, relaxation techniques, sitz baths and diazepam there was a significant reduction in pain in patients over a 3 month period.

Acupuncture- Affecting nerve transmission through acupuncture occurs by re-establishing a balanced flow of energy, termed Yin and Yang, throughout the body via 12 meridians and multiple acupoints. Stimulation of these points leads to release of various chemicals in the body that change pain transmission and chemistry. A study by Rapkin and Kames reported the results of 14 patients with pelvic pain who had 6–8 weeks of acupuncture therapy twice a week. Eleven patients had a >50% reduction in pain. This suggests a role for acupuncture in association with other therapies. Many IC clinics offer this treatment. **(24)**

Our understanding of this disease has improved greatly over the last 15 years. With new treatment options becoming available to us the cornerstone of therapy is multi disciplinary management. The aim is to make the person function at an acceptable level in their life whilst controlling their symptoms. There is no one single cure for this syndrome and treatment is focused in increasing functional goals and activities of daily living.

Questions/ comments please contact-

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