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Bladder Pain Syndrome in Females

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ABSTRACT

Bladder pain syndrome (BPS), previously recognized as interstitial cystitis and painful bladder syndrome, is a chronic pelvic pain condition that can be significantly debilitating and decrease quality of life for women. The etiology of BPS is unknown, and it is diagnosed by exclusion. BPS remains difficult to diagnose and manage because of vague symptoms and a lack of universally effective treatments. This article reviews the current literature about BPS etiology, clinical presentation, diagnosis, and treatment options.

Keywords: bladder pain syndrome, chronic pelvic pain, diagnosis, interstitial cystitis, painful bladder syndrome, treatment

Interstitial cystitis (IC), painful bladder syndrome (PBS), and bladder pain syndrome (BPS) are all terms for the same chronic condition, which has an evolving definition and lack of consensus regarding etiology, diagnosis, and treatment. The term IC was used by the National Institute for Diabetes and Digestive and Kidney Diseases in 1987 to describe bladder pain with classic cystoscopic findings.[1] In 2002, the International Continence Society (ICS) changed the terminology to PBS and defined the condition as suprapubic pain associated with bladder filling accompanied by urinary frequency not related to other conditions.[1] In 2008, the European Society for the Study of Interstitial Cystitis (ESSIC) changed the terminology to BPS, which is the presence of chronic pelvic pain, pressure, or discomfort with an additional urinary symptom.[2] After the ESSIC change, ICS updated their terminology to BPS with the following definition: "chronic (>6 months) pelvic pain, pressure, or discomfort perceived to be related to the urinary bladder accompanied by at least one other urinary symptom such as persistent urge to void or frequency."[3] ICS recognizes the terms BPS and IC can be used interchangeably.[3]

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BACKGROUND AND SIGNIFICANCE

Many theories regarding the etiology of BPS exist including inflammation, mast cell activation, glycosaminoglycan (GAG) layer defects, bladder cell proliferation defects, autoimmune mechanisms, infection, autonomic nerve changes, toxic agents, hypoxia, and genetic factors.[3] No single etiology theory has been identified to cause BPS. Inflammation and mast cell activation play a role in ulcerative BPS, but in nonulcerative IC, these levels may remain normal.[3] A defect in the GAG layer or bladder cell proliferation exposes nerves in the bladder to toxic substances in urine, which can cause pain and urinary frequency, but this theory needs more evidential support.[3] Although autoantibodies are noted in some patients with BPS, it is not characteristic of all cases, and, so far, no infectious organism has been identified as the cause of this syndrome.[3] Neurogenic inflammation is another proposed theory lacking substantive evidence.[4] Decreased bladder perfusion, or hypoxia, was noted in some patients with BPS, but it is unclear why hypoxia occurs.[3] Recent studies have shown that women with a first-degree relative with BPS have a significantly higher prevalence of BPS than the general population, indicating a genetic susceptibility to this syndrome.[3]

The only definitive risk factors for BPS include being female and having a first-degree relative with

the disease.[3,5] Other possible risk factors include a personal history of urinary tract infections, allergies, chronic fatigue syndrome, endometriosis, fibromyalgia, irritable bowel syndrome, vulvodynia, Sjogren's syndrome, chronic headaches, depression, and anxiety.[5,6] A strong correlation between physical, emotional, or sexual abuse and BPS has also been identified.[7] Most BPS diagnoses occur in women in their 40s, but it is unclear if this is because of a delayed diagnosis or part of the disease process.[3]

With the changing criteria for the diagnosis of BPS, prevalence is difficult to calculate. Estimations have varied from 67 in 100,000 to up to 6.5% of adult women.[4] BPS affects about 5 times as many women as men.[4] Although the overall population affected is estimated to be small, the health cost for these individuals is estimated to be approximately twice as much as those without BPS.[4] Speculation also exists that BPS is largely underdiagnosed because fewer than 10% of women with bladder pain symptoms have the diagnosis of BPS.[4]

BPS is a chronic disease that can significantly disrupt normal daily activities and decrease quality of life. BPS is linked to an increased risk of developing anxiety, depression, and insomnia.[8] The pain with BPS can be debilitating, and the fear of incontinence episodes can inhibit normal daily function.[4] Women with BPS may also avoid sexual relationships because of embarrassment and discomfort.[4] The knowledge about this chronic, debilitating condition continues to evolve.

LITERATURE REVIEW

Research related to BPS continues to focus on discovering the cause of BPS and management options. Newer research has shown a genetic component to BPS, and new links between BPS and other conditions are being discovered. Recent studies have shown patients with BPS are 4.37 times more likely to have a previous anxiety disorder and 2.16 times more likely to have a previous hyperthyroidism diagnosis.[9,10] Other studies have focused on identifying biomarkers for BPS. Antiproliferative factor has been identified as a biomarker in symptomatic patients, but additional research is needed to determine if this is useful in patients in remission.[3] Bladder inflammation increases nitric oxide levels, which has been suggested as a BPS biomarker, but testing requires specialized equipment not suited for standardized use.[1] At least 7 other possible biomarkers have been identified, but further research is required, and no consensus on a diagnostic biomarker has been made.[1] There is an increased interest in studying urologic chronic pelvic pain syndromes as a whole that include chronic pelvic pain syndrome and BPS.[11,12] The National Institute for Diabetes and Digestive and Kidney Diseases has initiated the Multi-Disciplinary Approach to the Study of Chronic Pelvic Pain (MAPP) Research Network to systematically study urologic chronic pelvic pain syndromes.[13] Their research focuses on finding the relationship between the urologic syndromes and other chronic conditions including endometriosis, vulvodynia, irritable bowel syndrome, fibromyalgia, and chronic fatigue syndrome.[13] Current research focuses include epidemiology, phenotyping symptoms, neuroimaging and neurobiology, biomarkers, and organ cross talk/pain pathways.[13] The overlap of symptoms in urologic and nonurologic pain syndromes may be the link needed to discover the cause of BPS.

CLINICAL PRESENTATION

Chronic pelvic pain is the primary characteristic of BPS. This pain can present as suprapubic pain related to bladder filling or urethral, vulvar, vaginal, rectal, abdominal, or back pain.[4] Patients may also have urinary urgency, frequency, or nocturia.[14] Symptoms may worsen related to menstrual cycles or after sexual intercourse.[14] Urinary urgency is estimated to be present in 84% of patients with BPS and presents as a constant urge to urinate versus a sudden urge seen with overactive bladder.[6] Typically, patients with BPS void as a method to relieve pain, and patients with overactive bladder void to prevent incontinence.[6] Sexual dysfunction may also be present, with patients complaining of dyspareunia or low sexual desire.[15] Spontaneous symptom remission, which lasts on average 8 months, can occur throughout the disease process.[3]

Although not diagnostic of BPS, symptoms can be quantified and monitored over time with 1 of the 3 valid and reliable symptom questionnaires available for BPS: University of Wisconsin Interstitial Cystitis Scale (UW-IC Scale); O'Leary-Sant indexes; and