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Chronic Pelvic Pain Syndrome among women - challenge in diagnostics and management. Current literature review

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ABSTRACT

Introduction and purpose:
Chronic Pelvic Pain Syndrome (CPPS) is characterized as intermittent or constant pain located in the lower abdomen or pelvis, persisting continuously for at least 6 months [1]. Reports on the prevalence of chronic pelvic pain indicate the occurrence of this condition at a level of 5.7–26.6% in women of reproductive age. However, only a third of women suffering from chronic pelvic pain, seek medical care [2].
Clinical picture of CPPS consists of various patterns and symptoms, often as the intersection of the multiple systems, which additionally complicates and delays the diagnostic process.
The aim of this review is to summarize existing literature about the diagnostics and management of Chronic Pelvic Pain Syndrome among women and create an awareness about the challenges which this condition poses for healthcare professionals.

A brief description of the state of knowledge:

Chronic Pelvic Pain Syndrome is a multifaceted condition and the pathophysiology of it has not yet been comprehensively studied. Clinical picture often involves dysfunctions in pelvic floor, urinary tract, or gastrointestinal system. Treatment involves a multidisciplinary approach including non-pharmacological and pharmacological interventions.
Summary (conclusions):

Chronic Pelvic Pain is a complex condition involving symptoms affecting the psychological, gastrointestinal, musculoskeletal systems. The most successful treatment approach emphasizes the role of collaboration among a diverse team of specialists such as gynecologists, gastroenterologists, psychiatrists, psychologists, and physiotherapists. More research focused on multimodal strategies in management of the CPP is needed to match patients most effectively with the most suitable combination of treatment and reduce the systemic consequences of chronic pain.

Keywords: Chronic pelvic pain syndrome, chronic pain, therapeutic interventions, gynecology

Etiology

The sole cause of the CPPS hasn’t been identified yet. Current research data categorizes it as a functional pain disorder, alongside conditions such as irritable bowel syndrome or fibromyalgia. They are characterized by the absence of the distinct structural or disease cause [2]. Chronic pelvic pain is often associated with comorbidity. It exists concurrently to conditions such as endometriosis, pelvic adhesions, irritable bowel syndrome, or interstitial cystitis. Significant cognitive, behavioral, sexual, and emotional consequences may be present simultaneously with CPPS.

The centralization of pain is considered to be the underlying mechanism of CPPS. Due to dysfunction in the pelvic floor a development of heightened sensitivity (hyperesthesia) and pain response to non-painful stimuli (allodynia) is observed [2]. Central sensitization arises from phenotypic alterations in the central nervous

system, which results in activating and amplifying nociceptors without necessity of the peripheral stimuli presence [3]

Factors contributing to an increased risk of experiencing pelvic pain include painful menstruation in women under 30 years old, a BMI (Body Mass Index) below 20, early menarche <12 years, extended or irregular menstrual bleeding, a history of pelvic inflammatory disease, previous cesarean section, a record of miscarriages, symptoms of premenstrual tension syndrome, reported instances of sexual abuse, drug or alcohol abuse, smoking, and mental health disorders (such as depression, anxiety) [4].

Most common causes of pain are related to the gynecological and urogenital systems. They include endometriosis/adenomyosis, chronic pelvic infection, uterine fibroids, ovarian tumors, pelvic congestion syndrome.

Pain can also stem from non-gynecological sources, including irritable bowel syndrome, constipation, appendicitis, diverticulitis, chronic urinary bladder inflammation, interstitial cystitis, musculoskeletal pain with degenerative changes, and neurological factors such as myofascial dysfunction, neuropathies. Additionally, pelvic malignancy can contribute to pain [5].

Psychological factors

Among women suffering from CPPS evidence suggest higher coincidence with mental health disorders [6].
Patients who experience chronic pelvic pain report the occurrence of depression from 26% to 52%, while in the general population the prevalence presents within the range of 10% [7].
Coexisting anxiety has been found from 39% to 73% of the patients with CPPS and it varies within 12% in the general population [7].

Another important psychological condition, which contributes to the course of the CPPS is pain catastrophizing. It is defined as a tendency to exaggerate negative stimuli and overestimate experiences related to pain [8]. It has been suggested

that involvement in catastrophic thinking might be associated with suppressing effective regulation of pain by inducing anticipatory anxiety and may result in poorer treatment outcomes [7].

To elucidate the psychological process triggered by pain there has been suggested the fear-avoidance (FA) model. It suggests that anxiety and fear of pain, coupled with negative expectations, compel the patients to concentrate on their illness, negatively impacting their ability to cope with pain and impairing their sexual performances [9].
Studies showed that lower levels of anxiety and pain catastrophizing were associated with reduced pain during intercourse and improved sexual functioning [10].

Diagnostics

Multifactorial etiology of the CPPS and many overlapping symptoms create difficulties in evaluating and assessing patients. Roughly 60% of patients suffering from CPPS do not receive a precise diagnosis [11]. The management of this condition should commence with a thorough history-taking approach. It’s crucial to obtain a comprehensive overview of the patient's pain complaints and assess systems relevant to the pelvis, encompassing musculoskeletal, neurologic, urologic, gastrointestinal, gynecologic, and psychiatric aspects. Exploring the psychosocial context is integral during this history-taking process [12].

Self-administered questionnaires completed by the patients can be an easy tool expanding diagnostic possibilities.
To evaluate pain catastrophizing, recommended tool is the The Pain Catastrophizing Scale (PCS). It consists of 13 items categorized into three domains: rumination, magnification, and helplessness. A score of ≥ 30 indicates the presence of catastrophizing behavior [3].

Anxiety can be investigated with the use of Generalized Anxiety Disorder Questionnaire- (GAD-7). It is a short, 7-item self-report questionnaire, which measures the intensity of anxiety manifestations in the preceding two weeks [13].

Systems-based approach should be adapted for proper physical examination of pelvic pain. The evaluation of gynecologic, urologic, gastrointestinal, neurologic, and musculoskeletal systems should be conducted as appropriate. It may be performed using visualization, palpation, speculum examination, digital vaginal and/or rectal examination [14]. It is necessary to assess all presenting symptoms, areas of pain, and potential differential diagnoses. The search for alarming symptoms such as signs of potential malignancy (for example postmenopausal bleeding, pelvic masses) or symptoms indicating acute etiology of the condition such as appendicitis, should be performed.

Assessing whether a patient is experiencing neuropathic pain may be performed using diagnostic nerve blocks. Patients suffering from pudendal neuralgia may benefit in reducing severity of the pain after injections of the corticosteroids or local anesthetics to the pudendal nerve [15].

Supplementary tests including visual and laboratory tests should be used on an individualized basis, considering presenting symptoms and findings from physical examinations. The focus is to identify coexisting diseases. For instance, if there are any risk factors for possible sexually transmitted infectious disease (STID)- the recommended course of action would involve identifying potential pathogens through laboratory tests on blood or urine.
Potential causes of CPP such as anatomical abnormalities or masses can be easily discovered using imaging for example with pelvic ultrasonography or transvaginal ultrasonography (TVUS) [3].

Treatment

In the management of CPPS the most effective therapeutic approach is directly addressing the potential cause of this multi-etiological condition. In cases where the etiology is not entirely clear, and the pain process is indicative of overlapping conditions, a strategy involving collaboration among multiple specialists may be necessary. It is crucial to help patients understand the origin of pain and enhance

comprehension of their symptoms. Focusing on emotional and psychological factors shouldn’t be overlooked.

The proper approach may involve both pharmacotherapy and methods focusing on rehabilitation or psychotherapy.

An initial step may involve incorporating nonsteroidal anti-inflammatory drugs, considering that the etiology of the CPP may be associated with increased inflammation.

Combined oral contraceptives or progestogens are widely used particularly when pain is associated with cyclic recurrences and are best documented for pain caused by endometriosis or adenomyosis [16],[17].

Gonadotropin-releasing hormone (GnRH) analogs demonstrate greater efficacy compared to progesterone therapy after one year of the initiation of the treatment and have a more favorable impact on mood and sexual functions in patients [18]. Their use, however, is limited by side effects, namely vaginal dryness and osteoporosis, which can be minimized by limiting the duration of therapy, calcium supplementation, and the use of so-called "add-back therapy," involving concurrent use of a two-component contraceptive pill or hormone replacement therapy [19].

For the neuropathic origin of the pain, recommended are medications that affect the nervous system, such as antiepileptic drugs [13]. Gabapentin and pregabalin focus on pre- and postsynaptic inhibitory processes where they reduce the excitability of neurons at both the spinal cord and cortical levels [20]. They contribute to the reduction of pain intensity, hyperalgesia, and allodynia by activating the descending noradrenergic system.

Fan, Xiu-Mei et al. assessed the role of gabapentin against various therapeutic interventions or placebos and documented a more substantial difference in effectiveness favoring gabapentin, particularly with prolonged use (6 versus 3 months) [21].

Coexisting with CPP mood disorders including anxiety create demand for use of medications which are efficient for neuropathic or neuroplastic pain. These include selective serotonin and norepinephrine reuptake inhibitors (SNRIs) and tricyclic antidepressant drugs (TCAs) [22].

Duloxetine (SNRI) administered at a dosage of 60 mg/day, has demonstrated the ability to alleviate pain in individuals with diabetic neuropathy and/or fibromyalgia

[23]. Although there is a lack of studies specifically conducted on women with chronic pelvic pain, duloxetine could be considered on a trial basis for neuropathic pain associated with CPP.

The use of antidepressants that exclusively target serotonin, such as Selective Serotonin Reuptake Inhibitors (SSRIs) is not recommended. They have an analgesic effect in the central nervous system, however peripherally they indicate inflammation and heighten the sensitivity of pain receptors, which may exacerbate discomfort of the pain [24].

Another effective intervention for managing musculofascial pain is Myofascial Physical Therapy (MPT). It focuses on strengthening pelvic floor muscles, decreasing excessive muscle tension, improving tissue flexibility, postural balance and pelvic perfusion [12]. FitzGerald et al. proved that Pelvic Myofascial Therapy (MMT) was much more efficient in pain reduction among women with CPPS compared to women treated only with general massage [25].

Additionally, incorporating a dietary changes and physical activity may be supplementary to both pharmacological and non-pharmacological approaches. When Irritable Bowel Syndrome and Bladder Pain Syndrome coexist with CPPS, it has been documented that reduction of fermentable oligosaccharides, disaccharides, caffeine, alcohol and gluten may be beneficial.

Psychological approaches for CPPS treatment may include Cognitive- Behavioral Therapy (CBT). It is focused on following through the patient's thoughts, emotions, and behavioral patterns to guide them and help them understand the influence of those factors on their overall functioning. It also concentrates on performing exposition to feared stimuli or situations [26].

In case of the ineffectiveness of the conservative treatment, diagnostic laparoscopy may be beneficial. It is usually performed in order to identify the possible structural cause of pain. However, the use of this method is limited due to the risks and many side effects it involves. Studies suggests that diagnostic laparoscopy is conducted in 40% of women with CPPS where the etiology is unknown. Endometriosis foci are discovered in 1/3 of cases, 1/4 involve intra-abdominal adhesions and another 1/3 remain inconclusive [27].

When the etiology of CPPS indicates a congestion syndrome, a procedure associated with pain relief may be embolotherapy. It involves the closure of ovarian or internal iliac veins with the use of small stainless-steel coils. Studies

have demonstrated this procedure as beneficial in reduced recurrences of pelvic pain [28].

Lastly, the most invasive procedure reserved for last line therapy is hysterectomy. It results in alleviation of pain symptoms for the total of 40% patients. Another 40% of them remains with no change in perception of pain. 5% of women experience pain escalation after the procedure [29].

Additionally, incorporating a dietary changes and physical activity may be supplementary to both pharmacological and non-pharmacological approaches. When Irritable Bowel Syndrome or Bladder Pain Syndrome coexist with CPPS, it has been documented that reduction of fermentable oligosaccharides, disaccharides, caffeine, alcohol and gluten may be beneficial [30].

Aerobic physical activity of moderate intensity for at least 150 minutes per week has been proven to offer general health benefits and reduce anxiety and depression, which are common comorbidities associated with CPPS [3].

Summary

Chronic Pelvic Pain Syndrome is a common issue among women, especially during the reproductive period. The symptoms described by patients are diverse, making it challenging to standardize appropriate treatment. Women often undergo numerous doctor appointments and tests before receiving a proper diagnosis. The symptoms vary and affect the psychological, gastrointestinal, musculoskeletal systems. This diversity among clinical presentations poses challenges in conducting multicenter, randomized studies and creating therapeutic recommendations. Treatment strategies encompass pharmacological and non-pharmacological interventions and should include combining both methods to improve the effectiveness of an individual care.

The most successful treatment approach emphasizes the role of collaboration among a diverse team of specialists such as gynecologists, gastroenterologists, psychiatrists, psychologists, and physiotherapists. More research focused on multimodal strategies in management of the CPP is needed to match patients most effectively with the most suitable combination of treatment.

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