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Review Article

Clinical assessment and management of patients with National Institutes of Health categories IIIA and IIIB chronic prostatitis/chronic pelvic pain syndrome

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ABSTRACT

Chronic pelvic pain syndrome in men is characterized by lower urinary tract symptoms consisting of pelvic pain, variable urinary symptoms, and sexual dysfunction. Chronic pelvic pain syndrome is different from chronic prostatitis, in which an identifiable bacterial infection or a positive bacterial culture can be obtained. Chronic pelvic pain syndrome affects approximately 7% of men and causes significant morbidity, disability, and cost. The assessment of men with chronic prostatitis/chronic pelvic pain syndrome involves a cascade of diagnostic steps, including an evaluation of the clinical presentation, physical examination, evaluation of urine and expressed prostatic secretions, special examination of the seminal plasma, and a search for common bacteria and uncommon pathogens. Cystoscopy, urodynamics, and medical imaging studies may provide valuable information for patients with predominantly urinary symptoms. Histopathological examination of prostatic biopsy samples may also be beneficial.

1. Introduction

The majority of symptomatic cases of chronic prostatitis (CP) are classified as National Institutes of Health (NIH) category III or chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS). Although the etiology of CP/CPPS is not well established, its clinical presentation appears to result from the interplay between psychological factors and dysfunction in the immune, neurological, and endocrine systems. Recent studies have shown that increased proinflammatory and decreased anti-inflammatory cytokines, an autoimmune process, possible defects in the androgen receptors, neurogenic inflammation, and central sensitization might be involved in the pathogenesis of CP/CPPS. The prostate may not even be the source of the symptoms. Finally, psychological stress may produce measurable biochemical changes and influence other processes [1].

2. Definition of CP/CPPS

The NIH classification of prostatitis syndromes [2] includes: category I, acute bacterial prostatitis, which is associated with severe prostatitis symptoms, systemic infection, and acute bacterial urinary tract infection; category II, chronic bacterial prostatitis, which is caused by chronic bacterial infection of the prostate with or without prostatitis symptoms and usually with recurrent urinary tract infections caused by the same bacterial strain; category III, CP/CPPS, characterized by chronic pelvic pain symptoms and possibly voiding symptoms in the absence of urinary tract infection; and category IV, asymptomatic inflammatory prostatitis, in which prostate inflammation exists in the absence of genitourinary tract symptoms.

3. Symptom scoring and questionnaires

The NIH Chronic Prostatitis Symptom Index (NIH-CPSI) is an established international standard index for the evaluation of symptoms of prostatitis, but not its diagnosis [2]. The validated NIH-CPSI has been recommended to evaluate the severity of symptoms [3] and to measure the outcome of a variety of therapeutic agents for CP/CPPS [4–13].

Conflicts of interest: none.

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As an evaluative tool, the NIH-CPSI provides an insight into the severity of symptoms relevant to chronic prostatitis. However, its role as a diagnostic tool is debatable because not all of the questions/scores in the NIH-CPSI adequately distinguish between CP and other urological disorders [14]. A 2-year prospective study of symptoms was completed in men with CP/CPPS enrolled in the NIH Chronic Prostatitis Cohort study. The total scores on the NIH-CPSI of 293 men with complete data records showed a substantial variation in symptoms. There was no evidence that the disorder worsened significantly during the 2-year follow up and about one-third of men with long-standing symptoms demonstrated moderate to marked improvement during this period [15].

A clinical phenotype system [urinary, psychosocial, organ-specific, infection, neurological/systemic, and tenderness (UPOINT)] was proposed to classify patients with urological pelvic pain to help understand the etiology and to guide treatment [16]. The percentages of patients positive for each domain were 52%, 34%, 61%, 16%, 37%, and 53%, respectively. The number of positive domains correlated with the severity of symptoms and a longer duration of symptoms increased the number of positive domains. Because each domain has specific targeted treatments, it was proposed that multimodal treatment might be guided best by the UPOINT phenotype.

One study looked at 100 patients undergoing multimodal treatment based on the UPOINT phenotype and measured the response at least 6 months after treatment. The results showed that multimodal treatment using UPOINT led to a significant improvement in symptoms and quality of life [17]. A recent study evaluated the presence and importance of pain catastrophizing among men diagnosed with CP/CPPS. A total of 61 men completed the NIH-CPSI, Short-Form McGill Pain Questionnaire, and Coping Strategies Questionnaire to evaluate pain catastrophizing; the International Index of Erectile Function was also scored according to the UPOINT system. The results showed that the patients with a high tendency for catastrophizing (Coping Strategies Questionnaire score $\geq$20) had higher UPOINT and pain scores and also a worse quality of life and quality of life impact [18].

There was a remarkable correlation between season and pain intensity. Pain was considered to be three times more intense during the winter months. This result confirms the association between cold and symptom intensity in the Scandinavian countries, where the seasonal temperature variation spans a wide range and winters are long [19].

In one study, there was a high degree of overlap of storage symptoms, voiding symptoms, and pain symptoms in patients who reported urological symptoms, with few observed differences between sexes. Thirty-four percent of the men and 43% of the women with storage or voiding symptoms also had pain symptoms. Ninety percent of men and 94% of women with pain also had voiding or storage symptoms [20]. A symptom-based classification system may identify and address all patients' complaints more accurately. Overlapping patterns of lower urinary tract symptoms and pelvic pain were also commonly found in a racially and ethnically diverse community-based population. Overall, approximately 16% of men and women had one symptom pattern, whereas 7% had overlap patterns. Except for urinary incontinence and interstitial cystitis/painful bladder syndrome in both men and women, the prevalence of all symptom complexes related to benign prostatic hyperplasia and CP/CPPS were significantly associated with one another [21].

In summary, the NIH-CPSI is becoming established as an international standard for symptom evaluation in prostatitis, but not for diagnosis. The NIH-CPSI total score has a high internal consistency in the evaluation of the severity of current symptoms and in measuring outcomes, i.e., the longitudinal course of symptoms with time and/or treatment. A clinical phenotype system, UPOINT, has been proposed to classify patients with CP/CPPS and the score is associated with symptom severity. Multimodal treatment might be guided best by the UPOINT phenotype.

4. Sexual and ejaculatory dysfunction in CP/CPPS

The sexual function of 1274 European men with lower urinary tract symptoms was assessed by the Danish Prostate Symptom Score Sex Questionnaire. Erectile dysfunction and reduced ejaculation were highly prevalent in men with lower urinary tract symptoms and were strongly related to increasing age and lower urinary tract symptom severity [22]. Another study investigated ejaculatory pain in a cohort with CPPS to evaluate associations with symptoms, quality of life, and risk factors. They found that patients with CPPS and persistent ejaculatory pain had more severe symptoms that were less likely to improve with time than other patients with CPPS [23].

Sexual dysfunction, premature ejaculation, decreased libido, and erectile dysfunction are considered to be common in patients with CP/CPPS. Data from the Giessen cohort study showed that 42% of patients with CP/CPPS reported erectile dysfunction and 26% reported premature ejaculation. Furthermore, these disorders lead to reduced frequency of sexual contact [3].

One study evaluated CP/CPPS by correlating the six-domain UPOINT phenotype system with clinically relevant parameters. The number of positive domains and the NIH-CPSI and its quality of life section were linked; however, there was no correlation between the number of positive domains and the International Index of Erectile Function-5 ejaculatory pain, painful micturition, cold sensitivity, or pain localization, except for scrotal pain. There was an obvious link between catastrophizing and the NIH-CPSI [24]. One European study investigated the addition of a sexual dysfunction domain in regard to symptom correlation and the internal consistency of the system. The consistency of the UPOINT CP/CPPS clinical phenotyping system was generally confirmed by the study and further refined by adding a sexual dysfunction domain [25]. However, another study found that the inclusion of an erectile domain to the UPOINT phenotype did not improve correlation with symptom severity in men with CP/CPPS [26].

CPPS is known to have a negative impact on quality of life, especially on intimate relationships and sexual function. In a Malaysia study, 72.3% of men with CP/CPPS reported sexual dysfunction [27]. Patients with CPPS differed from controls by reporting significantly fewer sexual desires or thoughts, fewer sexual activities, less arousal/erectile function, less orgasm function, and more genital pain during or after intercourse [28]. This study suggested that interventions addressing psychological factors affecting sexual responses should be further studied in evaluation and treatment to improve sexual function and satisfaction in men with CPPS.

In summary, CP/CPPS has a negative impact on sexual function and on quality of life. The evaluation of patients with CP/CPPS should include assessment of erectile dysfunction and ejaculation pain. Inclusion of an erectile domain to the UPOINT phenotype does not conclusively improve correlation with symptom severity in men with CP/CPPS.

5. Somatization disorders, psychological impact, and quality of life in patients with CP/CPPS

Psychosomatic factors are often neglected in the evaluation of CP/CPPS in urological practice. Diagnostic and therapeutic strategies should address the involvement of somatic and psychogenic

factors in the pathogenesis of the syndrome. Personality variables such as somatization, depression, anxiety, hypochondriasis, and weak masculine identity play an important role in questionnaire-based studies [28].

Somatization disorder has been described in several comorbid functional syndromes of urological CPPS, such as irritable bowel syndrome. Female patients with urological CPPS were more likely to endorse a polysymptomatic, polysyndromic symptom pattern than female controls. By contrast, male patients did not report more extra-pelvic pain than male controls [29].

Anxiety and depression are the two most prevalent clinical manifestations of patients with CP/CPPS and have adverse effects on the health of the patients and the prognosis of comorbidities. One preliminary study from China reported that male patients with CP/CPPS had a higher prevalence of psychological disorders than controls. Of the 77 patients studied, 48 (62.3%), five (6.5%), and one (1.2%) had anxiety, depression, or both, respectively. The prevalence of anxiety and depression and the symptom scores on the Hospital Anxiety and Depression Scale were both higher for younger (<35 years) than older (>35 years) age groups [30].

A population-based study aimed to prospectively examine the relationship between a history of CP/CPPS and the risk of developing depressive disorder in Taiwan. Of a total of 18,306 patients, 163 (5.34%) from the CP/CPPS group and 494 (3.24%) from the comparison group had a subsequent diagnosis of depressive disorder during the 3-year follow-up period, suggesting that patients with CP/CPPS have a higher risk of depressive disorder than patients without CP/CPPS [31]. A study of 152 patients with CPPS and 204 patients with irritable bowel syndrome showed that 111 (31.2%) patients had both disorders. The patients with both CPPS and irritable bowel syndrome had total NIH-CPSI and pain subscale scores that were significantly higher than patients with CPPS alone [32].

Tripp et al [33] found that depressive symptoms and pain intensity significantly predicted poor quality of life in a study of 463 men with CP/CPPS. They concluded that CP/CPPS is associated with negative psychological factors and reduced quality of life; pain intensity was the most robust predictor of a poorer quality of life. The finding was also supported by a Korean study [34] and a population-based cross-sectional survey of Finnish men [35].

Patients with CPPS had consistently higher scores for hypochondriasis, depression, and hysteria than controls on the Minnesota Multiphasic Personality Inventory and on a somatization and depression scale [36]. These results indicate that depression and psychosocial distress are common among patients with CP, which indicates a need for careful evaluation and attention to psychological symptoms.

CP/CPPS-like symptoms were common and had an important impact on quality of life in a study in a large healthy population. Of all NIH-CPSI symptoms, urinary frequency was associated with the least favorable quality of life, followed by incomplete bladder emptying, pain frequency, and pain intensity. It was concluded that these symptoms should represent the main therapeutic targets in affected patients [37]. Another study followed up the symptoms and quality of life of men with CP/CPPS for 2 years. Interestingly, there was no evidence that the disorders worsened significantly and one-third of men with long-standing symptoms demonstrated moderate to marked improvement during this period [15].

In summary, patients with CP/CPPS have a high prevalence of psychological disorders such as depression, anxiety, and hypochondriasis. Diagnostic and therapeutic strategies should address the involvement of somatic and psychogenic factors in the pathogenesis of CP/CPPS. Careful evaluation and attention to psychological symptoms are helpful in the treatment of CP/CPPS.

6. Physical examination

6.1. Myofascial trigger points and musculoskeletal dysfunction

Myofascial pain is a possible etiology for category III CP/CPPS, either secondary to infection/inflammation or as the primary cause. Pathological tenderness of the striated muscle was observed in 88.3% of men with CP/CPPS [38]. This myofascial tenderness was always associated with an inability to relax the pelvic floor efficiently with a single or repetitive effort. A hypertonic urethral sphincter was noted during urodynamic studies.

A controlled study of men with CPPS categories IIIA and IIIB and healthy controls showed that patients with CPPS had significantly greater pain and tension on palpation of the psoas muscle and groin than healthy mean without pelvic pain [39]. Significant improvement was found after a 12-week biofeedback pelvic floor re-education and bladder training program [40]. A study using the Manual Tender Point Survey to assess 62 men with CP/CPPS categories IIIA and IIIB and 98 men without pelvic pain revealed that men with CP/CPPS had more tenderness than men without CPPS. Tenderness in men with CPPS was distributed throughout the pelvis and was not specific to the prostate [41].

A combination of manual physiotherapy and specific relaxation training is effective in treating patients with CP/CPPS. In a study of 72 men who underwent treatment with physiotherapy and relaxation training, the pain sites were the penis in 90.3% of men, the perineum in 77.8%, and the rectum in 70.8%. Puborectalis/pubococcygeus and rectus abdominis trigger points reproduced penile pain, whereas external oblique muscle palpation elicited suprapubic, testicular, and groin pain in most of the patients [42]. It was suggested that identifying the site of clusters of trigger points inside and outside the pelvic floor may provide focused therapeutic approaches.

New clinical phenotyping demonstrates that pelvic tenderness is an important component of urological CPPS. In one recent study, pressure pain thresholds on ten genito-pelvic sites and one control site (deltoid) were measured using a digital algometer. Men with CPPS had reliably lower pain thresholds than controls in all locations, including the deltoid. Men with CPPS also demonstrated consistently lower overall pain thresholds regardless of location. Furthermore, pressure pain thresholds were able to correctly distinguish patients from controls 77% of the time. Pressure pain thresholds appear to be a promising method of assessing tenderness in men with CPPS [43].

6.2. Digital rectal examination and abdominal examination

We could not find a systemic review, randomized controlled trial, or clinical trial which contributed to the evaluation of digital rectal examinations or abdominal examinations of patients with CPSS. In a data review, 51% of the 384 men with CPPS, but only 7% of the 121 asymptomatic controls, had any tenderness. In patients with CPSS, the most common pain site was the prostate (41%), followed by the external and internal pelvic floor (13% and 14%, respectively), and the suprapubic area (9%). Extra-prostatic tenderness may identify a cohort of patients with a neuromuscular source of pain [44]. A digital rectal examination is helpful in the differential diagnosis of bacterial prostatitis. Patients with CP/CPPS may perceive pressure pain rather than tenderness on digital rectal examination of the prostate.

In summary, examination of the abdomen, external genitalia, perineum, and prostate is mandatory. New clinical phenotyping demonstrates that pelvic tenderness is an important component of urological CPPS. Tenderness in men with CPPS is distributed throughout the pelvis and is not specific to the prostate. Identifying

the site of clusters of trigger points inside and outside the pelvic floor may provide focused therapeutic approaches.

7. Cystoscopy

Bladder neck hypertrophy was found in 60% of men with CPPS category IIIB in a prospective study [45]. The urodynamic findings of increased detrusor pressure, decreased maximum flow-rate, and increased post-void residual urine implied that the cystoscopic findings were compatible with bladder neck dysfunction. There could be an overlap between CPPS and male lower urinary tract dysfunction due to bladder neck or urethral dysfunction. Cystoscopy was not recommended as a routine procedure except for patients with obstructed voiding symptoms or hematuria, or other suspected lower urinary tract pathology [46].

8. Imaging methods for evaluation

8.1. Transrectal ultrasound of the prostate and pelvic floor

Transrectal ultrasonography of the prostate (TRUS-P) is frequently used to determine the prostatic volume and transition zone index, and in detecting prostatic cancer. However, the role of TRUS-P in CP/CPPS remains debatable and ultrasound features alone cannot be used for the final diagnosis. Color Doppler ultrasound may be of some assistance.

Color Doppler TRUS-P was used to evaluate 25 patients with acute prostatic syndrome, seven patients with asymptomatic CP, 13 patients with prostate cancer, and six healthy controls. Marked color increases indicative of acute inflammation were observed in all men with acute prostatic syndrome and the color intensity matched the severity of acute prostatic syndrome symptoms [47]. Another study evaluated the presence of abnormal blood flow in patients with CP/CPPS using color Doppler TRUS-P. Significant increases in blood flow in the prostatic capsule and diffuse flow throughout the prostatic parenchyma were observed [48].

Transrectal ultrasound was used to measure certain parameters in 37 patients with CP/CPPS and 23 healthy volunteers. On multivariate analysis, a hypoechoic periurethral zone volume was an independent predictive factor for worse NIH-CPSI pain, urinary scores, and total scores. Posterior prostate lip thickness was the only factor predictive of a worse International Prostate Symptom Score in patients with CP/CPPS. Measurement of the hypoechoic periurethral zone volume, posterior prostate lip thickness, and bladder neck thickness could be useful in following up patients with CP/CPPS [49].

Prostatic calcification is common in asymptomatic elderly men. However, young men with CPPS often have significantly calcified prostates. Among 47 men with CPPS who underwent TRUS-P, those with prostatic calcification were less likely to have pelvic floor tenderness, but were more likely to have bacteria in the prostatic fluid and a higher median white blood cell count. Prostatic calcification was common in patients with CPPS and was associated with greater inflammation, bacterial colonization, and symptom duration [50]. However, another study revealed that prostatic calculi were not an independent predictive factor of severe lower urinary tract symptoms. Men with prostatic calculi had more severe lower urinary tract symptoms not only because of prostatic calculi, but also because of age and a large prostatic volume [51].

Ultrasonography of the pelvic floor muscle was used to measure the anorectal angle and levator plate angle in men with urological CPPS. The ultrasound probe was placed on the perineum and three-dimensional images were taken at rest and during contraction of the pelvic floor muscle. Men with CPPS had more acute anorectal angles than controls, both at rest and during contraction. Men with CPPS had significantly more acute levator plate angles during contraction and levator plate excursion. Acute anorectal angles were positively correlated with greater pain and sexual dysfunction. Anxiety was correlated with more acute anorectal angles and more obtuse levator plate angles [52].

8.2. Magnetic resonance imaging

Magnetic resonance imaging was found to be insensitive in differentiating prostate cancer from other prostatic disorders. In a group of patients with prostatic cancer, benign prostatic hyperplasia, acute bacterial prostatitis, chronic bacterial prostatitis, CPPS, and in symptom-free controls, the accuracy in the diagnosis of prostate cancer was 74% (sensitivity 53% and specificity 83%); the positive and negative predictive values were 53% and 82%, respectively. The accuracy of the diagnosis of cancer was high, but the differentiation of bacterial prostatitis from cancer was difficult [53].

Combined magnetic resonance imaging and three-dimensional magnetic resonance spectroscopic imaging data were examined retrospectively in 12 patients with radical prostatectomy specimens that contained regions of CP larger than 6 mm in the peripheral zone. With magnetic resonance spectroscopic imaging, pathologically confirmed CP may demonstrate a metabolic abnormality that leads to a false-positive diagnosis of cancer. The most common magnetic resonance imaging finding in CP was a focal low signal intensity that was not specific for cancer [54].

9. Urodynamic study and physiological testing

Patients with CP/CPPS may have both storage and voiding symptoms. Bladder outlet obstruction or detrusor over-activity should first be excluded in patients with lower urinary tract symptoms. One previous study revealed that only 1.6% of patients with CP had bladder outlet obstruction [55]. Although patients with chronic bacterial prostatitis (category II) had significantly lower flow-rates than the controls in one study, the parameters for chronic bacterial prostatitis and CP/CPPS were similar [56]. Urodynamics evaluation showed that men with CP/CPPS and voiding difficulty had a low maximum flow-rate and increased intravesical pressure and, in some patients, increasing urethral pressure. The study concluded there might be dysfunctional voiding in patients with CP/CPPS and lower urinary tract symptoms [57]. Another study showed obstructive urodynamics findings in 60% of patients with CP/CPPS, implying an overlap between CPPS and male lower urinary tract dysfunction due to bladder neck or urethral dysfunction [45].

In neurophysiological testing, men with CPPS were found to have significantly higher pain intensity at lower temperatures and higher peak computer-generated visual analog pain scores than controls. This suggested that neural mechanisms involving sensitization are involved in the pathophysiology of CPPS [58]. A study attempting to define CPPS by quantitatively assessing thermal sensory function revealed that men with CPPS had altered heat sensation/pain sensitization (higher mean peak computerized visual analog scale values) in the perineum compared with controls [59]. Interestingly, 83% of men with CP/CPPS reported that cold temperatures aggravated symptoms and/or induced a relapse. Sixty-three percent of patients stated that taking a hot bath and 46% reported that spending time in a hot climate decreased symptoms [60].

Patients with CP/CPPS might have histological and physiological bladder changes similar to those documented in patients with painful bladder syndrome/interstitial cystitis. Thirty-five patients with CP/CPPS according to the clinical criteria of the NIH were

evaluated. Urinary symptoms were present in 31 (88.6%) patients. Pelvic pain was reported in all patients. A potassium sensitivity test was positive in 26 (84%) of the 31 patients who presented with urinary symptoms in the filling phase. Glomerulations were observed on bladder cystoscopy in 24 (68.6%) patients [61]. It was concluded that the symptoms in some patients diagnosed with CP/CPPS might be related to bladder dysfunction rather than prostatic inflammation.

Potassium chloride (KCl) instillation is known to cause pain in most patients with painful bladder syndrome/interstitial cystitis or CP/CPPS, reflecting urinary epithelial dysfunction. A positive KCl test was found in 84% of men with CP/CPSS, which was almost identical to the rate reported for men with painful bladder syndrome/interstitial cystitis (79%) [62]. However, another study found that the rates of positive KCl test were 50% and 36.5% in the CP/CPPS and control groups, respectively ($p = 0.160$). There was no significant correlation of KCl sensitivity scores with NIH symptom scores [63]. The role of the KCl test in the differential diagnosis of CP/CPPS remains inconclusive.

Capsaicin (5 mL at a concentration of 1 μM) in a diagnostic test, as well as a potential therapeutic tool, was applied topically to the skin of the perineal body of men with CP/CPPS and healthy controls. The patients were asked to mark the intensity of any heat or burning sensation on a visual analog scale. The patients with CP/CPPS reported a heat/burning sensation intensity that was statistically greater than that reported by the healthy controls (7.5 vs. 4.3, $p < 0.001$) and a shorter time to heat sensation onset and maximum intensity. Sixteen of the 22 patients reported an improvement in symptoms after 7 days of capsaicin treatment and the mean NIH-CPSI score decreased [64]. The testing was similar to the sensitization test of C-fibers and the therapeutic effect was similar to that of central desensitization.

In summary, in selected patients with obstructive voiding symptoms, it is reasonable to consider urodynamic evaluation to check for bladder neck or urethral dysfunction. A KCl sensitivity test to elicit urothelial dysfunction in CP/CPPS is optional. A thermal sensory test may have potential in the evaluation of CP/CPPS.

10. Histological study of CP/CPPS

A prospective study examined prostate histopathology in 368 biopsy samples from 97 patients with symptoms of CP/CPPS to systematically characterize inflammation. The degree of prostatic inflammation was minimal/absent in 95% of patients; 4% had moderate and 1% had severe inflammation [65]. Another systematic literature review of papers from 1979 to 1999 concluded that prostatic inflammation is a common histopathological observation, although its association with CP/CPPS has not yet been completely defined [66].

In the REDUCE trial to determine if daily doses of dutasteride (0.5 mg) reduces the risk of biopsy-detectable prostate cancer, there was evidence of a relationship between the degree of lower urinary tract symptoms and the degree of chronic inflammation. Both age and average chronic inflammation were significant in linear regression after adjustment for other covariates; for both variables, more severe inflammation was associated with higher International Prostate Symptom scores [67].

One recent study evaluated the significance of histological prostatitis in patients with benign prostatic hyperplasia and acute urinary retention and those with prostatic adenocarcinoma. Histological prostatitis was almost twice as common in patients with urinary retention associated with underlying benign prostatic hyperplasia than in patients with prostatic adenocarcinoma, but there was no significant difference in the duration of catheterization, prostatic volume, or presence of urinary tract infection, suggesting that histological prostatitis more often contributes to the development of retention in patients with underlying benign prostatic hyperplasia than in those with prostatic adenocarcinoma [68].

In summary, the histological study of prostatic tissue is helpful in the diagnosis of adenocarcinoma, but not CP/CPPS. Most chronic inflammation in CP/CPPS is mild. Prostate biopsy samples in patients with CPPS may be of more benefit in research than in clinical diagnosis.

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