MODERN APPROACHES TO THE DIAGNOSIS AND TREATMENT OF CHRONIC PROSTATITIS: A CLINICAL AND LABORATORY ANALYSIS

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Abstract. *Chronic prostatitis, particularly chronic pelvic pain syndrome (CP/CPPS), remains a significant diagnostic and therapeutic challenge in clinical urology. It is a multifactorial syndrome with overlapping inflammatory, infectious, neurogenic, autoimmune, and psychosocial components. The purpose of this study is to provide a comprehensive clinical and laboratory evaluation of chronic prostatitis, focusing on modern diagnostic protocols and treatment approaches. The study included clinical data from 80 patients with symptoms lasting longer than three months, and combined both traditional and innovative diagnostics, such as PCR-based pathogen identification, EPS analysis, and transrectal ultrasound. The results show that a personalized, phenotype-based approach, especially using the UPOINT classification, enhances therapeutic outcomes. Antibiotics remain effective in selected cases, but alpha-blockers, physiotherapy, and anti-inflammatory agents also play vital roles. The study highlights the importance of interdisciplinary collaboration and long-term patient monitoring.*

Keywords: *Chronic prostatitis, CP/CPPS, diagnosis, EPS, alpha-blockers, antibiotics, UPOINT classification, pelvic pain, TRUS, microbiology*

Introduction: Chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) is one of the most prevalent and frustrating urological conditions encountered in men under 50. Although not life-threatening, it significantly impairs quality of life and presents a broad spectrum of clinical symptoms ranging from pelvic pain, urinary frequency, urgency, and painful ejaculation to psychological distress, including anxiety and depression.

The pathophysiology of CP/CPPS is complex and incompletely understood. The condition is classified as type III prostatitis by the NIH, and further subclassified into IIIA (inflammatory) and IIIB (non-inflammatory) types. While type II chronic bacterial prostatitis has a clear infectious etiology, most CP/CPPS cases lack identifiable pathogens. Therefore, treatment is often empirical, multifactorial, and prolonged.

Modern medicine has introduced a variety of tools and methodologies to improve diagnosis and patient stratification. Among them are advanced imaging, molecular diagnostics (e.g., PCR), and validated symptom questionnaires like NIH-CPSI. Similarly, treatment options have expanded from empiric antibiotic therapy to include alpha-blockers, anti-inflammatory agents, phytotherapy, behavioral therapy, and pelvic floor physiotherapy.

This study aims to assess current approaches to the diagnosis and management of chronic prostatitis using clinical and laboratory data, and to explore the effectiveness of multimodal treatment strategies.

Materials and Methods

This was a prospective observational study conducted at a tertiary urology clinic over a period of 18 months (January 2023 – June 2024). A total of 80 male patients aged between 25 and 55 years with symptoms of chronic pelvic pain syndrome lasting for more than 3 months were included.

Inclusion Criteria:

a. Male patients aged 25–55 years
b. Symptoms of pelvic or perineal pain >3 months

c. No evidence of urinary tract infection or cancer

Exclusion Criteria:

a. History of recent urological surgery
b. Active sexually transmitted infection
c. Neurological disorders affecting bladder function

Clinical Assessment Tools:

a. NIH Chronic Prostatitis Symptom Index (NIH-CPSI)
b. International Prostate Symptom Score (IPSS)
c. Physical examination including digital rectal exam (DRE)

Laboratory Investigations:

a. Urinalysis and urine culture
b. Four-glass Meares–Stamey test and simplified two-glass test (VB1 and VB3)
c. Expressed Prostatic Secretion (EPS) analysis (leukocyte count and culture)
d. PCR testing for Chlamydia, Ureaplasma, Mycoplasma, and other uropathogens
e. Semen analysis and culture (selective)

Imaging and Functional Tests:

a. Transrectal Ultrasonography (TRUS) for prostate volume and echogenicity
b. Uroflowmetry and post-void residual urine estimation

Treatment Groups:

Patients were stratified based on UPOINT classification and divided into four therapeutic groups:

1. Group A: Antibiotic + alpha-blocker
2. Group B: Alpha-blocker + phytotherapy
3. Group C: Anti-inflammatory + physiotherapy
4. Group D: Multimodal treatment (based on UPOINT)

Follow-ups were conducted at 4, 8, and 12 weeks post-treatment, with re-evaluation of symptoms using NIH-CPSI and clinical examination.

Results

a. Demographics:
b. Mean age: 39.5 ± 8.7 years
c. Duration of symptoms: Mean 7.2 months
d. Type IIIA: 37 patients (46.25%)
e. Type IIIB: 43 patients (53.75%)

Common Symptoms Reported:

a. Perineal/pelvic pain: 100%
b. Dysuria: 56%
c. Painful ejaculation: 42%
d. Erectile dysfunction: 39%
e. Lower back pain: 34%

Laboratory Findings:

a. Positive leukocyte count in EPS: 38 cases (mostly type IIIA)
b. Positive PCR for Ureaplasma urealyticum: 22 patients
c. Positive culture: 18 cases (low-grade bacterial flora)
d. TRUS abnormalities (prostate calcifications, hypoechoic zones): 47 patients

Treatment Efficacy:

a. Group D (multimodal): 74% showed >50% improvement in NIH-CPSI score
b. Group A: 61% improvement
c. Group B: 48% improvement
d. Group C: 53% improvement

Side Effects:

Mild orthostatic hypotension in 6 patients on alpha-blockers

Gastrointestinal complaints in 4 patients on NSAIDs

Discussion

The study confirms that chronic prostatitis is a heterogeneous syndrome that requires a comprehensive diagnostic approach and individualized therapy. The traditional view of prostatitis as a purely infectious disease is outdated. Our data supports the use of the UPOINT system, which allows for categorization based on urinary, psychosocial, organ-specific, infection-related, neurologic/systemic, and tenderness domains.

Alpha-blockers, especially tamsulosin, remain effective for urinary symptoms.

Antibiotics were beneficial only in PCR-positive or EPS-positive patients, reinforcing the importance of microbiological confirmation before prescribing antimicrobials. Phytotherapeutic agents like quercetin and Serenoa repens showed moderate benefits in inflammatory types, with good tolerability.

Pelvic floor physiotherapy and cognitive-behavioral therapy (CBT) were essential for patients with pelvic floor dysfunction and anxiety-related symptoms. This highlights the psychosomatic interplay in CP/CPPS and the importance of interdisciplinary care involving urologists, psychologists, and physiotherapists.

The biggest improvements were seen in the group receiving multimodal therapy tailored to their UPOINT profile, emphasizing that no single treatment fits all. Long-term management and patient education remain crucial in achieving sustained remission.

Conclusion

Chronic prostatitis/CPPS is a multifactorial syndrome that requires a personalized and structured approach to diagnosis and treatment. Laboratory evaluations, particularly PCR diagnostics and EPS analysis, play a key role in differentiating inflammatory and infectious components. Treatment should be based on symptom phenotype, and the UPOINT system is an effective tool for guiding therapy.

A combination of alpha-blockers, anti-inflammatory agents, physiotherapy, and patient education yields the best outcomes. Future directions should focus on better understanding the neuroimmune mechanisms of CP/CPPS and integrating emerging therapies such as microbiome modulation and neuromodulation.

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