



Review Article

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Prostatitis and premature ejaculation: two enemies of masculinity

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Abstract

Prostatitis and premature ejaculation are urological problems that impact sexual and reproductive health in males frequently. The aim of this narrative review is to provide an overview of the relationship between premature ejaculation and prostatitis. A narrative review literature was performed in the PubMed and SCOPUS databases. The most relevant aspects of the etiology of premature ejaculation were detailed, and the causal relationship between prostatitis and premature ejaculation was explored. Treatment should consider the pathophysiology and diagnosis; this is a significant challenge for the urologist. A total of 45 original articles were compiled in a table within the main findings. Both alterations are associated with a decrease in the quality of life and have a negative impact on the couple's relationship. The timely treatment offers improvement or complete recovery for the patients.

Keywords: Prostatitis, Premature ejaculation, Chronic pelvic pain syndrome, Fertility.

INTRODUCTION

Prostatitis and premature ejaculation (PE) are highly frequent genitourinary problems that negatively affect the quality of life of men and their partners, causing anxiety, sexual dysfunction, and even fertility problems [1]. PE occurs between 30% to 40% of sexually active men and is an age dependent disorder [2], this can also be associated with higher prevalence diseases in older adults such as hypertension and diabetes [3], even with neurotransmitters levels such as serotonin, independent of age and comorbidities. PE patients report a short time between vaginal penetration and ejaculation -less than 2 minutes- being unable to sexually satisfy their partner [4] in more than half of sexual intercourse, according to one of the classifications used [5-7].

On the other hand, prostatitis is considered the most common urological disorder in men younger than 50 years; it has a variable prevalence, between 1.8 to 65% [8] that depends of methodology, with an general average of 14.2%. Prostatitis is positively associated with age, being 1.7 times higher in men from 40 to 49 years compared to individuals from 20 to 39 years, and 3.1 times higher in people from 50 to 59 years [9]. The National Institute of Health (NIH) classified prostatitis into four categories according to its origin: acute prostatitis (AP), chronic prostatitis (CP), chronic pelvic pain syndrome (CPPS) with and without signs of inflammation, and asymptomatic prostatitis [6,10]. The prevalence of prostatitis in PE patients and vice versa, suggests a causal relationship between these two genitourinary problems, since both acute and chronic prostatitis can alter ejaculatory latency leading to an acquired PE syndrome. Therefore, this narrative literature review aims to provide an overview of the relationship between PE and prostatitis.

MATERIALS AND METHODS

A narrative review literature on some topics related to PE and prostatitis was performed in PubMed and SCOPUS databases, without time limit, using "premature ejaculation" and "prostatitis" MeSH terms. The total of papers (original articles, subject reviews, and experimental investigations) were included. Also, we review bibliography reported in each paper. One hundred and sixty articles were examined and those with the most relevant information were chosen according to the authors' criteria.

Etiology of premature ejaculation

PE is a frequent sexual complaint, its appearance does not immediately suppose the existence of a male sexual disorder because some patients can have sexual satisfaction with variable ejaculatory latency times; their etiology can be diverse and different physiological and psychological causes have been proposed [11]. This alteration can appear throughout life or be acquired throughout sexual life [12], a subclassification has been proposed in four types: a) primary; b) acquired; c) variable, which is not constant and only occurs in specific situations; and d) subjective, in which the disorder is not real, but the patient believes that he suffers from it [13]. Both the pathophysiology and the treatment of PE remain an essential challenge for the urologist; even the diagnosis is difficult because it has been considered by some

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to be a predominantly psychological condition, for which reason its treatment was restricted sometimes to behavioral therapies [14]. PE causes include glans hypersensitivity, neurotransmission abnormalities, central serotonergic pathway, erectile difficulties, erectile dysfunction, varicocele, circumcision, consumption of some prescription drugs, recreational drugs, thyroid disorders, and prostatitis, among others [15–17]. Men with primary PE may have an underlying genetic predisposition to rapid ejaculation and various genetic polymorphisms related to serotonin and dopamine neurotransmission that predispose to developing the disease [18]. Additionally, men with acquired PE can have a variety of factors, including anxiety and depression, about sexual performance [19,20].

Prostatitis as a cause of premature ejaculation

Prostatitis has an acute or chronic presentation, the pathophysiology is not fully clarified, but under the concept of intraprostatic reflux, bacterial prostatitis can be explained. This reflux by dragging bacteria from the urethra causes acute inflammation of the gland (acute bacterial prostatitis); when the immune response is not as strong, a slower process known as chronic bacterial prostatitis originates [8,21]. Bacterial prostatitis has implications for fertility, and altered seminal parameters have been reported in the semen of patients, which could be associated with bacteriospermia, because bacteria can induce harmful effects on sperm [22].

CP has been associated with urethral catheterization and infections caused by bacteria [23], viruses [24], fungi [25], and even microorganisms that cause sexually transmitted diseases such as *Chlamydia trachomatis* and *Trichomonas vaginalis* [26]. Clinical symptoms are better known as chronic pelvic pain syndrome [27]. In 1995, the NIH proposed a new classification of CP refocusing it on the concept of chronic pelvic pain syndrome (CPPS), defined as pain associated with sexual dysfunctions such as PE and that affects the quality [28]; due to the pathophysiology, symptomatology and the negative psychological effect that this type of pain causes should be considered as a trigger for sexual dysfunction and can affect all components of the sexual cycle [29]. Men with CPPS have reported pain during ejaculation and during sexual intercourse, decreased sexual desire, and premature ejaculation [30]. Considering the role of the prostate in the ejaculatory mechanism, a direct influence of local inflammation on the pathogenesis of some cases of acquired PE seems possible [31,32], which has been pointed out in studies showing that up to 75% of men suffering from PC / CPPS also suffer from sexual problems and mainly from PE [33]. The symptoms of the lower urinary tract frequently appear in the CPPS associated with sexual dysfunction [34,35], these symptoms consist of storage disorders and urination such as urgency and urinary incontinence, nocturia, and overactive bladder, which constantly interfere with daily activities [36,37].

Premature ejaculation treatment caused by prostatitis

For treatment, it is essential to keep in mind therapies should be selected understanding the association between prostate and PE [38]; In the literature, two treatment approaches are proposed, those that are aimed at the pathophysiology of the disease and those that focus on treating the patient's psychological field. This type of treatment is also known as sex therapy and has multiple objectives, the most important are techniques to control or delay ejaculation, decrease the anxiety that the disorder generates and improve communication with the partner; this type of treatment is used with greater success in cases of primary PE [39]. Sexologists obtain better results when they integrate multidisciplinary strategies to carry out therapy in conjunction with urologists, in which in addition to the psychological part, the evaluation and treatment of the symptoms that cause sexual dysfunction are covered, the identification of an etiological factor does not necessarily mean if the cause of PE has been fully explained, and the patient may require a combination of treatment approaches [40]. Pharmacological and psychological or behavioral treatments together

may be especially useful in men with acquired premature ejaculation where there is a clear psychosocial precipitating or long-standing lifetime cases where individual or couple responses to PE are likely to interfere with medical treatment and the ultimate success of treatment [41]. A careful examination of the prostate should be carried out before beginning any pharmacological or psychosexual therapy for PE. In the case of acquired PE, if infection or inflammation of the prostate are the possible causes, treating the infection with antibiotics or anti-inflammatory drugs should reduce the symptoms; for this, antibiotic-only therapies such as ciprofloxacin and anti-inflammatory therapies with an antibiotic such as hydrocortisone with clarithromycin [42,43].

Treatment focused on the pathophysiology of the disease are also α -blockers, alpha-1 receptors predominate in the prostate gland, prostatic urethra, and bladder, and relaxation of the smooth muscles of the prostate and bladder are associated with relief of lower urinary tract symptoms (LUTS) in patients with them. Thus, tamsulosin [44] and terazosin decrease the CPPS associated with sexual dysfunction and improve the quality of life of patients [45]. Another type of efficient treatment for PE consists of the administration of selective serotonin reuptake inhibitors such as dapoxetine, which significantly increases the intravaginal latency time in patients with PE [46]. Additionally, local anesthetics and phosphodiesterase 5 inhibitors have also shown some efficacy in the treatment of PE [47,48]. Given this, the question arises: Which treatment should be offered first? The truth is that the Urologist's intuition, experience, and evidence should guide the choice of treatment, which is decisive for obtaining an excellent therapeutic result, as well as the adherence of the patient and his partner to treatment [49]. Finally, considering the role of prostatic diseases in the pathogenesis of PE, the prevention procedure must be based on the sexual and andrological education of young men and adults about both conditions.

Consultations for PE are less than those due to erectile dysfunction [96], therefore it is crucial to raise awareness about the importance of asking questions during the primary care consultation to start some treatment or to refer to the indicated medical team. These types of professionals can address the situation with questions such as: How long is the typical time between penetration and ejaculation? Do you feel able to delay ejaculation? When did you first experience PE? Have you had PE? Since the beginning of your sexual life and with almost all your sexual partners? Does your partner express dissatisfaction with your PE? Does your partner avoid sexual relations? Is your PE affecting your overall relationship with your partner? Are you having sex for fear of feeling bad? And do you feel anxious, depressed, or embarrassed about your EP? [97]. With this broad group of questions, the diagnosis, the type of PE, and the consequences in terms of the partner and the quality of life can be covered. Besides, other useful tools are standardized questionnaires such as the PEDT (Premature Ejaculation Diagnostic Tool), the PEP (Premature Ejaculation Profile), the Male Sexual Health Questionnaire Ejaculatory Dysfunction (MSHQEJD) and the widely used Premature ejaculation questionnaire proposed by Gindin and Huguet, in which scores between 30-40 points indicate a critical premature ejaculation that requires treatment [98].

CONCLUSION

Prostatitis and PE decrease the quality of life of the patients and have a negative impact on the couple's relationship, probably related to this due to a proactive female role in sexual relations that allows a sufficient duration to reach orgasm. A couple suffering from premature ejaculation will have an anxious man and an unsatisfied woman, which would recommend that this problem not be approached unilaterally. Finally, multiple treatment options offer greater hope for improvement or recovery for patients; In the case of acquired PE associated with acute or chronic prostatitis, antibiotics and anti-inflammatories have a notorious efficacy, but when these are administered by psychological therapy individually or better still as a couple, encouraging results are

obtained [99]. Analyzing and studying these two alterations is quite timely, since the frequency with which they occur in the male population is high, and the implications for sexual and reproductive health are often devastating. On the other hand, both conditions could

be covered in a friendlier way by designing sexual and reproductive health programs focused on identifying and attending to these changes in men, which is very important for men to put aside the fear or modesty produced by consulting on these topics.

Table 1: Main findings reported about prostatitis and premature ejaculation

Reference	Population	Findings and conclusions
Boneff, A. N. 1972.[50]	26 patients, aged 18 to 22 years with chronic prostatitis (CP), and premature ejaculation.	PE decreased by 68.2% in CP patients.
Colpi, G.M., <i>et al.</i> 1982.[51]	123 infertile men from 23 to 50 years old.	Pathological results in 29.3% of patients. Prostatic inflammation in 16% of patients with PE. Inflammation of the prostate predisposes to PE.
Screponi, E., <i>et al.</i> 2001.[52]	46 patients with PE.	Prostatic inflammation in 56.5% and bacterial prostatitis in 47.8% of patients. High frequency of CP in men with PE.
Rizzo, M., <i>et al.</i> 2003.[53]	1148 patients with prostatitis.	Prostatitis prevalence of 12.8%.
Liang, C.Z., <i>et al.</i> 2004.[54]	1786 men with CP.	Prevalence of sexual dysfunction (49%). PE 26% of sexual dysfunctions. High prevalence of sexual dysfunction.
Basar, M.M., <i>et al.</i> 2005.[55]	90 patients with PE and LUTS.	A-blockers are therapeutic agents in the treatment of PE, 35% of the patients were completely cured after one month, and 33.3% showed some improvement regarding the LUTS.
Gonen, M., <i>et al.</i> 2005.[56]	66 men with chronic pelvic pain syndrome (CPPS), and 30 controls.	PE prevalence was 77.3% in patients with CPPS. The PE rate was higher in the study group than in the control group
Elist J. 2006.[57]	60 patients with non-bacterial CP / CPPS between 20 and 55 years of age.	Treatment with Prostat / Poltit pollen extract was superior to placebo, relieving symptoms without adverse reactions.
Shamloul R., <i>et al.</i> 2006.[58]	153 men, aged 29 to 51 with PE and 100 control.	Incidence of 64% prostatic inflammation and 52% chronic bacterial prostatitis.
Bartoletti R., <i>et al.</i> 2007. [59]	764 men with CP / CPPS, and 152 controls.	Prevalence of 13.8% and incidence of 4.5% of CP / CPPS, which had a negative influence on PE.
El-nashaar, A., <i>et al.</i> 2007[60]	145 men with secondary EP.	64.8% had culture-negative chronic bacterial prostatitis after antibiotic treatment. 83.9% of the patients increased the ejaculatory latency time.
Lin, W.Y., <i>et al.</i> 2007[61]	14 patients with CPPS and sexual problems.	50% reported improvement of EP after electrical stimulation. A good option in the treatment of EP.
Qiu, Y.C. 2007[62]	623 patients with CP.	The incidence of EP was 39, and the rates of the mild, moderate, and severe types were 26.2%, 12.0%, and 0.8%, respectively. Furthermore, they reported a high incidence of EP and erectile dysfunction among CP patients.
Trinchieri, A., <i>et al.</i> 2007[63]	399 patients with symptoms of prostatitis.	34% had erectile dysfunctions and 55% ejaculatory. EP was more frequent in patients with severe inflammatory symptoms.
Magri, V., <i>et al.</i> 2008.[64]	285 patients with CP.	The frequency of erectile dysfunction was higher if they had more prostate symptoms. Hemospermia and EP were associated with a 4-fold increased risk of erectile dysfunction.
Jaspersen-Gastelum, J., <i>et al.</i> 2009.[65]	1779 men with an average age of 56.6 years.	The frequency of EP was 41.9%. Prostatic symptoms were associated with risk factors such as age and having prostatitis.
Lan, T., <i>et al.</i> 2009.[66]	637 patients with CP resident in high altitude areas.	The prevalence of EP was 28.4%, and that of erectile dysfunction was 17.6%. Patients with EP or erectile dysfunction experienced worse symptoms at higher altitudes.
Lotti, F., <i>et al.</i> 2009.[67]	Study 1, 2448 men, mean age 52 years. Study 2, 139 men mean age 37.3 years.	Study 1, EP was the only sexual symptom significantly associated with varicocele. Study 2, individuals with ultrasound-defined severe varicocele showed symptoms of prostatitis.
Wein, A.J., <i>et al.</i> 2009.[68]	11834 men with a mean age of 56.1 years.	26% of the men had mild to severe erectile dysfunction, 7% had ejaculatory dysfunction, and 16% EP. Men with multiple LUTS had more severe erectile dysfunction and more frequent EP.
Zohdy, W. 2009.[69]	210 men with PD and inflammatory prostatitis.	59% of the men who received antimicrobial therapy experienced an increase in their ejaculatory latency.
Kul'chavenia, E.V., <i>et al.</i> 2010.[70]	543 men with CP.	43.3% of patients with CP presented EP.
Liang, C.Z., <i>et al.</i> 2010.[71]	12743 men with CPPS.	The incidence of CP was 5.0% and EP of 15.3%. The EP group had worse scores on the Chronic Prostatitis Symptom Index. The prevalence of EP was 64.1% and 36.9% in the group of symptoms similar to prostatitis and CP, respectively,
Magri, V., <i>et al.</i> 2011.[72]	81 patients with CP.	Microbiological eradication rates in CP patients increased from 62.4% to 77.3% and total bacteriological success from 71.8% to 85.6%. Ejaculatory pain, hemospermia, and PE were attenuated with microbiological eradication in both groups.
Sonmez, N.C., <i>et al.</i> 2011.[73]	43 patients diagnosed with CP and CPPS.	An increased PE was found in the group of patients with respect to the control group (67.4% vs. 40%).
Lotti, F., <i>et al.</i> 2012.[74]	244 men with a mean age of 35.2 with partner infertility.	The prevalence in patients with erectile dysfunction and EP was 17.8% and 15.6%, respectively. Erectile dysfunction and EP were reported by one in six infertile patients.
Akin, Y., <i>et al.</i> 2013.[75]	108 patients with EP.	All α -blocker drugs were effective in preventing EP. Specifically, silodosin presented the best results.
Banyra, O., <i>et al.</i> 2013.[76]	337 patients with PC.	The frequency of psychosomatic disorders in CP patients was 28.2%. Anti-

		inflammatory therapy plus psychotherapy decreased EP in 60.5% of CP patients.
Zhang, X., <i>et al.</i> 2013.[77]	1801 outpatients in andrology clinics.	One thousand two hundred six patients were diagnosed with EP 66.96%. The prevalence of depression in these EP patients was 26.78%.
Zhang, X., <i>et al.</i> 2013. [78]	1988 EP patients.	The prevalence of EP syndromes was 35.66% for lifelong EP, 28.07% for acquired EP, 12.73% for natural variable EP, and 23.54% for premature ejaculatory dysfunction.
Cai, T., <i>et al.</i> 2014. [79]	Group A. 317 patients with CP due to <i>Chlamydia trachomatis</i> , and group B. 639 patients with CP caused by common uropathogenic bacteria.	Compared to group B, group A showed significantly higher scores on tests performed with the EP diagnostic tool.
Dongdong, T., <i>et al.</i> 2014.[80]	438 EP patients, and 493 healthy control subjects.	In the EP group, the prevalence of symptoms similar to prostatitis was 32%, while in the control group, it was 15.8%.
Gao, J., <i>et al.</i> 2014.[81]	3016 men with EP.	25.80% presented EP. The distribution of the four EP syndromes was primary EP 12.3%; EP acquired, 18.8%; Variable EP, 44.1%, and subjective EP, 24.8%.
Mo, M.Q., <i>et al.</i> 2014.[82]	600 patients with CP / CPPS, and 40 men as a control group.	The prevalence of erectile dysfunction, EP, and ejaculatory pain was 19, 30, and 30%, respectively. Psychological problems include depression, anxiety, and obsessive-compulsive disorder.
Zhao, Z., <i>et al.</i> 2014.[83]	358 men with CP / CPPS.	Measurable calcifications in the prostate were found in 48.9% of patients, and they were more likely to have symptoms of prostatic inflammation.
Cai, T., <i>et al.</i> 2015.[84]	765 men with CP / CPPS.	Chlamydia-infected men showed greater pain, poorer quality of life, and greater symptoms of chronic prostatitis than healthy men.
Lang, W. <i>et al.</i> 2015.[85]	98 patients with CP / CPPS complicated by sexual dysfunction.	<i>Shugan Jieyu</i> capsules can effectively alleviate anxiety, depression, and other psychological problems associated with prostatitis.
Lee, J.H. <i>et al.</i> 2015.[86]	8261 men with a mean age of 50.4.	24.9% of the men had symptoms similar to prostatitis, and 24.2% were classified with EP.
Chen, C.Q., <i>et al.</i> 2016.[87]	90 patients with CP and EP.	Intravaginal ejaculatory latency time and the number of intercourse per week improved significantly.
Kamalov, A.A., <i>et al.</i> 2016.[88]	630 patients.	The prevalence of EP was 38.2% in CP patients. Ingestion of the biologically active complex <i>NeyroDoz</i> in all patients in the study increased the intensity of orgasm.
La Vignera, S., <i>et al.</i> 2016.[89]	50 patients with male accessory gland infection and EP compared to 50 patients with male accessory gland infection without EP.	Ultrasound evaluation of the epididymis and seminal vesicles should be considered in the practical clinical approach of patients with male accessory gland infection and EP.
Li, H.J. <i>et al.</i> 2016.[90]	24 studies with 11,189 men.	The prevalence of EP was 29%. The prevalence of sexual dysfunction in men with CP / CPPS was high.
Cai, T., <i>et al.</i> 2017.[91]	311 patients with CP for <i>Chlamydia trachomatis</i> with a group of 524 patients affected by CP caused by common uropathogenic bacteria.	The number of symptomatic episodes was higher in patients positive for <i>Chlamydia trachomatis</i> and represented a negative impact on the quality of life.
Mantovani, F. <i>et al.</i> 2017.[92]	18 patients aged between 25 and 55 years.	The integration of pharmacological treatment with dynamic behavioral rehabilitation optimizes the results, recovering ejaculatory control. 75% of the patients showed remarkable improvement after three months.
Morgia, G., <i>et al.</i> 2017.[93]	60 patients between 20 and 50 years of age	The benefits of treatment with curcumin and calendula extract could be related to the reduction of inflammatory cytokines and inflammatory cells.
Zhu, D., <i>et al.</i> 2017.[94]	498 men with EP and 322 without EP.	Men with EP had higher symptoms scores similar to those of prostatitis compared to participants in the control group
Jeh, S.U., <i>et al.</i> 2018.[95]	1029 men with PD.	Compared with the group without EP, patients with EP had a higher prevalence of metabolic syndrome. Therefore, it could be considered an independent predisposing factor for the development of acquired EP.

Conflict of interest

The authors declare no conflict of interest.

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