Chronic prostatitis as possible risk factor for Peyronie's disease: Psychological, sexual and prostatitis-like symptoms in patients with PD

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Supplementary Table 1.
Clinical characteristics and basic demographics of patients in the two groups (PD patients and non-PD patients).

Variable	**PD patients (539 cases)**	**Non-PD control population (2201 cases)**	**Statistical analysis P-value (t-test)**
Mean age	49.6 (± 12.16 SD)	50.5 (± 12.04 SD)	0.108
Variable	**PD patients n. cases (%)**	**Non-PD control population n. cases (%)**	**Statistical analysis P-value (χ2 test)**
Varicocele	13 (2.4)	62 (2.8)	0.711
Hydrocele	6 (1.1)	23 (1.04)	0.889
Hypercholesterolemia	48 (8.9)	151 (6.8)	0.121
Thyroid disease	27 (5.00)	111 (5.04)	0.974
History of myocardial infarction	13 (2.4)	50 (2.2)	0.972
History of malignant urological neoplasm	43 (7.97)	176 (7.99)	0.988
History of non-urological malignancy	11 (2.04)	48 (2.18)	0.971
History of urinary stones	52 (9.6)	207 (9.4)	0.927
Urogenital infections	19 (3.5)	120 (5.4)	0.085
Diabetes mellitus	32 (5.9)	77 (3.49)	0.0134
Hypertension	101 (18.7)	299 (13.5)	0.0030
Erectile dysfunction (ED)	216 (40.07)	529 (24.03)	< 0.0001
Benign prostatic hyperplasia (BPH)	119 (22.07)	298 (13.5)	< 0.0001
Cronich prostatitis (CP)	200 (37.1)	384 (17.4)	< 0.0001

APPENDIX (TO THE INTRODUCTION SECTION)

Chronic prostatitis

This article refers to *chronic prostatitis* (CP) and not to its acute form. Symptoms of prostatic inflammation are very frequent in young adult males; however, they often also affect males over 50 years of age. The prevalence of prostatic symptoms varies between 8.0 and 14.2% with respect to the adult male population (1, 2). Chronic prostatitis refers to a series of heterogeneous clinical states where the presence of inflammation has often not been ascertained due to inadequate diagnostics and the absence of recognized standardized therapy. The symptoms that refer to this condition are very heterogeneous, and often, only some of these are present: dysuria, micturition burning, increased micturition frequency, nocturia, micturition urgency, difficulty emptying the bladder, post-micturition dripping, hematospermia. When pain is present, it can be isolated or is present in multiple locations (testes, hypogastric, inguinal, perineal, perianal, penile, and sacral regions). Other possible symptoms are premature ejaculation and scrotal and/or penile post-orgasmic pain and erectile dysfunction. Anxiety and depression are often present and greatly affect the *quality of life* (QoL) of these patients (3-5).

In case of the exacerbation of prostatitis, fever, arthralgia, and myalgia may be present.
In 1999, the *National Institute of Health* (NIH) proposed a classification of prostatitis into four categories, which is still accepted and shared (6): Category I, acute bacterial prostatitis (current bacterial infection); Category II, chronic bacterial prostatitis (recurring bacterial infections); Category III, chronic non-bacterial prostatitis/*chronic pelvic pain syndrome* (CPPS) (absence of infection), which is then divided into two sub-categories: III A inflammatory (with clear laboratory signs referable to inflammation = presence of leukocytes (WBC) in semen or *expressed prostatic secretion* (EPS) or post-prostatic massage urine) and III B, non-inflammatory (with the absence of leukocytes in semen or *expressed prostatic secretion* (EPS) or post-prostatic massage urine); Category IV, asymptomatic inflammatory prostatitis.
This classification has proved to be very useful because a laboratory diagnostic study (Meares-Stamey test) is essential to find the type of category to which the observed patient belongs (7). Excluding category IV, our opinion on this classification is that it does not represent a list of different pathological conditions; we think that categories I, II, and III A and III B represent nothing more than four different types of the "*clinical state*" of the patient observed at that given moment.
In practice, every patient with chronic prostatitis in their clinical life almost always finds themselves in each of the different I, II, and III categories of the NIH classification.
It is certainly an excellent classification in which different states of "*clinical presentation*" of the same disease are listed. In fact, it is known that about 5% of patients with acute prostatitis (Cat. I) evolve towards chronic prostatitis, which can sometimes flare up due to a bacterial infection (Cat. II) or become evident and correspond clinically to Cat. IIIA or IIIB. The Meares-Stamey test still maintains its important diagnostic effectiveness, and it is very useful compared to the other method available, which uses the dosage of IL-6 and IL-8 (in semen or expressed prostatic secretion (EPS) or post-prostatic massage urine) in order to be able to differentiate clinical situation III A from situation III B (8, 9). The compilation of the NIH-CPSI (*Chronic Prostatitis Symptom Index*) questionnaire is very useful in the classification of the patient and in the evaluation of the symptoms after treatment (10).

Peyronie's disease

PD is a fibrogenic inflammatory disease that involves the tunica albuginea of the corpora cavernosa for determining the deformation of the penis (bending, shortening, hollowing, torsion, hourglass, etc.). Its genetic component with autosomal dominant transmissions seems established, and it is also known with respect to its analogy with Dupuytren's disease and Ledderhose disease (11,12). The prevalence of PD varies from 0.6% to 13% in relation to the geographical area, although PD prevalence seems higher in the Western world and lower in Asian countries (13-18). Even if its etiopathogenesis is still much debated, an almost unanimous consensus prevails in the literature on the traumatic origin of the disease (19, 20). The clinical presentation of PD includes the following: penile deformation, penile pain, erectile dysfunction (in about 1/3 of cases), and anxious-depressive symptoms (21, 22). The diagnosis includes penile palpation and diagnostic investigation with dynamic penile color Doppler and photographic documentation of the deformation (according to *Kelâmi*) (23-25). The conservative medical treatment of PD is indicated in the active phase of the disease and includes the following: vitamin E and other antioxidants; tamoxifen; potaba; non-steroidal anti-inflammatory drugs (NSAIDs); penile injections with verapamil, pentoxifylline, interferon-α2b, cortisone substances, collagenase, hyaluronic acid, etc.; and physical therapies (iontophoresis, shockwave therapy, and vacuum penile and traction devices) (25-29). Surgical therapy is reserved for cases of disease stabilization or when erectile dysfunction and/or severe curvature do not allow for complete sexual intercourse (28-30).

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