

How urologists deal with chronic prostatitis? The preliminary results of a Mediterranean survey

Konstantinos Stamatiou¹, Vittorio Magri², Gianpaolo Perletti³, Evangelia Samara¹, Georgios Christopoulos¹, Alberto Trinchieri⁴

¹ Urology Department, Tzaneion Hospital, Piraeus, Greece;

² Urology Secondary Care Clinic, ASST-Nord, Milan, Italy;

³ Department of Biotechnology and Life Sciences, University of Insubria, Varese, Italy; Faculty of Medicine and Medical Sciences, Ghent University, Ghent, Belgium;

⁴ Manzoni Hospital, Lecco, Italy.

Summary *Objectives: We performed a questionnaire survey to investigate various issues in the diagnosis of chronic prostatitis (CP) performed by Greek urologists and to assess some aspects of prostatitis workup in Greece. Replies were compared with those of Italian clinical research partners in an attempt to clarify the CP diagnostic approaches in Southern European Mediterranean countries.*

Methods: We translated the original Italian questionnaire presented by Magri and Montanari in the frame of a urological congress held in Milan on October 26th, 2018. This 5-item questionnaire explores clinical practice characteristics, attitudes, and diagnostic strategies for the management of chronic prostatitis (Chronic Bacterial Prostatitis or Chronic Prostatitis/Chronic Pelvic Pain Syndrome, according to NIH criteria). After its validation the questionnaire was uploaded in the internet and Greek healthcare professionals were invited by mail to respond. Responses were compared with those of Italian urologists, in order to determine similarities and differences in attitudes between clinicians regarding the diagnostic assessment of CP.

Results: There is a wide variation in participants' preferences for diagnostic methods, laboratory tests and clinical examinations both in Italy and in Greece. In both countries many diagnostic tests performed in affected patients are only geared to exclude other treatable conditions (e.g., benign prostatic hyperplasia, bladder cancer), but more suitable methods and tests for the assessment of CP are less frequently used.

Conclusions: Urologists' choices for the diagnostic workup of CP, show a wide international or intra-national variability between Greece and Italy. Although several diagnostic tests are available to differentiate and categorize the types of CP, a large number of urologists use less suitable methods and tests. This fact reflects both the lack of consensual vision in the literature and the difficulties encountered on a daily basis by the physicians. Under the light of this evidence, the need of studies establishing consensual guidelines for the optimal diagnosis of CP is becoming imperative.

KEY WORDS: Chronic prostatitis; Prostate; Infection; Stamey-Meyers.

Submitted 25 February 2020; Accepted 10 March 2020

INTRODUCTION

The term "chronic prostatitis" indicates syndromes which show different aetiologies and variable clinical features

No conflict of interest declared.

being characterized by symptoms of pelvic, genital and suprapubic pain, often associated with lower urinary tract symptoms (LUTS) and sexual dysfunction. It is an easy to suspect, hard to prove condition. In fact, evaluation and diagnosis of chronic prostatitis (CP) can be confusing and challenging. Although the Meares-Stamey (MS) 4-glass test is the standard method of assessing inflammation and the presence of bacteria in the prostate, it is time consuming and not accurate enough to give a clear diagnosis of bacterial prostatitis. For this reason, it was not universally employed by urologists. However, it is not known to which extent is infrequently used by Greek urologists and which diagnostic tests they perform in affected patients alternatively to the MS test. In order to examine Greek healthcare professionals' preferences for diagnostic investigation and testing for CP, we performed a questionnaire survey. Responses were compared with the ones given by Italian counterparts in an attempt to assess similarities or differences in the diagnostic approaches to chronic prostatitis syndromes in Southern European Mediterranean countries.

MATERIALS AND METHODS

We translated the original Italian questionnaire presented by Magri and Montanari in Milan on 26 October 2018 and validated its Greek version (1). This 5-item questionnaire explores practice characteristics, attitudes, and diagnostic strategies for the management of chronic prostatitis in Italy. After its validation, the questionnaire was uploaded in the internet and Greek healthcare professionals were invited by mail to respond, in an attempt to investigate current diagnostic practices for CP in Greece. Responses were compared with those collected by our Italian research partners, reflecting the diagnostic habits of Italian urologists, as presented in the study of Magri *et al.* (1). The aim of this study was to assess similarities and differences in clinicians' attitudes regarding the diagnostic assessment of CP. The local research ethics committee approved the study.

RESULTS

Seventy-seven Greek urologists were surveyed. Responders diagnose chronic prostatitis in a substantial

Table 1.
Comparison of preferences of diagnostic methods.

Preferred diagnostic methods	Italy	Greece
Answer choices	%	%
Medical history	98.12	89.6
Clinical examination (DRE)	96.62	84.4
IPSS questionnaire	51.13	40.2
NIH-CPSI questionnaire	17.29	19.4
SHIM questionnaire (modified IIEF questionnaire)	16.17	10.3
IIEF questionnaire	7.89	1.29
PEDT questionnaire	6.39	1.29
UPOINT questionnaire	1.88	5.19
Other questionnaires	0.00	0.00
Total respondents	266	77

Table 2.
Comparison of preferences of laboratory tests.

Preferred laboratory tests	Italy	Greece
Answer choices	%	%
PSA	81.20	57.1
Midstream urine test	72.18	49.3
Urethral swab	39.10	2.59
Urethral swab after prostate massage	13.91	1.20
Mearas & Stamey test	20.30	11.6
Mearas & Stamey test with count of the number of leukocytes in VB2 and VB3/EPS	16.92	1.20
Nickels' "two glass test"	6.39	11.6
Semen culture	67.29	74.0
Semen culture with count of the number of leukocytes in ejaculate	24.81	2.69
Urine cytology	9.02	0.00
Spermiogram	13.16	1.20
Total respondents	266	77

Table 3.
Comparison of preferences of clinical tests.

Preferred clinical tests	Italy	Greece
Answer choices	%	%
Uroflometry	72.18	81.8
Abdominal ultrasound	62.78	92.20
Transrectal ultrasound	45.11	10.30
Scrotal ultrasound	12.78	6.49
Urodynamics	2.63	3.88
Urethrocystoscopy	3.01	2.59
Urethrocystography	2.63	0.00
Other diagnostic tests	20.68	10.3
No diagnostic test	0.00	2.59
Total respondents	266	77

Table 4.
Comparison of preferences of microbiological tests.

Preferred microbiological tests	Italy	Greece
Answer choices	%	%
Gram+	83.08	85.6
Gram-	86.84	100
Fungi	56.77	20.7
Sexually transmitted microbes	77.82	79.4

number of men each year (the median number of patients per specialist per month is 11 patients). Almost 72% percent of the Greek professionals use in their clinical practice the classification of "chronic prostatitis" proposed by the *National Institutes of Health* (NIH), which identifies two major CP conditions: *Chronic Bacterial Prostatitis* (CBP) and *Chronic (abacterial) Prostatitis/Chronic Pelvic Pain Syndrome* (CP/CPSP). There is a wide variation in participants' preferences for diagnostic methods, laboratory tests and clinical examinations both in Italy and in Greece. In both countries many diagnostic tests performed in affected patients are geared toward excluding other treatable conditions (e.g., benign prostatic hyperplasia, bladder cancer) however more suitable methods and tests for the assessment of CP are less frequently used. A comparison between Italian and Greek survey is presented in the Tables 1-4.

DISCUSSION

CP is a common situation affecting relatively young men. Its exact frequency is not known. As reported by *Krieger et al.*, men in the *United States* with CP account for 2-5 million ambulatory physician visits per year including 8% of all appointments with a urologist. *Magri and Montanari* reported a frequency of 23 patients per urologist per month on average (1). Similarly to our study, Swiss urologists see a median of 10 patients per month (4). The abovementioned variations could be attributed to differences in health care policies, patients' preference and urologists' experience. Notably, the average age of responders to our questionnaire was significantly lower than that of the Italian study. This fact explains the lower median number of patients per Greek specialist and it may also explain the difference in the use of the NIH classification of "prostatitis" in the clinical practice between Greek and Italian specialists (62.7 vs 31.2%). This is likely due to the fact that, compared to older colleagues, the compliance of younger urologists with clinical practice guidelines is higher. However, this might not be the case since a limited use of the NIH classification system was also reported in the UK (33%) (5) and in France (35%) (6). Large deficits in familiarity with and knowledge of CP, along with a significant uniformity in the medical approach to this condition may explain the above findings (7).

As a matter of fact, most urologists acknowledge that chronic prostatitis is the most frustrating and difficult clinical problem to deal within urology (8). This happens likely because the etiopathology of prostatitis is uncertain, several diseases of the urogenital system share common symptoms, the diagnostic work-up of prostatitis is not completely standardized, the microbiological diagnosis is partly inadequate and there are restrictions in the prescription of some clinical and laboratory tests in several countries.

As shown in Table 1, the preferred diagnostic methods (89.6 and 84.4% of Greek and 98.12% and 96.62% of Italian urologists) are medical history and physical examination alone or combined with the IPSS questionnaire. The greatest part of them (37.6 and 41%) do not use questionnaires routinely. In general, diagnosing CP can

be difficult, as the patient history and examination modalities may be quite diverse. In fact, most patients claim genitourinary pain or discomfort, though newly presented sexual dysfunction and new onset of urinary symptoms are also common. Less usual presentations include recurrent febrile infections of the urinary tract and the genital system and asymptomatic elevation of serum PSA levels (9). The physical examination is usually normal. Digital rectal examination findings suggestive of CP (painful and or edematous hardened and tender prostate) may be found in half of the cases (10). Other abnormalities that can be found during examination of the prostate, such as calculi and nodules, may impact management decisions.

Symptom assessment by the NIH-CPSI is rarely used in both Greece and Italy (17.29 and 19.4% of respondents, respectively). An even lower number (12%) was reported by Zbrun *et al.* (4). Actually, the NIH-CPSI was developed to assess symptoms and quality of life in men with CP/CPSP and has demonstrated good reliability and validity (11). It has been long used as the primary outcome variable in multiple trials and studies, though its role as a diagnostic tool is debatable (12). On the other hand, the questions in the NIH-CPSI provide a universal clinical assessment of CP, both in terms of initial evaluation and during therapeutic monitoring (13). Notably, UK guidelines recommend the NIH-CPSI and similar diagnostic tools such as the *International Prostate Symptom Score* (IPSS), the *Urinary, Psychosocial, Organ-specific, Infection, Neurological, and Tenderness* (UPOINT) algorithm, the *International Index of Erectile Function* (IIEF-5) and/or the *Sexual Health Inventory for Men* (SHIM) scales to assess initial symptom severity and evaluate patient-tailored phenotypic differences (Level 3 recommendation) (14). They also suggest psychosocial screening with *Patient Health Questionnaire-9* (PHQ-9) and/or *Generalised Anxiety Disorder-7* (GAD-7) Scales as well (Level 5 recommendation) (11).

Even though the *Meares and Stamey* (MS) “4-glass” test is the gold standard test for the CP diagnosis, few Italian and Greek responders perform it alone (20.3% and 11.6% respectively) or in combination with leukocyte counts (16.92% and 1.2% respectively). Time and geographical trends in the use of this test may exist, since the number of Italian CP patients not subjected to the MS test was greater in the past 15 years (15). Sixty-six per cent of the Canadian practitioners’ and 80% of the US counterparts never or rarely perform the MS test in making a diagnosis of prostatitis (16, 17). In contrast, 61% of the British and 51% of the Dutch urologists are reported to be using the test (5, 18).

Kiyota *et al.* found that only 1.5% of Japanese urologists diagnose CP using the MS test, while almost 45% adopt the “2-glass” pre- and post-massage test (19). A similar number was reported by Swiss urologists (4). The “2-glass” test is rarely used in both Italy and Greece (6.39 and 11.39% respectively). On the other hand, in our study, semen culture, combined or not with leukocyte counts, was by far the most popular test (76.59 and 92.1% for Greek and Italian responders respectively) and is known to be the second most used diagnostic test by Dutch urologists (18). According to Yang *et al.*, the simple culture of

expressed prostatic secretion (EPS) is the most commonly (43.4%) performed test for the diagnosis of CP in China (20). To our knowledge, current EAU guidelines suggest semen culture not to be routinely part of the diagnostic assessment of CP.

Regarding microbiology tests, both Italian and Greek responders’ preferences include both Gram-negative and Gram-positive organisms. Some clinicians and microbiologists debate the role of Gram-positive other than Enterococci (21). Currently, Gram-positive bacteria tend to be the most frequent isolates in EPS and VB3 specimens from CP patients, with coagulase-negative staphylococcal species being the most prevalent isolates in Greece (22).

In agreement with our findings, most urologist worldwide do not count the number of leukocytes in VB2 or VB3/EPS to differentiate between inflammatory and non-inflammatory chronic prostatitis/chronic pelvic pain syndrome. The proportion of urologists following this practice vary significantly worldwide (4, 17, 19). Reasons explaining these differences are practically unknown. Ku *et al.*, suggest that the personal beliefs and professional characteristics of physicians are the most determinant factors with respect to the urologists’ preferences and routine performance or non-performance of culture tests (23). Kiyota *et al.* found that more than half of Japanese urologists felt pessimistic about dealing with CP (19). Although many urologists think that chronic non-bacterial prostatitis/chronic pelvic pain syndrome is not an infectious disease, they prescribe antibiotics even when no white blood cells are detected in prostate-specific specimens (4, 23).

As shown in our study, a variety of diagnostic tests are performed in patients with a suspected diagnosis of CP, in order to exclude other treatable conditions (e.g., benign prostatic hyperplasia, bladder cancer). These include imaging, endoscopy, urodynamics and PSA testing. None of them is specifically recommended in the evaluation of patients with prostatitis. However, ultrasonography and uroflowmetry are non-invasive, low cost tests for a rapid study of the anatomy of the urinary system and for a general estimation of the urinary function; hence they could be adopted in CP diagnostic work up (24).

CONCLUSIONS

Urologists’ preferences for diagnostic investigation and testing for CP show considerable worldwide diversity. Although several diagnostic tests are available to differentiate and categorize the types of CP, a large number of urologists use less suitable methods and tests. This fact reflects both the lack of consensual vision in the literature and the difficulties encountered on a daily basis by the physicians. Under the light of this evidence the need of studies establishing guidelines for its diagnosis is getting imperative.

REFERENCES

1. http://www.amcli.it/wp-content/uploads/2015/08/P20-2018_prostatiti_26_27-ottobre_def_1.pdf
2. https://docs.google.com/forms/d/1N4tnzytKSN_ehimEbPp9QfTokP1tadzQHC0DdhBtOow/edit?ts=5ddeb11e

3. Krieger JN, Ross SO, Riley DE. Chronic prostatitis: epidemiology and role of infection. *Urology*. 2002; 60:8-12.
4. Zbrun S, Schumacher M, Studer UE, Hochreiter WW. Chronic prostatitis—a nationwide survey of all urologists in Switzerland. *J Urol*. 2004; 171:27.
5. Luzzi GA, Bignell C, Mandal D, Maw RD. Chronic prostatitis/chronic pelvic pain syndrome: national survey of genitourinary medicine clinics. *Int J STD AIDS*. 2002; 13:416-419.
6. Delavierre D. Chronic prostatitis and chronic pelvic pain syndrome: a survey of French urologists. *Prog Urol*. 2007; 17:69-76.
7. Liu L, Yang J. Physician's practice patterns for chronic prostatitis. *Andrologia*. 2009; 41:270-6.
8. Magri V, Boltri M, Cai T, et al. Multidisciplinary approach to prostatitis. *Arch Ital Urol Androl*. 2019; 90:227-248.
9. Stamatiou K, Karageorgopoulos D. A prospective observational study of chronic prostatitis with emphasis on epidemiological and microbiological features. *Urologia*. 2013; 10.5301.
10. Stamatiou K, Moschouris H. A prospective interventional study in chronic prostatitis with emphasis to clinical features. *Urol J*. 2014; 11:1829-33.
11. Litwin MS, McNaughton-Collins M, Fowler FJ Jr, et al. The National Institutes of Health chronic prostatitis symptom index: development and validation of a new outcome measure. *J Urol*. 1999; 162:369-75.
12. Roberts RO, Jacobson DJ, Girman CJ, et al. Low agreement between previous physician diagnosed prostatitis and National Institutes of Health chronic prostatitis symptom index pain measures. *J Urol*. 2004; 171:279-283.
13. Wagenlehner FM, van Till JW, Magri V, et al. National Institutes of Health Chronic Prostatitis Symptom Index (NIH-CPSI) symptom evaluation in multinational cohorts of patients with chronic prostatitis/chronic pelvic pain syndrome. *Eur Urol*. 2013; 63:953-9.
14. Rees J, Abrahams M, Doble A, Cooper A. Prostatitis Expert Reference Group (PERG). Diagnosis and treatment of chronic bacterial prostatitis and chronic prostatitis/chronic pelvic pain syndrome: a consensus guideline. *BJU Int*. 2015; 116:509-25.
15. Nickel JC, Rizzo M, Marchetti F, et al. Prevalence, characterization, diagnosis and treatment of the prostatitis patient in Italy: an opportunity to compare the European prostatitis patient to the North American experience. *J Urol*. 2004; 171:27.
16. Nickel JC, Nigro M, Valiquette L, et al. Diagnosis and treatment of prostatitis in Canada. *Urology*. 1998; 52:797-802.
17. McNaughton Collins M, Fowler FJ Jr, et al. Diagnosing and treating chronic prostatitis: do urologists use the four-glass test? *Urology*. 2000; 55:403-7.
18. de la Rosette JJ, Hubregtse MR, Karthaus HF, Debruyne FM. Results of a questionnaire among Dutch urologists and general practitioners concerning diagnostics and treatment of patients with prostatitis syndromes. *Eur Urol*. 1992; 22:14-19.
19. Kiyota H, Onodera S, Ohishi Y, et al. Questionnaire survey of Japanese urologists concerning the diagnosis and treatment of chronic prostatitis and chronic pelvic pain syndrome. *Int J Urol*. 2003; 10:636-42.
20. Yang J, Liu L, Xie HW, Ginsberg DA. Chinese urologists' practice patterns of diagnosing and treating chronic prostatitis: a questionnaire survey. *Urology*. 2008; 72:548-551.
21. Krieger JN, Ross SO, Limaye AP, Riley DE. Inconsistent localization of Gram-positive bacteria to prostate-specific specimens from patients with chronic prostatitis. *Urology*. 2005; 66:721-725.
22. Stamatiou K, Magri V, Perletti G, et al. Chronic prostatic infection: microbiological findings in two Mediterranean populations. *Arch Ital Urol Androl*. 2019; 91:177-181.
23. Ku JH, Paick JS, Kim SW. Factors influencing practices for chronic prostatitis: a nationwide survey of urologists in South Korea. *Int J Urol*. 2005; 12:976-83.
24. Stamatiou K, Magri V, Perletti G, et al. Prostatic calcifications are associated with a more severe symptom burden in men with type II chronic bacterial prostatitis. *Arch Ital Urol Androl*. 2019; 91:79-83.

Correspondence

Konstantinos Stamatiou, MD
stamatiouk@gmail.com

Evangelia Samara, MD

Georgios Christopoulos, MD
Urology Dpt, Tzaneion Hospital
2 Salepoula str, 18536 Piraeus (Greece)

Vittorio Magri, MD

Urology Secondary Care Clinic, ASST-Nord, Milan (Italy)

Gianpaolo Perletti, PhD

Department of Biotechnology and Life Sciences, University of Insubria,
Varese (Italy)

Alberto Trinchieri, MD

Manzoni Hospital, Lecco (Italy)