

The role of the multi-disciplinary team and multi-disciplinary therapeutic protocol in the management of the chronic pelvic pain: There is strenght in numbers!

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Summary *Introduction: The aim of the study is to evaluate the effectiveness of a Multi-disciplinary team (MDT) and multi-disciplinary approach in the treatment of Chronic Pelvic Pain (CPP).*

Methods: The data of all consecutive patients referred for a CPP from 11/2016 to 2/2019 has been prospectively collected. The sample was divided in two groups: Group A, made by patients managed after the institution of our MDT, and Group B, made of patients managed before this date. The MDT is composed by three urogynecologists, a psychologist and a physiotherapist. All Group A patients underwent a weekly bladder instillation with dimethyl sulfoxide (DMSO), kinesiotherapy for trigger points and Percutaneous Tibial Nerve Stimulation for 10 consecutive weeks. Patients were asked to perform a self-treatment following the Stanford Protocol and to adhere to a specific diet. All Group B patients were managed only with DMSO instillations and a strict diet.

Results: The Group A was made of 41 females and 6 males while the Group B was made of 38 females and 5 males. The Group A patients showed a statistically significant improvement in the Pelvic Pain Urgency Frequency, in the frequency times reported at the 6 months voiding diary, and a better Patient Global Impression of Improvement.

Conclusions: Our data support the efficacy of the MDT in the management of CPP. The multimodal approach might represent an effective and reproducible non-invasive option to manage successfully CPP.

KEY WORDS: Chronic pelvic pain; Bladder pain; Multi disciplinary team; Interstitial cystitis; trigger points.

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INTRODUCTION

The Chronic Pelvic Pain (CPP) is a complex and debilitating syndrome that can strongly impact the quality of life, work productivity and health care utilization of both females and males patients (1). This disease is not simply characterized by localized pain but is a syndrome that leads to a systemic worsening of the patient's health with the appearance of a not irrelevant depression and other

symptoms (2). Tricyclic antidepressants, cognitive behavior therapy, neuromodulators, and pelvic floor kinesiotherapy, stem cells and low-energy shock waves are only some of the proposed managements (3-9). However, the fact that no definite effective treatments for CPP have been identified to date further complicates the scenario and makes most of urologists are not confident with the management of this disease and its available therapies (10). It follows that many patients "jump" from a practitioner to another starting different treatments without a precise therapeutic plan. Since CPP is a syndrome caused by many underlying causes and involving different organs, its management might be better lead by the mutual assistance of different healthcare givers. In this light, we recently created in our Center a Multi-disciplinary team (MDT) and a multi-disciplinary protocol of treatment for CPP patients and we aim to evaluate its effectiveness.

MATERIALS AND METHODS

The data of all consecutive patients referred to our Institution for a CPP from November 2016 to February 2019 has been prospectively collected and retrospectively evaluated. According to our Institution's regulation, a formal IRB approval is not needed for retrospective studies, since admitted patients are required to sign a consent in order to use their data for scientific purposes. The definition for CPP was that given by the EAU Guidelines so that "Chronic pelvic pain is chronic or persistent pain perceived in structures related to the pelvis of either men or women and must have been continuous or recurrent for at least six months" (11). Naïve patients were defined as those not previously managed for these symptoms by a urologist or a gynecologist. Only females and male patients with urological pain syndromes are managed in our center and therefore enrolled in the study. Patients with non-urological causes of CPP such as irritable bowel syndrome or endometriosis and less than 18 years were excluded. Only naïve patients

who entirely followed the therapeutic plan and follow-up were enrolled.

The initial evaluation was made of the collection of a detailed medical history and a physical evaluation, an abdominal ultrasound, routine blood samples and urinalysis with urine culture. PSA was tested in males.

The sample was divided in two different groups: Group A, made by patients managed after the institution of our Multi-disciplinary team set in October 2017, and Group B, made of patients managed before this date.

A Multi-disciplinary team core was established at our Center, consisting of three urogynecologists, a physiotherapist and a psychologist. The protocol and the modalities of patient discussion were decided by mutual agreement by the core member of the team based on the few similar experiences in the literature (12), their own personal experience (each of the core members > 10 years of experience in the treatment of CPP) and the setting of other MDTs for different pathologies. The definition of the protocol and strategy of the MDT took about 3 months before starting. The intent of the MDT is also to continuously update to improve the offer to the patient, every 3 months. EAU guidelines (11) on Chronic Pelvic Pain and ICS updates were the base for the patients' management. Treating physicians present and discuss the cases with the MDT. The MDT is usually called once a month by the team coordinator, in the first working Thursday, and patients are re-discussed by the MDT at 6 months and then when required. The patients with symptoms of anxiety and/or depression were referred also to the psychiatrist. Similarly, a neurologist was available "on demand" when required.

All patients underwent a complete clinical evaluation with a physical exam and a treatment motivation assessment (1-10 scale). The Pelvic Pain Urgency Frequency (PUF) questionnaire was administered before the treatment and at 6 months-time. Male patients were further assessed with the *International Prostatic Symptoms Score* (IPSS) while all patients were asked to provide a 72-hours voiding diary (VD) at the same 0-6 months timing. The *Patient Global Impression of Improvement* (PGI) was assessed at the end of the treatment.

All Group A patients underwent a weekly bladder instillation with *dimethyl sulfoxide* (DMSO) RIMSO-50[®], a weekly kinesitherapy for trigger points treatment and a weekly *Percutaneous Tibial Nerve Stimulation* (PTNS) for 10 consecutive weeks. All patients were asked to perform a self-treatment following the Stanford Protocol (13) and to adhere strictly to a specific diet for interstitial cystitis. All Group B patients were managed only with DMSO instillations and the same strict diet.

A two-items non-validated questionnaire was administered to all group A patients at the end of the therapeutic management. The questionnaire was anonymous and administered so as to avoid the Hawthorne effect.

Data were entered into a Microsoft Excel (Version 14.0) database and then transferred to Sofastat TM 1.4.6 for Windows. Descriptive statistics were reported as median (first to third quartile). Continuous variables with non-parametric distribution were compared using the Mann-Whitney test, while the frequencies were compared using the T-test Calculator and the Chi square test of inde-

pendence. Two-tailed tests were used for all comparisons; a p value < 0.05 was considered statistically significant.

RESULTS

According to the inclusion criteria a total number of 90 patients were enrolled in the study. The Group A was made of 41 females and 6 males while the Group B was made of 38 females and 5 males. The baseline characteristics of the two samples are summarized in Table 1.

Interstitial cystitis, bladder pain syndrome and prostatodynia were the main causes for the referral. All patients had a suprapubic and/or perineal pain accompanied by urinary irritative symptoms (frequency and urgency). The two groups were not statistically different in terms of age, initial PUF and IPSS score, urgency/frequency times reported at the bladder voiding diary, while were different for marital status. The main results of the two different managements are summarized in the Table 2.

Group A patients showed an improvement in term of PUF, in the frequency times reported at the 6 months VD, and a better PGI. No improvement in the IPSS was showed in Group A patients. Four female patients in Group A and three in Group B were evaluated by the psychiatrist and started on medication for anxiety/depression. Similarly, in Group A two female patients were evaluated by the neurologist and started on Pregabalin while in Group B two females and one male. Forty-two (89.4%) of the Group A patients felt to be ade-

Table 1.
Patients' characteristics.

	Group A	Group B	p
Age	40 (33-46)	39 (31-45)	0.38
Males	6	5	1
Females	41	38	1
Parities	21	17	0.67
Family history of CPP	4	5	0.73
History of Sexual Abuse	3	4	0.7
Anxiety and Depression	13	18	0.23
Stable partner	25	32	0.049
Education			0.41
Primary school	2	1	
Secondary school	22	26	
University	23	16	
BMI	24.3 (23-25.2)	23.4 (22.1-25)	0.41
Smoking	18	15	0.83
Prev. Perineal Surgery	13	17	0.26
Self medications at home	36	32	1
Type of pain			0.5
Suprapubic	43	38	
Perineal	12	15	
Main cause for referral			0.84
Interstitial cystitis	6	4	
Bladder pain syndrome	35	34	
Prostatodynia	6	5	
Urinary symptoms			0.69
Frequency	35	34	
Urgency	22	18	
Data are expressed as median.			

Table 2.
Outcomes of the two groups.

	PUF at time	PUF at 6 months	PUF improvement	PGI	IPSS at time 0	IPSS at 6 months	IPSS improvement	VD at time 0	VD at 6 months
Group A	29 (25-29) SS 18 BS 11	13 (11-17) SS 8 BS 5	-16 -10 -6	2 (2-2)	25 (23-29)	17 (11-19)	-8	14 (12-16)	7 (7-9)
Group B	27 (25-29) SS 16 BS 11 p 0.62	19 (13-21) SS 10 BS 9 p < 0.05	-8 -6 -2 p < 0.05	3 (2-3) p < 0.05	27 (22-27) p = 1	21 (15-22) p = 0.27	-7 p = 0.31	14 (13-16) p = 0.92	10 (7-11) p = 0.041

Data are expressed as median (1st-3rd quartile); PUF = Pelvic Pain Urgency Frequency Questionnaire; VD = Voiding Diary; PGI = Patient Global Impression of Improvement; IPSS = International Prostatic Symptoms Score; SS = Symptom Score; BS = Bother Score.

quately followed throughout the therapeutic process, against the 69.8% of the Group B ($p = 0.02$). Similarly, 39 (83%) patients of the Group A and 35 (81.4%) of the Group B felt that different professional figures available has helped/would have helped her/his treatment ($p = 0.84$).

DISCUSSION

Pain is a normal reaction of our body to an external potentially harmful damage. However, for many people pain persists even after the elimination of this cause of damage, sometimes even for weeks and several months, causing a chronic pain syndrome (14).

CPP is one of the most debilitating syndromes, also because of the body area interested, which is intimately connected to the psycho-sexual life (15-16). Historically, the main recognized causes of "urological" CPP are prostatitis, chronic and interstitial cystitis, nerve damages and previous pelvic urological surgery (11).

The multi-disciplinary team is a new concept born a few years ago and that is slowly spreading in medical practice as a therapeutic ideal for many different diseases (17). Its introduction and diffusion are mainly linked to oncological pathologies where complex clinical cases are discussed and managed by a heterogeneous team made up of different healthcare givers (surgeons, oncologists, radiologists, pathologists, radiotherapists, etc.). Regarding the oncological field, the MDT seem to have a significant impact on patient assessment. However, their impact on clinical and oncological outcomes in cancer patients is supported by little evidence (18).

The introduction of multi-disciplinary tasks in the treatment of benign pathologies and complex syndromes is even more recent. In particular, some recent reports have evaluated the role of MDTs in the treatment of pain syndromes such as musculoskeletal pain, daily headaches and hip pain, showing how it can facilitate the treatment of refractory patients (19-21).

The effectiveness of the MDTs in the management of CPP has been evaluated and confirmed by the very few available reports (22-26). Gupta *et al.* (22) reported the experience of the Beaumont Health System, with the creation of a *Multi-disciplinary Women's Urology Center*, including not only urologists but also gynecologists, experts in pelvic floor physical therapies, colorectal surgeons, integrative medicine practitioners who provide alternative therapies such as acupuncture, and pain psychologists. This model showed to be extremely successful in managing the symp-

toms of interstitial Cystitis and Bladder Pain Syndrome, with a very high patient satisfaction. The Women's Urology Center represents an ideal MDT which might be able to manage all the different types of CPP (not only urological) providing personalized therapeutic patient-based solutions. It is obvious that, for reasons of resources and organization, not all the hospitals may be able to set up a similar team for the treatment of a benign pathology.

Our study reports the experience of one of the easiest and more simple MDTs that can be established, consisting in the addition of the physiotherapist and the psychologist to the urological management. It is cheap and potentially affordable for every institution and allows a multi-disciplinary management of such difficult patients. The MDT is usually called once a month.

The treating physician may present cases directly evaluated or referred in order to plan a multimodal approach targeted on each patient.

In our study, the Group A patients showed a statistically significant improvement in the PUF, in the frequency times reported at the 6 months VD, and a better PGI. On the contrary, the IPSS showed no improvement in Group A patients but this might be influenced by the very low number of the male sample on which it was evaluated.

The questionnaire submitted to the patients showed that most of them considered useful the use of more professional healthcare givers. The availability of multiple different practitioners could not only guarantee a more complete therapeutic approach, but also make the patient perceive a better care and less abandonment and frustration. The main limit of the study is that is retrospective, even if data have been collected prospectively over the years. The small size of the cohort, and in particular in the males group, further limit the analysis of the outcomes such as IPSS change. However, we believe that it succeeded in evaluating the possible benefit of an integrated approach to CPP.

CONCLUSIONS

The multimodal approach might represent an effective and reproducible non-invasive option to manage successfully CPP patients. Of fundamental importance is the definition of the various health care givers involved, their role in the diagnostic and therapeutic process, and a strong synergy of the team. Further studies on larger samples are needed in order to confirm the effectiveness of the multimodal approach and outline the best treatment protocols.

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