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Editorial – referring to the article published on pp. x–y of this issue

Low-Energy Extracorporeal Shock Wave Therapy for Chronic Pelvic Pain Syndrome: Finally, the Magic Bullet?

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Chronic pelvic pain syndrome (CPPS) is one of the most common diseases in urology, with a prevalence in population-based surveys in the range of 3–10%, and affects around 15% of all urologic outpatients [1,2]. Despite its high prevalence and relevant impact on quality of life, the pathogenesis of the CPPS is incompletely understood. Numerous proposed pathomechanisms include infection leading to pain via nociceptive nerve endings and receptors, pelvic floor hyperactivity, local chemical alterations, neurologic components, and perfusion disturbances. The role of the prostate in the pathogenesis of CPPS is increasingly challenged because women report a similar degree of chronic pelvic pain to that of men [3].

The management of patients suffering from CPPS is one of the most challenging issues in outpatient urology. Frustrations are frequent for both patients and treating physicians. A variety of therapeutic approaches has been proposed, the most frequent ones being α-receptor blockers, antibiotics, and antiphlogistics (*triple-a therapy*) used as mono- or combination therapy [4–7]. While this approach seems to be efficient, at least to a certain degree, for treatment-naïve patients, there is insufficient evidence to support this approach for patients who did not benefit from a previous therapeutic course. A study recently published in the *New England Journal of Medicine* failed to support the role of α1-blockers as monotherapy for patients with newly diagnosed, previously untreated CPPS [7].

The list of proposed second-line treatment strategies is excessive: physiotherapy; trigger-point massage; electromagnetic treatment; acupuncture; traditional Chinese medicine; rectal massage; hyperthermia; thermotherapy; balloon dilatation; laser coagulation; invasive neuromodulation; and, most recently, intraprostatic injection of botulinum toxin A [8,9]. Alternative medical approaches such as antidepressants, steroids, plant extracts, 5α-reductase inhibitors, anticholinergics, antispasmics, and so forth have been proposed [10,11]. None of these approaches are supported by convincing evidence based on randomised trials, and none has entered clinical practice on a broader scale.

In this issue of *European Urology*, Zimmermann et al report on a randomised, double-blind, sham-controlled trial of low-energy extracorporeal shock wave therapy (ESWT) in CPPS [12]. The sham-treatment arm was carefully designed, and the investigator/physician supervising follow-up visits was blinded to the treatment arm. The authors have used state-of-the-art outcome measures such as the National Institutes of Health Chronic Prostatitis Symptom Index (NIH-CPSI), the International Prostate Symptom Score (IPSS), the International Index of Erectile Function (IIEF), and a visual analogue scale (VAS) for pain. First, the authors must be congratulated for having performed such as well-designed trial. Generally, the data are impressive, as all outcome parameters improved significantly in the verum arm at 3 mo (IPSS: −25%; IIEF: +5.3%; NIH-CPSI: −17%; VAS: −50%), with no changes whatsoever in the sham-treated arm. This study is indeed the first to provide level 1 evidence for low-energy ESWT in patients with CPPS [12].

Should we now all buy this machine to treat our patients with this challenging disease? Although the data look very promising, several limitations need to be strongly considered: (1) with regard to patient demographics, selection criteria and previous treatment strategies are poorly described; (2) the study period of only 3 mo is short, hence, the durability of this approach is unknown and the long-term

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data are awaited with interest; and (3) the sham-treated arm lacked a placebo response, which is very unusual. In all placebo-controlled trials published to date, a profound placebo effect has been documented [4–7]. The mean decline of the NIH-CPSI in the placebo arm of various drug trials ranged from −3 to −10 points [4–7]. The majority of these trials have allowed previously treated men to be included, such as in this trial [4–6]. The placebo effect in some of the drug trials was even higher than that of the active arm in this trial, which leads to doubts about the randomisation efficacy; unfortunately, as stated by the authors, the patients have not been assessed for this issue.

Low-energy ESWT is currently in clinical use for orthopaedic pain syndromes, fractures, and wound-healing disorders. Low-energy ESWT could affect CPPS by several mechanisms, such as reducing passive muscle tone, hyperstimulating nociceptors, interrupting the flow of nerve impulses, or influencing the neuroplasticity of the pain memory. It needs to be emphasised that human data for the indication of CPPS are not available for any of these mechanisms. The number of shock waves and the energy level chosen were purely empirical, and many technical questions (eg, the impact of prostate volume) remain unanswered [13]. Interestingly, changes on serum prostate-specific antigen have not been reported following low-energy ESWT, suggesting that this therapy affects, at least in part, structures outside the prostate [13]. This assumption is further supported by the fact that none of the patients developed prostate-related complications such as haematuria or haematospermia.

Despite the unknown mechanism of action and the limitations indicated above, this approach might indeed represent (if confirmed by others) a major advance. Several features render this technique highly attractive for patients with CPPS: It is an outpatient procedure that is anaesthesia free, that lacks side-effects, and that can be easily repeated. As indicated above, the long-term data of this trial are awaited with interest. Although repeat treatments have been successful for other indications, it is unknown whether this approach is also effective for patients with CPPS.

Even in 2009, CPPS remains a very common yet poorly understood disease with hardly any solid therapeutic options based on level 1 evidence. Only studies like the one by Zimmermann et al using validated study instruments and a placebo- or sham-controlled design will eventually lead to treatment recommendations or algorithms based on high-quality trials.

Conflicts of interest: The authors have nothing to disclose.

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