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EVALUATION OF LEVOFLOXACIN TREATMENT IN PATIENT WITH CHRONIC PELVIC PAIN SYNDROME BRIEF REVIEW

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ABSTRACT

Levofloxacin is one of the first fluoroquinolones that can be used to treat infections (urinary tract, respiratory tract, skin). It is one of the most prescribed antibiotics by urologists. It is accessible in oral and intravenous form but the oral form is the most used. After the comparative studies carried out, we found that patients treated with levofloxacine observed a marked improvement in their health. The aim of this study was to show the efficacy of levofloxacine in the treatment of CP / CPPS. In addition, this review will provide a solid platform for further research on the treatment of CP / CPPS. this review will provide a solid platform for further research on the treatment of CP/CPPS.

KEYWORDS: Chronic prostatitis CP / CPPS**,** Levofloxacin, Evaluation, Treatment.

INTRODUCTION

CP / CPPS is a chronic disease manifested by genitourinary pain in the absence of uropathogens and whose duration is 3 months. It is usually located in the prostate gland and revealed by traditional culturing techniques.[1] Chronic prostatitis / chronic pelvic pain

syndrome (CP / CPPS) is a common urological disorder. In the United States it causes more than 2 million visits per year to doctors.[1] In Canada there are 263 consultations of patients with prostatitis per year while in the United States the average is 173 patients per year.[2,3] According to epidemiological research, 5 to 14.2% represent the prevalence of prostatitis in the general population.[4,5] As there is no credible physical evidence, the patient should be examined for other urological pathologies, namely induration or asymmetry of the prostate and distension of the bladder. Examination of the foci of musculoskeletal dysfunction and myofascial dysfunction has been applied to examine the function of tension myalgia in pelvic pain.[6] At this time, the treatment or the benefits of recognition of the foci of triggering of musculoskeletal or myofascial dysfunction remain unknown. In addition, the quality of life has suffered a harmful effect from CP / CPPS such as a recent myocardial infarction, active Crohn's disease or unstable angina.[7] Since the etiology of CP / CPPS remains unknown, patients receive several empirical therapies. The most frequent treatments consist of adrenergic and antimicrobial receptor antagonists.[8] For the treatment of CP / CPPS quinolones, such as levofloxacin, are often used because of their broad-spectrum coverage of uropathogens, their excellent penetration into the prostate and other organisms traditionally believed to be associated with syndromes.[9] The aim of this study was to show the efficacy of levofloxacine in the treatment of CP / CPPS.

Classification

Recently, the National Institutes of Health has classified prostatitis into the four groups. This new group is arrangement of chronic nonbacterial prostatitis and proctodynia prostatitis.

Category	Definition	Symptoms
Type I (Acute Bacterial Prostatitis (ABP))	Acute infection of the prostate, identified by an increased white blood cell count and bacteria in urine that can be cultured in the laboratory	Pain in the lower back and genitals, fatigue, fever, urgency and frequency of urination (during the night), painful urination or burning sensation and ejaculation
Type II (Chronic Bacterial Prostatitis CBP))	Recurrent infection of the prostate; similar to type I in that bacteria can be identified, but infection does not respond to initial antibiotic therapy and requires additional treatment.	Same as above, but symptoms are often less pronounced
Type III (Chronic Nonbacterial Prostatitis/Chronic Pelvic Pain syndrome CP/CCPS)"" the subject of this article)	No bacterial infection -IIIA (inflammatory): white blood cells in urine, prostate secretions, and semen, but no evidence of an infectious agent - IIIB (noninflammatory): no evidence of infection	Pain in the lower back and genital area (perineum), urinary frequency and urgency (often at night), burning or painful urination and ejaculation
Type IV (Asymptomatic Inflammatory Prostatitis AIP)	Presence the inflammation of the prostate but there are no symptoms of genital urinary tract	Presence of inflammation without symptoms of prostatitis or urinary tract infection

Etiology pathogenesis

The initiator of CPPS remains unknown and there are no adequate studies to complete an accompanying risk factor alone. Despite this, there are many advanced but unconfirmed factors of CPPS, for example infections with viruses by bacteria, and yeasts.[10,11] In addition, a case study showed no change in the rate of positive cultures localized to the secreted prostatic secretion between asymptomatic men and men suffering from CPPS.[12] Despite that this is against bacteria known to be a factor in the symptoms of CPPS, it should be noted that the differences in virulence of these bacteria have not been defined and it is possible that the characteristics between the virulence of bacteria can reduce the signs of the patient. Several studies have failed to establish a relationship between the sexually transmitted diseases caused by Mycoplasma hominis, Trichomonas vaginalis, Urea plasma urealyticum, Chlamydia trachomatis and CPPS.[13] Other risk elements discussed include elevated levels of cytokines and inflammatory bladder irregularities associated with urination, hormonal imbalances, intraprostatic reflux, psychological disturbances and neuromuscular

dysfunction.[14,15] In a study carried out of elements of risk of people suffering from CPPS[16] with a high prevalence in the course of life was noted in people suffering from non-specific urethritis, neurological disease, cardiovascular disease, lymphatic or infectious diseases, psychiatric and hematopoietic disorders. More studies are needed to define if any of these risk causes are essential in the pathogenesis of CPPS.To clarify CP / CPPS well, several methods have been proposed3, and to fully understand the cause of CP / CPPS[17], animal models have been used as studies. Some studies of animal models indicate that the autoimmune response is the main provocative of this. Syndrome.[18,19] Increase levels of prostaglandin E2 (4 to 6 times above normal). In the serum of people with CP / CPPS the inflammatory marker and average endorphin levels have been remapped. notes an increase in endorphin levels while prostaglandin E2 levels decrease. Oxidative stress another form of pathogen. Shahed and Shoskes6 have carried out molecular research on markers of oxidative stress by estimating gene appearance. 300 prostatic secretions apparent in 100 men with CPPS have noted that the markers of oxidative stress were more observed in patients suffering from chronic prostatitis class IIIa and IIIb. These markers reduced meaningfully after an antioxidant treatment and an antibacterial. The different mechanisms of pathogenesis and etiologies CP / CPPS suggest with an endocrine, neurological or psychological immunological basis.[20] As an example, hypogonadism, which increases the treatment of the aging population[19] with proper use of testosterone replacement therapy[21], this can be proposed as one of the targets of people with CP / CPPS.[8] During the last few years, the pathogenesis of CP / CPPS has been examined under the condition of chronic ischemic tissue[22], of vascular dysfunction[23], but above all with the increase in prostatic pressure.[24] Doppler made a study which proved to us that in people reaching CP / CPPS, the blood circulation in the prostatic capsule and diffusion flux in all the parenchyma augmented notably.[25] Chronic prostatitis is convoyed by erectile dysfunction (ED) or BPH. By go. the pathogenesis of the two diseases could be related. Erectile dysfunction (ED) or benign prostatic hyperplasia ('BPH) and lower urinary tract symptoms (LUTS) is triggered by microvascular dysfunction and pelvic organs. A review of clinical analyzes and preclinical established that lower urinary diseases are accompanied by neurological dysfunction and endothelial disorders which lead to vasoconstriction, hypoxia, changes in contractility of smooth muscles and could affect autonomic neurons and lymph nodes.[26] These results show us that vascular factors play a significant role in pathogenesis and the etiology of chronic prostatitis.

Evaluation of patients

To properly estimate prostatitis, it is very important to use standardized questionnaires classified as an instrument to offer a correct and definite diagnosis. Generally, investigating with objectives a bunch of versatile signs and symptoms showed by patients can be confused and inexplicable. Thus, the NIH has, using the different approaches, developed an exceptional questionnaire such as a literature review, peer groups, expert opinions and patient tests for the examination of symptoms.[27] This survey is known as the NIH Chronic Prostatitis Symptoms Index (NIH-CPSI). The questionnaire has nine sections, which provide important and exhaustive information on pain, urinary symptoms, and quality of life.[28] Scores are used or calculated on a cumulative scale in order to observe the three centers of interest. For the good monitoring of evolutions in a fixed manner, the particularity of the symptoms is very important for good monitoring of the patient.[27] Restrictions are imposed on the use of this index as the sole means of diagnosing the disease. Recent studies have shown that the NIH-CPSI is very important in determining the severity of a patient's symptoms after the diagnosis has been made in relation to the absence or presence of a prostatitis examination.[29] Despite this it is considered a favorite tool adopted by doctors and scientists to diagnose CP / CPPS. Several studies have established that people suffering from CP / CPPS have depression and psychosocial symptoms. Therefore, it is important that these symptoms are listed in comparison with physical indications.[30] So, people with CP / CPPS should provide psychological support. For a better and effective evaluation of CP / CPPS the NIH recommends to conduct further tests. In case of persistence of symptoms and urinary tract infections, is always advisable to inspect urinary retention, as this can act as a probable causal. The patients with bladder draining partially might be assessed by investigating the post-void residual urine. The patient's complete urinary flow can be assessed by inspecting the urine flow. So, people with CP / CPPS should provide psychological funding. For a better and effective evaluation of CP / CPPS the NIH recommends to make further tests. In case of persistence of signs and urinary tract infections, is always wise to examine urinary retention, as this can act as a possible causal. The patient's complete urinary flow can be assessed by inspecting the urinary flow rates. The low maximum flow rates result in blockage of the bladder endpoint and a decrease in the detrusor muscle contractility. Probable urological epithelial cancers can be fixed by performing urinary cytology, which can lead to signs of obstructive or pain urination. Recent studies advise to carry out a quantitative study of a prostatic site which is called the Meares-Stamey four-glass test. The four-glass test is a long-term technique and it is incredible to do this experiment in different laboratories, by the way,

Nickel et al.[31] have presented another effective and swift technique for establishing an effective screening test, called the two-glass test. Initially, the men evaluation with clinical results of CP/CPPS based on the comparison of his test throughout a traditional four-glass test was assessed. The four-glass test and the two-glass test have almost the same directories. Elsewhere it is recommended in case of absence of prostatic secretions the use of the two-glass test which has a practical and consistent substitute. Using the four-drink test, the ejaculation test or the two drink test the inflammatory and non-inflammatory types of CP / CPPS can be distinguished.[32] According to the outcomes of the tests with four or two glasses are not clear and cannot be used investigated for prostatitis and are not beneficial to manage its handling.[32]

Table 2: The UPOINT Questionnaire the National Institutes of Health Chronic Prostatitis Symptom Index.

Domaine	Clinical Description
Urinary	Urinary index of sign of chronic prostatitis with a Urine Score> 4 Complaint of the patient implying the frequency, urgency or unpleasant nocturia with a Flow <15 mL / s or clogged figure Postvid residual volume of urine> 100 mL.
Psychosocial	Clinical depression accommodation decreases or proceeds inappropriately, such as, poor social interaction or evidence of catastrophization (rumination or fattening for signs of lack of hopelessness).
Organ specific	It is a characteristic affectivity of the prostate Leukocytes which is found in the prostatic fluid Hematospermia Large prostatic calcification
Infection	Patients with clinical symptoms of acute or chronic bacterial prostatitis should be dismissed as (acute infection) or (frequent infection located at a prostate prototype between infections) enterococci located in the prostatic fluid gives a successful reaction to antimicrobial or bacilli therapy. Gram negative
Neurological/systemic conditions	Irritable bowel syndrome, Discomfort beyond the abdomen and pelvis, Fibromyalgia, Chronic fatigue syndrome
Tenderness of skeletal muscles	On rectal examination there is a painful muscle spasm or starting points in the perineum or pelvic floor or side walls

Clinical and laboratory examination in chronic prostatitis syndromes

For a complete examination it is necessary that this includes the location and duration of pain or discomfort. Signs of the respiratory tract and lower urinary tract must be noted. All information regarding urethral discharge must be communicated and step up through laboratory tests. The duration of antimicrobial treatments and previous cultures must be communicated**.** For a qualification and quantification of the clinical situation it is necessary to

use a scientific method which requires the use of questionnaires. The most used questionnaire is the National Institutes of Health Chronic Prostatitis Symptom Index (NIH-CPSI; table 2). The signs can be found in different organs. New Studies Revealed Prevalence, Assessment, and influences the locations and types of pain in more than 1,500 CPPS patients. perineal discomfort / pain was the most common, (63%) of symptoms, testicular pain (58%), then pain in the pubic area (42%) and pain in the penis (32%); pain during urination (43%) and pain during ejaculation (45%). Inguinal pain, pain in the muscle region of the psoas, as well as pain in the thighs and lower back are seen as unpleasant.[33] Irritable bowel allergies and signs are common diseases.[34-36] In some individuals the chronic pelvic pain syndrome presents itself through different clinical phenotypes according to various causes which are supposed to have particular fusions of signs and path of development. To close the difference between future mechanistic approaches to diagnosis and the current signs-based diagnosis, a process was essential. Nickel et al[22] called this "the possibility of the snowflake" and proposed a phenotypic examination of the signs by adopting the UPOINT questionnaire (psychosocial, urinary specific, infection, sensitivity of the skeletal muscles and neurological / systemic and; Table 2), which examines the signs of CP / CPPS according to several organ systems widely engage in the pathophysiology of the CPPS.[37,38] CP / CPPS with varying degrees of incoherence and dispossession is a delicate disease, often involving extensive surveillance research to guide physicians toward a coherent treatment plan. All patients with pain in the penis, confined urethral pain, dysuria, unprotected sex or patients with a history of sexually transmitted diseases are urged to take a urethral swab test.[27] Urodynamic research should be done in patients with signs of urination. The information obtained through the results of this study made it possible to complete the urinary flow and the examination by the office of the post-empty residual urine. Video urodynamics or urodynamics are medical tests that can help detect any obstruction of the prostate such as bladder-sphincter dyssynergia and primary obstruction of the bladder neck. Opposed to prostatitis, these dysfunctions, are followed by different types of treatment, which can trigger or bring the signs of pelvic pain and lower urinary tract which the patient experiences. The study carried out in 1994 by Kaplan et al.[39] detected 34 patients with CP / CPPS, so these patients were examined through urodynamic medical examination. Of the 34 patients examined for symptoms of obstruction of the bladder outlet at the level of the bladder neck were found in 31 patients. In addition, bladder-sphincter dyssynergy was noted in patients with CP / CPPS.[40] Cystoscopy is a method that examines urodynamic studies or patients with CP / CPPS. Patients with signs of abnormal cytology or hematuria are advised to do cystoscopy. Cystoscopy is the right choice for

patients showing obstructive or irritant signs because it is a symptomatology which manifests itself because of a malignant tumor which can be the source at probable risk.[41]

Diagnostic Evaluation

The diagnosis of CP / CPPS is defined according to the results obtained on sick people who had genitourinary (`urethral, perineal, testicular and ejaculatory) and pelvic pain, as well as urinary signs, composed of dysuria, urinary tract irritation (frequency and urgency) and different degrees of obstruction.[42] Urgency / frequency is certainly a bladder element of the signs, dysuria is urethral. In patients suffering from CP / CPPS the physical detection passes to the level of the presence of a prostatic affectivity which is absent. Expressed prostatic secretions (EPS) may or may not show leukocytes, but urine samples from post-prostatic massage and culture of prostatic secretions should not reveal uropathogens. In EPS leukocytes have been found, despite this, the clinical suitability of this detection is not known.[43] Chronic prostatitis can be diagnosed by following a pusher investigation of the patient's history. Other levels of testing include urinalysis and culture before and after prostate massage.[31,44] Chronic bacterial prostatitis can be detected once bacterial growth is revealed through culture. In the absence of bacteria, the growth of the culture and the symptoms will persist, the patient certainly contracting chronic non-bacterial prostatitis (CP / CPPS), thus covering 90% of all patients with distinctive symptoms. Pain and fatigue can migrate and is located between the perineum, penis, testicle, anus, lower back, inguinal region and scrotum. Difficulty urinating, frequency of urination, dysuria, Fatigue are also common.

Metabolism and Elimination

Levofloxacin which is an isomer of ofloxacin is a fluoroquinolone (FQ) antibacterial, since its introduction it has become one of the cornerstones of antibiotic therapy for pyelonephritis due to pharmacodynamic (PD) and pharmacokinetic (PK) aspects, its broad-spectrum antibacterial efficacy and its satisfactory tolerance. Levofloxacin undergoing limited metabolism is generally excreted in an intact form in the urine. The mean renal clearance value was less than 7.14 LIhI1, while that of the average body drug was 8.51 LIhI1.73m2.[45] An intact at dose of levofloxacin was found in the urine (80 to 86%) and the buttocks (2%) 24 hours after the injection (2%).[46] The mean plasma elimination half-life (V / 2 ~) of levofloxacin progressed between 4 to 7 hours. Maximum levels of levofloxacin in urine are of various orders of magnitude greater than MIC90 values for pathogens because high

concentrations of drugs are obstructed in urine at therapeutic doses. The injection of a single dose means that the MIC90 values for E. coli were exceeded in the urine for up to 3 days, oral administration to women suffering from acute uncomplicated cystitis of levofloxacin 200 mg.[47]

Mechanism action of levofloxacin

Levofloxacin has the synthetic isomer L of the racemic quinolone of ofloxacin. It intervenes in critical processes in the bacterial cell, such as transcription, DNA replication, by defending type II topoisomerases.[48,49] Levofloxacin can be used against a wide range of atypical Gram-positive and Gram-negative bacteria which can be considered as pathogens in nosocomial and community-established infections. Often, clinically relevant levofloxacin often shows good in vitro activity against atypical, Gram positive and Gram-negative organisms.[50,51] Levofloxacin acts against Gram-positive strains allergic to penicillin and resistant to penicillin from Streptococcus pneumoniae; the Gram-negative species Proteus mirabilis and Enterobacter cloacae, H. parainfluenza, Hemophilus influnzae and Moraxella catarrhalis, and the atypical organisms Chlamydophila pneumoniae Mycoplasma pneumoniae and Legionella pneumophila, with minimum densities necessary to prevent the evolution of 90% of the strains (MIC90) of ≤2 mg / L. The action of levofloxacin with regard to staphylococcus aureus allergic to methicillin / gram-positive oxacillin is slowly reduced, with MIC90 (≤ 4 mg / L) in the allergic range to the intermediate while its action against Escherichia coli Gram negative (MIC90 ≤0.06 to> 8 mg / L) and Pseudomonas aeruginosa (MIC900.5–64 mg / L) is changing.[50, 51]

Comparative Studies

Nickel[52] showed us his trial through which he evaluated the safety and efficacy of 6 weeks of treatment with levofloxacin in comparison with the placebo analgesic (CP / CPPS) in chronic prostatitis / pelvic pain chronic. In 11 Canadian centers, men diagnosed with CP / CPPS from the National Institutes of Health (NIH) (in particular, no localized infection of the prostate) received levofloxacin (500 mg / day) or placebo for 6 weeks. The study included Eighty men (mean age 56.0 years, range 36 to 78; duration of symptoms 6.5 years, range 0.6 to 32) received levofloxacin (# 45) or placebo (# 35). Both groups experienced gradual improvement in symptoms, as measured by the NIH-CPSI. However, the difference in response was not so great at the end of treatment (6 weeks) or at the end of follow-up visits (12 weeks). No patient withdrew from the treatment due to adverse effects. Adverse effects

were observed in 20% of the levofloxacin group and 17% of the placebo group. This study showed that in men diagnosed with CP / CPPS treatment with levofloxacin resulted in improvement symptoms with a difference compared to placebo. In treatment there were 20% of the levofloxacin group and 17% of the placebo group. Another prospective study was performed to evaluate the efficacy of levofloxacin and doxazosin alone and in combination with patients suffering from chronic prostatitis / chronic pelvic pain syndrome category III of the National Institutes of Health (NIH). Patients who underwent 6-week treatment were assessed at baseline and after 2 and 6 weeks using the NIH chronic prostatitis symptom index. The study involved eighty-one men (mean age 40, 1 year) including (n = 26) from the levofloxacin group, the combined group (n = 29) or the doxazosin group (n = 26). Results: Average benchmark index for symptoms of chronic prostatitis NIH, the scores were 22.6, 22.4 and 24.1, respectively. At 6 weeks, the total scores were 11.2 (50.3% response rate), 17.7 (21.1% response) and 13.1 (45.6% response rate), respectively. The levofloxacin group showed a higher response rate than the doxazosin group, not at 2 weeks but at 6 weeks (p! 0.001).[53] In the treatment of simple complications urinary tract infections (UTIs) (lower) or complicated 90% of patients who received a 100 to 600 mg / levofloxacin dose 3 times a day gave clinical results and bacteriological efficacy rates ranging from 86 to 100%. Eradication rate E. faecalis (n = 17), K. pneumoniae (n = 10) and E. Coli (n = 42) evolved between 94 to 100%.[54]

Table 3: Primary efficacy (total and domain NIH-CPSI scores) and secondary (NIH-CPSI responder sub analyses) analyses at 3, 6 (end of therapy), and 12 weeks after randomization to levofloxacin (n ± 45) and placebo (n ± 35).[52]

Outcome	Baseline		3 wk		6 wk		12 wk	
	P	T	P	T	P	T	P	T
CPSI total	21.3 ± 7.2	24.4± 8.2	20.1± 8.7	20.0± 8.8	18.4± 9.1	19.0± 9.5	18. 2± 9.3	8.8±10.7
CPSI (pain)	9.4± 3.7	10.6± 4.7	9.5± 4.4	9.2± 5.0	7.6± 4.7	8.9± 5.0	7.9± 4.9	8.5± 5.4
CPSI (urinary)	4.3± 2.9	5.4± 3.0	4.1± 2.9	4.7± 3.1	4.1± 2.8	4.2± 3.0	3.7± 3.0	4.5± 3.2
CPSI (QOL)	4.5± 1.2	4.7± 1.6	4.2± 1.4	4.1± 1.6	3.8± 1.7	3.7± 1.8	3.7± 1.7	3.7± 1.7
25% responders (%)	NA	NA	23	40	37	42	34	40
6-point responders	NA	NA	14	40*	37	47	37	44(%

Key p=placebo T=Levofloxacin, QOL =Quality of live, NA=not applicable

Table 4: Treatment response in terms of NIH-CPSI scores.[53]

NIH-CPSI	Baseline			Response rate after 2 weeks			Response rate after 6 weeks		
	Levo	Doxa	Comb	Levo	Doxa	Comb	Levo	Doxa	Comb
Pain	10.7	9.1	11.0	6.9 (35.6)	6.9 (23.7)	7.8 (29.5)	4.5 (58.3)	6.4 (29.2)	5.1 (53.6)
Urinary	4.5	5.9	5.0	2.8 (37.3)	4.7 (21.4)	3.7 (25.7	1.9 (57.6)	4.6 (22.1)	2.8 (44.4)
Q of life	7.4	5.0	8.2	5.7 (23.4)	7.0 (5.7)	6.6 (19.8)	4.8 (34.4)	6.6 (10.4)	5.3 (35.4)
Total	226	22.4	24.1	15.4 (32.0)	18.5 (17.2)	18.0 (25.4)	11.2 (50.3)	17.7 (21.1)	13.1 (45.6)

Levo=Levofloxacin, Doxa =doxazosin, Com=combination

Efficacity

We have seen through the studies carried out that levofloxacin has a well determined safety level based on knowledge acquired in clinical as well as clinical use of medication for years. The foundations of the experience of safety with levofloxacin have been laid in clinical trials in which 408 patients with chronic microbiologically confirmed chronic prostatitis were randomized to receive levofloxacin by mouth (500 mg qd) or ciprofloxacin (500 mg bid) for 4 weeks. The most common bacteria were Escherichia coli and Staphylococcus aureus. 4 weeks of treatment, the bacterial clearance rate (86.06% versus 60.03%; P, 0.05) and clinical performance (including clinical healing and (93.30% versus 71.86%; P, 0.05)) were significantly higher in the levofloxacin group than in the group ciprofloxacin group. In the levofloxacin group the microbiological recurrence rate was minimal compared to the ciprofloxacin group (4.00% versus 19.25%; P, 0.05). Adverse effects due to treatment were slightly lower in the group treated with levofloxacin than in the group treated with ciprofloxacin. with a low rate of side effects, for the treatment of chronic bacterial prostatitis.[55] A study by Pagly[56] has shown the efficacy of levofloxacin with different dose levofloxacin 500 mg QD for 4 weeks to levofloxacin 750 mg QD for 3 weeks or 750 mg QD for 2 weeks in the treatment of chronic bacterial prostatitis. This was a randomized study, which involved 241 patients. At post therapy (Healing Test [TOC]), the clinical success rates of patients treated with levofloxacin (750 mg QD for 3 weeks [64.9%, 48/74]) were not less than 500 mg QD for 4 weeks (69.3%, 52/75: 95% CI, -19.5%, 10.6%). Patients treated with levofloxacin 750 mg QD for 2 weeks (63.0%, 46/73) were not inferior to treatment with levofloxacin 500 mg QD for 4 weeks (95% CI, -21.5%, 8, 9%) at TOC. 3 and 6 months after treatment, clinical success rates were clinically higher for the treatment group of 500 mg and 4 weeks, and statistical analysis demonstrated that the two groups were not inferior to standard treatment with levofloxacin 500 mg (95% CI, -32.5%, -0.6% for the two groups of 750 mg at 6 months). NIH-CPSI scores showed similar trends. Through clinical trials of levofloxacin, we find that the causes of the side effects are not dose related (i.e. 500 mg vs

750 mg). Levofloxacin is an antibacterial from the fluoroquinolone group with a broad spectrum of activity against Gram-negative bacteria and Gram-positive, and it has been submitted to replace clarithromycin in the treatment of H. pylori.[57,58] The efficacy of levofloxacin has been analyzed in various comparative studies in adult patients suffering from CP / CPPS and other variety of infections, such as respiratory tract, skin infections. Efficacy has been analyzed in many trials according to satisfactory clinical response rates with the patient's state of health.

CONCLUSION

Chronic prostatitis / chronic pelvic pain syndrome continues to be a clinical entity for urologists, it is one of the most common diseases in men between the ages of 35 and 45, it has a harmful effect on the quality of life of patients. The etiology and treatment of the pathogenesis of CP / CPPS is unclear and is very complex. But thanks to studies carried out, patients can be treated with antibacterial including levofloxacin. In the future, new research should be carried out for a more effective treatment.

CONFLICT OF INTEREST

All authors declare no conflict of interest.

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