

## Original Article

# Treatment of chronic prostatitis in Chinese men

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## Abstract

The aim of this study is to assess the status of treatment of chronic prostatitis (CP) in Chinese men. A population-based cross-sectional survey was performed, in which 15 000 men aged between 15 and 60 years were randomly selected to receive a questionnaire designed to assess National Institutes of Health Chronic Prostatitis Symptoms Index (NIH-CPSI) status, therapeutic efficacy and 28 other items. A total of 12 743 men (84.95%) completed the questionnaire, of whom 1 071 (8.4%) were identified as having prostatitis-like symptoms and 517 (4.5%) were diagnosed with CP according to NIH-CPSI criteria and prostatitis-like symptomatology. Of the CP patients, 372 (65%) underwent long-term routine treatment 12 times per year. Additionally, 217 (72.8%) patients received antibiotic therapy and 215 (79.3%) men showed therapeutic effects. The treatment cost USD 1 151 (8 059 yuan) per person per year on average. Most CP patients received routine treatment, in most cases with antibiotics. Treatment was costly and most CP patients were not satisfied with its effectiveness. Antibacterial treatment might have been effective primarily in patients with bacterial disease.

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## 1 Introduction

Chronic prostatitis (CP), one of the most common and puzzling diseases seen in the daily practice of urology, is characterized by high prevalence, low cure rate, frequent recurrence and severe impairment of

quality of life. Various surveys have been conducted, but different methods and subjects can generate different results. The prevalence of chronic pelvic pain syndrome (CPPS) has been found to be 2.2%–16.0% [1] in the US and Europe.

Ku and coworkers [2] conducted a nationwide postal survey of practising urologists and reported that 275 men suffered from CP; however, these diagnoses were typically not based on urinary cultures. Kunishima and coworkers [3] determined the prevalence of CPPS to be 4.9%; younger men were more symptomatic, resulting in a higher estimation of prevalence in this population. It was also thought that the selected

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individuals and survey area were not representative of Japan.

There have been no large-sample investigations concerning the current prevalence of prostatitis-like symptoms in China. This study consisted of a cross-sectional survey based on the National Institutes of Health Chronic Prostatitis Symptoms Index (NIH-CPSI), which is accepted by the international prostatitis research community as an accepted outcome measure [4]. We developed a Chinese version of the NIH-CPSI (CHI-NIH-CPSI) by translating it into Chinese and confirmed its validity and applicability for Chinese patients with CP [5]. We analysed the results of this survey to determine the therapeutic effectiveness for CP.

The aim of this survey was to investigate the epidemiological characteristics and determinants of CP in the interest of future prevention, treatment and epidemiological studies.

## 2 Materials and methods

### 2.1 Materials

The study employed a randomized cross-sectional investigation design. It was carried out from February 2007 to December 2007. A total of 15 000 men aged between 15 and 60 years were selected randomly from 15 rural villages and 15 city communities evenly distributed in Anhui, Beijing, Xi'an, Guangzhou and Gansu provinces/cities in China.

### 2.2 Judgement standard

We diagnosed the disease in terms of the CHI-NIH-CPSI, which has earlier been shown to be effective. The CHI-NIH-CPSI consists of three domains of scores, including pain and discomfort (21 scores in total), urinary symptoms (10 scores in total) and impact on quality of life (12 scores in total). Prostatitis-like symptoms were defined according to Nickel *et al.* [6], by the presence of pain in the perineum and/or during sex with a score of  $\geq 4$ . More specifically, mild symptoms were defined by a pain score of 4–7 and moderate or severe symptoms by a pain score of  $\geq 8$ . Symptoms and their effects were also grouped as mild, moderate and severe if CPSI scores ranged from 0 to 14, 15 to 30 and 31 to 43, respectively.

### 2.3 Study design and procedure

The questionnaire was designed by experts on health statistics, and all data collectors were trained by

experienced urologists. The questionnaire consisted of five major domains of items soliciting data about demographics, behaviour and lifestyle, NIH-CPSI items and sexual function. For most participants, the questionnaire was self-administered after informed consent. For illiterate participants, the questionnaire was administered by trained interviewers.

### 2.4 Statistics

The collected questionnaires were cleaned and checked, and data were entered into computers. Data were analysed using descriptive and comparative statistical methods.

## 3 Results

### 3.1 Demographics

A total of 15 000 male patients were sampled for the study; 12 743 provided valid questionnaires, resulting in a response rate of 84.95%. The respondents were aged between 15 and 60 years, with an average age of  $33.79 \pm 11.20$  years. Among them, 1 071 reported prostatitis-like symptoms, and 571 were diagnosed with CP. The CP patients were aged  $38.69 \pm 11.52$  years and had experienced CP for 17.8 months on average.

### 3.2 CP severity

Among the 571 patients diagnosed with CP, the average CHI-NIH-CPSI pain score was  $6.33 \pm 4.28$ , and the average CPSI score was  $17.12 \pm 8.05$ . Most patients had mild to moderate CP. More information about CP severity in different age groups is given in Table 1.

### 3.3 Utilization of treatment

As shown in Table 2, 372 (65.1%) CP patients underwent long-term routine treatment (a combination of antibiotics and Chinese herbs for at least 3 months);

Table 1. Severity of chronic prostatitis by age group.

Age group (years)	Mild (n, %)	Moderate (n, %)	Severe (n, %)
15–20	15 (6.6)	10 (3.2)	1 (3.6)
21–30	50 (21.8)	89 (28.3)	5 (17.9)
31–40	94 (41.0)	63 (20.1)	12 (42.9)
41–50	49 (21.4)	71 (22.6)	5 (17.9)
51–60	21 (9.2)	81 (25.8)	5 (17.9)
Total	229 (40.1)	314 (55.0)	28 (4.9)

of these, 271 (72.8%) used antibiotics, and 215 (79.3%) perceived the antibiotic treatment as effective. Of all patients receiving professional treatment, only 156 (42.0%) viewed the treatment as satisfactory.

### 3.4 Time and cost of treatment

As shown in Table 3, most (86.6%) CP patients visited a urologist less than 10 times for professional treatment, and the charges for treatment totaled USD 1 151 (8 059 yuan) per patient on average.

## 4 Discussion

CP is a common disease that accounts for a quarter [7] of all visits of men to urology clinics. About 50% of men suffer from this disease during their lifetime [8]. To date, the causes and mechanism of CP remain unknown, and treatment depends largely on experience and comprehensive medication. As a result, the treatment efficacy is generally unsatisfactory; thus, the disease severely affects the quality of life. CP is actually considered by the US-NIH [9] to be as important as diseases such as myocardial infarction, unstable angina pectoris and active Crohn's disease.

Most investigations of CP have used the NIH-CPSI and Nickel's criteria [6]. Moon and coworkers [10] conducted a questionnaire survey of men aged between 20 and 48 years and found that 5% of the respondents had been diagnosed with CP. This is very similar to the findings (4.5%) of this study. Roberts *et al.* [11] performed a survey of 2 115 men aged between 40 and 79 years and found that 2.0% suffered from CP, and that CP prevalence was significantly higher in men with an

earlier CP history than in men without such history.

The current treatment for CP in China seems to be ineffective. Only 65.1% of the CP patients who responded to our questionnaire underwent routine treatment; of these, 42.0% perceived their treatment as satisfactory. Liang and coworkers [5] conducted a survey of 2 498 CP patients and reported that only 1 424 (57.0%) received routine treatment and 498 (35.0%) viewed their treatment as satisfactory; 926 (65.0%) regarded it as unsatisfactory. These findings are consistent with this study.

Antibiotics are the most common treatment for patients with CP. Several guidelines for CP treatment recommend that antibiotics be applied to patients with types I, II and IIIa CP. Recently, a few randomized, placebo-controlled studies showed significant improvement in 50% of CP patients receiving quinolone treatment. Antibiotic treatment was especially effective for patients who had developed CP within the past 4 weeks and had not yet received antibiotic treatment; of these patients, 75% showed signs of relief [12–14]. Similar results were also observed in the current study, in which 271 (72.8%) patients used antibiotics; of these, 215 (79.3%) perceived the treatment as effective or very effective. Another survey of 2 498 CP patients by Liang and coworkers [5] found that 1 310 (92%) patients used antibiotics and of these, 71.5% experienced improvement in their symptoms after treatment.

CP requires long-term management and the use of combined regimens. In this study, the patients received 12 sessions of professional treatment on average. The treatment was quite costly, at USD 1 151 (8 059 yuan)

Table 2. Treatment for patients with chronic prostatitis in China.

	Routine treatment (n, %)	Treatment with antibiotics (n, %)	Effect of antibiotic treatment (n, %)				
			Total recovery	Mostly recovered	Partial recovery	No effect	Deteriorated
Yes	372 (65.1)	271 (72.8)	47 (17.3)	62 (22.9)	106 (39.1)	46 (17.0)	10 (3.7)
No	199 (34.9)	101 (27.2)					
Total	571 (100)	372 (100)			271 (100)		

Table 3. Time and cost of treatment for patients with chronic prostatitis in China.

	Times of treatment				Cost of treatment (USD)				
	1–5	6–10	11–20	> 20	< 143	143–429	429–715	716–1 429	> 1 429
No.	257	65	39	11	140	121	28	50	33
%	69.1	17.5	10.5	2.9	37.6	32.3	7.5	13.5	8.9

on average. Using US Census Bureau data, Calhoun and coworkers [15] estimated that the annual direct and indirect cost of CP treatment per patient was USD 1 397. These data suggest that CP places a large financial burden on patients and society.

Our study has several limitations. Sampling errors may have affected the results, and the materials were not analysed in the field. Furthermore, we could not classify CP into subcategories, especially into bacterial and nonbacterial CP; this could have affected the calculated efficacy of the antibiotic treatment. Nevertheless, random selection should have ensured that the sample population is representative of Chinese men.

CP greatly impairs the physical and psychological health of men and is thus becoming a major public health issue. Current CP treatment is inadequate. Increasing numbers of aetiological and epidemiological studies are being conducted worldwide with the aim of developing effective therapies for CP. Although our study did not stratify CP into categories II and III prostatitis, the antibacterial treatment might have been particularly effective in patients with bacterial disease.

In conclusion, CP treatment in China is currently inadequate. Antibiotics are commonly administered for therapy. Future studies should focus on increasing the therapeutic efficacy.

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