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Feasibility Trial of Medical Hypnosis and Cognitive Behavioral Therapy for Men With Refractory Chronic Prostatitis/Chronic Pelvic Pain Syndrome

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ABSTRACT

OBJECTIVE: To determine the feasibility and effectiveness of medical hypnosis and cognitive behavioral therapy (CBT) for relief of pain, improvement of psychological status, and quality of life in men with chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS).

METHODS: Men with refractory chronic pelvic pain who were symptomatic for >3 months were assessed for hypnotic susceptibility after medical, mental health, and social history were obtained. Psychological data from healthy men with no evidence of pain disorders or genitourinary symptoms were used as a comparator group. In 7 weekly sessions, the psychologist/hypnotherapist utilized CBT to challenge and balance negative cognitions associated with symptoms, performed guided imagery and hypnotic intervention, and provided patient training in self-hypnosis for symptom management. Changes in symptom indices, psychometrics, and compliance with home exercises using audiotapes of hypnosis sessions and CBT workbooks were assessed after 3 and 6 months.

RESULTS: Sixteen men with median pain duration of 7 years and high symptomatic pain scores participated. All had moderate to high hypnotic ability. At 6 months after training, the median NIH-CPSI total score decreased 10.5 points (-7 to -27) relative to pretreatment in 57% of patients; McGill pain scores decreased a median of 6.5 points (-2 to -28). Both NIH-CPSI pain and quality of life domain scores significantly improved ($P \leq .02$). Most (88%) patients reported continued self-hypnosis effective for symptomatic relief and improved coping.

CONCLUSION: CBT and self-hypnosis training for patients with CP/CPPS was feasible, resulted in decreased symptoms, and provided patient self-directed methods to improve sense of control, ability to cope, and dissociation from pain symptoms. Longer-term follow-up is required to determine the impact of these therapeutic approaches for selected men with this disorder.

Abbreviations and Acronyms

BSI, Brief Symptom Inventory
CAM, complementary and alternative medical
CBT, cognitive behavioral therapy
CNS, central nervous system
CP, chronic prostatitis
CPPS, chronic pelvic pain syndrome
CPSI, Chronic Prostatitis Symptom Index
DSM, Diagnostic and Statistical Manual
GRA, global response assessment
NIH, National Institutes of Health
PPSS, Pelvic Pain Symptom Scale

KEYWORDS: Prostatitis; Chronic pelvic pain syndrome; Medical hypnosis; Cognitive behavioral therapy

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original study
Medical Hypnosis and CBT for Men With CP/CPPS

INTRODUCTION

As with many chronic pain disorders, the etiology of chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) is poorly understood and poorly characterized; treatment is mostly empirical and unsatisfactory. Chronic pain is a complex phenomenon that may be affected by emotional, cognitive, behavioral, and physiological responses. Therefore, a multimodal treatment approach may be important for some patients. Despite decades of efforts to manage CP/CPPS symptoms using pharmacologic therapies, none have demonstrated proven effectiveness in placebo-controlled clinical trials. In comparison, several types of complementary and alternative medical (CAM) therapies including myofascial release physical therapy [1,2], paradoxical relaxation [1,3], acupuncture [4], electrical neuromodulation [5], and herbal quercitin and pollen extract (Cernilton N) [6,7] have demonstrated beneficial effects and patient compliance. The success of each of these CAM therapies is thought to be due to targeted neuromuscular, neuroendocrine, or neuropsychological systems.

A recently suggested clinical phenotypic classification of patients with urologic chronic pelvic pain includes psychosocial dysfunction as one of the domains that contributes to its multifactorial presentation [8]. A protocol for cognitive behavioral therapy (CBT) based on psychosocial factors has been suggested for CPPS but remains untested [9]. Hypnosis intervention also has been shown to consistently produce significant decreases in pain associated with a variety of chronic pain conditions including cancer pain, low back pain, vulvodynia, and irritable bowel syndrome [10-14]. It has been used for symptom management in patients with fibromyalgia; however, CBT in conjunction with hypnosis produces greater symptom benefits than conventional medical treatment only or CBT without hypnosis [15].

Recent evidence associating the experience of pain and brain state measured via electroencephalography has heightened interest in interventions that impact the cortical neuromodulation of pain, including behavioral treatments such as self-hypnosis training and biofeedback [16]. To our knowledge, no clinical trial has evaluated therapy with hypnosis alone or in conjunction with CBT in helping patients with symptom management and reduction of the negative effects of CP/CPPS.

The present pilot study was designed to assess the feasibility of utilizing a protocol of combined CBT and hypnosis in men with refractory CP/CPPS. The protocol is designed to target neuro- and bio-psychosocial factors that may contribute to this complex disorder. The goals are to examine the short-term effectiveness of reducing pain and to provide patients with self-hypnosis training as a way of coping with pain and gaining greater self-control over it. This approach is based upon the premise that treating urologists understand the preeminence of psychological variables when managing refractory CP/CPPS. After evaluating a new patient, the urologist teams with a psychologist trained in pain management for the purpose of optimizing treatment outcomes. The patient undergoes a series of individual psychotherapy and hypnosis training sessions, while complying with between-session behavioral homework assignments. Patients may continue to use self-hypnosis after treatment, on an as-needed basis.

METHODS

Study Design

This prospective investigation was conducted at the Stanford University Urology Clinic between October 2009 and October 2010. The protocol was reviewed and approved by the Stanford University Human Subjects' Committee and participants gave signed informed consent. Patients were invited to participate in a 7-session protocol without monetary compensation. Treatments were provided without cost.

Participants

Experimental Group. The participants were 16 men with refractory, long-term CP/CPPS. All participants had failed *several* prior multimodal therapies. No differentiation was made between inflammatory and noninflammatory prostatitis (National Institutes of Health [NIH] categories IIIA/IIIB), or the specific location of pelvic pain. All participants had symptoms for 3 months within the last 6 months. They had a total NIH-Chronic Prostatitis Symptom Index (CPSI) score of at least 12 and a nonzero pain domain score.

Comparator Group. To further understand the psychological profiles of the men with CP/CPPS and how chronic pain may have affected them, we obtained psychological data from 26 age-matched and demographically similar healthy men with no evidence of pain disorders or genitourinary symptoms as a comparator group. They did not receive CBT or hypnosis therapy. The participants in the comparator population were healthy controls in a larger NIH-sponsored study from the Chronic Prostatitis Collaborative Research Network (CPCRN) that is designed to assess hypothalamic-pituitary-adrenal axis function in CP/CPPS [17].

Evaluation Procedures

After the urological examination, a licensed psychologist (TFN) with extensive experience in the application of hypnosis and

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CBT for pain management assessed the participants' hypnotic susceptibility and imaginative activity with the Tellegen Absorption Scale [18]. This scale has 34 true-false items that correlate with the ability to maintain a state of attention involvement. The psychologist also administered the Hypnotic Ability Assessment and Training Scale, which was developed by the psychologist/hypnotherapist (TFN). A comprehensive pain, mental health, and social history were obtained.

Symptom and Outcome Assessments. Primary outcomes were compliance and trial feasibility, changes in symptom scores using the NIH-CPSI total and subdomain scores, changes in severity, frequency, and pain location with the Pelvic Pain Symptom Scale (PPSS) [1], and short-form McGill pain questionnaire (SF-MPQ) scores [19]. Assessments were collected before treatment and at 1, 3, and 6 months after completion of therapy. The global response assessment (GRA), a 7-point Likert scale, was administered at each follow-up visit to evaluate patients' perceptions of the overall effect of the therapy: "How are you now in comparison to before CBT and hypnosis?" Responses were: *markedly improved, moderately improved, slightly improved, no change, slightly worse, moderately worse*, or *markedly worse*.

Psychological and Psychosocial Assessments. The following self-report instruments were used: 1) Beck Depression Inventory (BDI-II) [20]; 2) Beck Anxiety Inventory (BAI) [21]; and 3) Perceived Stress Scale (PSS) [22]. A psychological profile of distress was evaluated with the Brief Symptom Inventory (BSI) of the Symptom Checklist (SCL-90R), a 53-item inventory measuring nine dimensions: depression, anxiety, somatization, obsessive-compulsive behavior, interpersonal sensitivity, hostility, phobic activity, paranoid ideation, psychoticism (social alienation), and the Global Severity Index (GSI), a composite measure of overall distress [23]. Responses were scored on a 5-point Likert scale ranging from 0 (*not at all*) to 4 (*extremely bothersome*). Scores were converted to T scores based on adult male, nonpatient (ie, nonpsychiatric) profiles from a reference population. Detailed medical and psychosocial histories were obtained during sessions with the psychologist in an attempt to determine potential etiological factors associated with the onset and exacerbation of CP/CPPS symptoms.

Treatment Procedures. Participants attended 7 weekly treatment sessions with the psychologist consisting of: (1) teaching CBT (identifying negative cognitions associated with CP/CPPS symptoms generating negative feelings, and then countering them with more adaptive and realistic cognitions); (2) providing a hypnotic exploratory session about psychological factors that may be contributing to symptoms; (3) teaching hypnosis for symptom management (generalized relaxation, guided imagery of a pleasant scene, and glove-anesthesia); and (4) training in self-hypnosis by making an individualized digital recording of a hypnotic session to be used daily at home. The procedures for CBT and self-hypnosis training are shown in the Appendix. Audiotapes and CBT worksheets were provided and CBT and hypnosis compliance logs were collected at each session. Participants were not permitted to receive any additional therapy for CPPS during the course of the study and follow-up period.

Statistical Analysis

Descriptive statistics were generated on all demographic, medical history, and physical examination findings including medians, means, and standard deviations (SD) for continuous variables and frequencies and percentages for categorical variables. Differences between pretreatment and posttreatment NIH-CPSI total and subdomain scores and psychometric profile scores were analyzed with the paired-sample *t* test. Comparisons of demographic continuous variables, psychometric, and BSI scores between the experimental and control groups were determined with the Mann-Whitney U test (2-tailed); demographic discrete variables were compared with the 2-tailed Fisher's exact test. Statistical significance was considered at $P < .05$. Statistical analyses were performed using R software, version 2.9 (R Foundation for Statistical Computing; Vienna, Austria).

RESULTS

Sixteen men with CP/CPPS were enrolled and completed all therapy sessions; 1 participant who failed to provide follow-up questionnaires was eliminated from evaluation. For the duration of study and in the preceding months, none of the patients reported the use of any psychotropic medications. The patients had moderate to high hypnotic engagement with a median (25^{th} percentile, 75^{th} percentile) Tellegen score of 15 (9.5, 23).

Table 1 contains the characteristics of the experimental and comparator groups and the probability of significant group differences. The men with CP/CPPS had a median age of 43 years (range, 29-53 years). There were no significant group differences in age. The patients had a median duration of CP/CPPS of 7 years (range, 1.25-30 years). The median pretreatment NIH-CPSI total score was 25 out of a 43 maximum (range, 15-38). There was a significant group difference for the total score and all domain scores (all with $P < .001$). There was also a significant group difference for all of the PPSS domain scores (all with $P < .001$). There were significantly more participants that were categorized as Hispanic/Pacific Islander ethnicity/race in the control group ($P = .007$); other ethnic/racial characteristics were

Table 1. Characteristics of the Experimental and Comparator Groups; Probability of Significant Group Differences.

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Characteristic	Experimental Group (n = 15)		Comparator Group (n = 26)		P[a]
	Value	Range	Value	Range	
Median age, y	43	29-53	38	23-58	.11
Median CP/CPPS duration, y	7	1.25-30			
Median NIH-CPSI total score (0-43)	25	15-38	0	0-6	<.001
Pain domain (0-21)	12	5-17	0	0-3	<.001
Urinary domain (0-10)	7	0-10	0.6	0-5	<.001
Quality of life domain (0-12)	11	6-12	0.3	0-3	<.001
Median, PPSS scores					
Pain domain (0-46)	12	5-24	0.7	0-5	<.001
Pain visual analog scale (0-10)	4	2-9	0	0-2	<.001
Urinary domain (0-28)	12	0-24	0.9	0-4	<.001
Sexual dysfunction domain (0-20)	5	0-12	0.2	0-2	<.001
Ethnicity/race, %					
White	87		77		.10
Asian-Indian	13		12		1.00
African American	0		4		.12
Hispanic/Pacific Islander	0		8		.007
Level of education, %					
Less than college degree	7		15		.11
College graduate, some graduate study	67		38		.001
Graduate/professional degree	27		46		.008
Marital status, %					
Not married	47		35		.11
Married	47		65		.02
Divorced	6		0		.01

[a]*P* values from Mann-Whitney U test (2-tailed) for continuous variables and Fisher's exact test (2 tailed) for discrete variables

similar between groups. Most participants in both groups were educated beyond high school; there were significantly more patients with CP/CPPS that were college graduates (*P* = .001), but there were significantly more participants in the control group that also had graduate or professional degrees (*P* = .008). There were significantly more participants in the control group that were married (*P* = .02); there were significantly more patients in the experimental group that were divorced (*P* = .01).

The mental health histories obtained by the psychologist prior to commencing the therapy protocol revealed that most patients reported a history of depression, anxiety, or dysthymic disorder. Eight of the 16 patients had received some counseling in college or had psychotherapy for a limited time as young adults. One patient was continuing sessions with a family therapist for depression, and 1 had completed 6 months of prior psychotherapy for depression and panic related to his pelvic pain. The remaining 8 patients had no previous contact with a mental health professional.

The psychologist provided a Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV [24] diagnosis for each patient after his initial assessments; DSM diagnoses were not available in the patients' urology clinic records. DSM-Axis I diagnoses for most patients included adjustment disorders with depressed mood (309), anxiety (309.24), mixed anxiety and depressed mood (309.28), or dysthymic disorder (300.4). All patients carried the Axis I pain disorder associated with psychological factors (307.80). Two patients were diagnosed with posttraumatic stress disorder, delayed onset (309.81). No

Table 2. Personal, Family, Social, and Life Stressor History Before Onset of Chronic Prostatitis/Chronic Pelvic Pain Syndrome (N = 15).
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Assessment	Patients	
	n	% n
Personal medical history		
Chronic depression and/or anxiety; dysthymic disorder	13	87
Panic attacks	4	28
Sleep disorder: sleep walking, insomnia	4	28
Alcohol or drug dependence	3	20
Childhood abuse or sexual molestation	2	13
Hypogonadism	1	7
Posttraumatic stress	1	7
Family history, 1° relative		
Depression and/or anxiety	5	33
Alcohol or drug dependence	3	20
Psychosis	2	13
Early parental death (n = 2), suicide (n = 1)	3	20
Early parental divorce	3	20
Experienced more than 1 of the above	5	33
Major stressors associated with onset		
Genitourinary system		
Venereal disease	2	13
Kidney stones, urinary tract infection, cystitis, adolescent urinary problems, trauma to testes	6	40
Musculoskeletal system-injury	2	20
Social changes: death of friend/relative, personal/spouse, relative's health, end of romantic relationship, extramarital affair, career concerns, moving or college stress	8	53

patient had a DSM-Axis II diagnosis indicative of a personality disorder or mental retardation. Two patients carried an Axis IV diagnosis, indicating sufficiently severe pain symptoms that they were unable to continue working. The median Axis V (Global Assessment of Functioning Scale, range 1-100) score was 61 (range, 57-68). Scores of 61-70 indicate mild symptoms (eg, depressed mood and mild insomnia); scores of 51-60 indicate moderate symptoms (eg, flat affect, circumstantial speech, occasional panic attacks).

Table 2 presents the personal and medical history and major life stressors associated with onset of initial CP/CPPS symptoms. The results of these assessments call to attention the multiple psychosocial and biologic factors that might contribute to this disorder.

Table 3 shows median BSI scores, the interquartile range, and the centile rank for the experimental and comparator groups and the probability of significant group differences. The BSI scores for distress from physical symptoms were significantly elevated in all scales for men with CP/CPPS (all with $P < .0001$), with the exception of phobic anxiety. Men in the experimental group ranked in the 91st centile on the global severity index of the BSI, compared with the 46th centile for men in the control group (the 50th centile represents an average score for an adult male without a psychiatric disorder). The psychometric profile scores in the BSI for the men with CP/CPPS remained unchanged in the 6 months of follow-up.

Fifteen participants completed 3 months of follow-up; 14 participants completed 6 months. Table 4 shows the significant improvements in NIH-CPSI total scores evident within the first month after therapy ($P = .001$), which were either sustained or further improved through 6 months of follow-up. NIH-CPSI total scores decreased a median of 10.5 points (range, -7 to -27 points) in 8 out of 14 patients (57%) at month 1 and month 6. The scores represented a median decrease of 42% (range, 30% to 59%) from baseline. Pain domain scores decreased at month

Table 3. Median Brief Symptom Inventory Scores and Centile Ranks for the Experimental and Comparator Groups; Probability of Significant Differences.
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Brief Symptom Inventory Subtest	Experimental Group (n = 15)			Comparator Group (n = 26)			*P*[b]
	T-score Median	IRQ[a]	Centile Rank	T-score Median	IRQ[a]	Centile Rank	
Global Severity Index	64	57-76	91	49	44-58.5	46	<.0001
Somatization	57	53-59	76	42	42-53.5	22	<.0001
Obsessive/Compulsive	68	64-71	96	53	47-62.5	62	<.0001
Interpersonal Sensitivity	59	54-68	83	44	44-59	27	<.0001
Depression	71	57-77	98	44	44-57	27	<.0001
Anxiety	68	55-69	96	48.5	41-59	45	<.0001
Hostility	59	51-71	82	40	40-51.3	16	<.0001
Phobic Anxiety	47	47-67	38	47	47-51.5	38	>.05
Paranoid Ideation	56	42-66	73	51	42-56.5	54	<.0001
Psychoticism	66	61-70	94	46	46-59	34	<.0001

[a] Interquartile range (IRQ) shown as 25th to 75th percentiles
[b] *P* value based on Mann-Whitney U test (2-tailed)

Table 4. Mean Pain Symptom Scores for Patients With Chronic Prostatitis/Chronic Pelvic Pain Syndrome Before and After Cognitive Behavioral Therapy and Hypnosis.
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Evaluation	Before Treatment		After Treatment								
			≤ Month 1 (n = 15)		*P*[a]	Month 3 (n = 15)		*P*[a]	Month 6 (n = 14)		*P*[a]
	Mean	SD	Mean	SD		Mean	SD		Mean	SD	
NIH-CPSI total score (0-43)	26.3	6.5	21.3	7.3	.001	21.0	7.2	.03	19.2	8.0	.009
Pain domain (0-21)	11.2	4.0	9.4	3.9	.02	9.5	3.1	.05	8.4	3.3	.02
Urinary domain (0-10)	5.3	3.5	4.1	2.4	.07	4.2	3.2	.18	4.0	3.1	.07
Quality of life domain (0-12)	9.7	2.3	7.8	3.0	.001	7.3	2.8	.005	6.8	3.1	.001
Pelvic Pain Symptom Scale											
Pain domain (0-36)	12.8	6.9	10.6	5.5	.03	10.4	6.1	.09	8.5	9.3	.02
Urinary domain (0-28)	12	7.5	8.2	4.3	.02	10.9	10.4	.39	8.4	6.8	.03
Sexual dysfunction domain (0-20)	4.7	3.5	4.5	4.3	.5	3.4	3.2	.09	3.0	2.1	.03
McGill Pain Score	14.6	7.4	11.2	7.5	.06	8.3	6.4	.03	6.8	4.5	.001

[a] *P* values from paired *t* tests; scores compared with pretreatment

Table 5. Psychometric Scores of the Experimental and Comparator Groups at Baseline and 6 Months After Treatment; Probability of Significant Differences.

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Psychometric Test	Baseline					Posttreatment Month 6		
	Experimental Group (n = 15)		Comparator Group (n = 26)		P^b	Experimental Group (n = 14)		P^c
	Median	Interquartile Range[a]	Median	Interquartile Range[a]		Median	Interquartile Range[a]	
Perceived Stress Scale	22	19-23	13.5	11-17	<.001	21.5	18-24	.18
Beck Anxiety Inventory	9	6-19	2	0-2.3	<.001	5.5	2-18	.03
Beck Depression Inventory	13	2-21				8	4-11	.02

[a]Interquartile range, 25th to 75th percentiles
[b]*P* value based on *t* test, baseline experimental group scores versus comparator group scores
[c]*P* value based on paired *t* test, posttreatment scores versus baseline scores

6 relative to pretreatment; however, no durable changes in urinary symptoms were evident. Quality of life domain scores were significantly improved as early as within the first month and throughout 6 months after therapy ($P = .001$). The PPSS score decreases were commensurate with NIH-CPSI scores. McGill pain questionnaire scores were significantly decreased at months 3 and 6 ($P \leq .03$). Most patients reported that they would continue to use the skills they learned in treatment; they reported that they experienced pain relief and improved coping when they continued the program. The global response assessments at month 1 indicated that 7 out of 15 patients (47%) reported moderate to marked improvements after therapy; at month 6, 36% of the patients indicated these levels of improvement.

Table 5 contains the psychometric scores of both participant groups at baseline and 6 months after treatment and the probability of significant differences. Results indicate that men with CP/CPPS had significantly elevated perceived stress and anxiety scores before CBT and self-hypnosis training when compared with participants in the control group ($P < .001$). Scores for depression and anxiety decreased significantly in the patients with CP/CPPS after therapy ($P < .05$).

DISCUSSION

The objective of CBT and self-hypnosis training was to provide tools for the participant to use for symptom management. Although a treatment schema was employed, the psychotherapy sessions were individualized to address each patient's specific issues that could be modulated by CBT and hypnosis methods. The guided imagery and hypnotic interventions also addressed areas uncovered in the hypnotic inquiry that may not have been identified in the medical and psychological history. These interventions targeted aspects believed to be involved in the development and maintenance of the CP/CPPS pain cycle.

Substantial individual differences can exist in the ability to be hypnotized or practice self-hypnosis; not all individuals are able to enter a hypnotic state. All participants in our study had moderate to high hypnotic ability, as identified with the Tellegen Absorption Scale. Because the number of participants was limited in this feasibility study, we had intended to exclude those with low hypnotic ability; we did not find it necessary to implement this exclusion criterion. Therefore, the study outcomes might be biased toward those who can achieve a hypnotic state. Reports indicate that high hypnotic ability is not necessary for successful hypnotic pain intervention. Although greater hypnotic pain relief is associated with high hypnotic suggestibility, those with medium suggestibility (representing about one-third of the general population) can also appreciate clinically significant hypnotic analgesia [25].

The experience of chronic pain is the result of complex interactions between multiple supraspinal central nervous system (CNS) sites. The involvement of CNS sites, structures, and processes contributing to pain gives the clinician a large variety of interventions from which to choose, including psychological interventions that affect cortical activity such as hypnosis. For patients whose pain experience is related to neurophysiological processes that can be influenced by hypnotic suggestions, a marked decrease in pain intensity can be expected.

The present clinical trial used therapeutic methods to alter the body–mind relationships in CP/CPPS by utilizing tools to deal with the psychosocial issues associated with chronic pain. Perceived stress and cognitive/behavioral variables such as catastrophizing have been related to greater pain intensity

and disability in CP/CPPS [26,27]. We have consistently observed that the psychological profiles of men with CP/CPPS differ greatly from age-matched healthy men with no pain disorders [17]. This was also confirmed in our participants with CPPS, who had significantly greater indices of overall distress than the comparator group with a history of no pelvic pain. This is in agreement with several earlier reports of psychological disturbances (eg, depression, catastrophic thinking, anxiety, elevated scores on somatic scales, anger-hostility) observed in conjunction with chronic CP/CPPS [27,28]. Psychosocial distress associated with chronic pain could be interpreted as a result of the pain or a contributory factor in the patient's distress regarding their perceived pain. The feed-forward relationship between chronic pain and psychopathology is described by the diathesis-stress model [29]. This model illustrates how the stress of coping with chronic pain exacerbates an individual's semidormant but preexisting characteristics (diathesis), eventually resulting in psychopathology. Thus, individuals with a dysthymic disorder, major depression, or an anxiety disorder probably experience more pain or suffering when compared with the person who was in excellent mental health previously.

We cannot discern whether the elevated scores on almost all domains of the BSI for personality characteristics represent *traits* resulting from the stress effect of coping with chronic pain, a *state* phenomenon, or inherent personality characteristics that further contribute to the exacerbation and maintenance of CP/CPPS. Changes in *trait* have been observed with treatment of various pain conditions and associated with improved pain scores [30]. In this study, the observation period was probably too short to appreciate any personality changes within the BSI survey that might possibly occur.

After CBT and self-hypnosis training, the participants experienced significant decreases in both McGill Pain Questionnaire scores and NIH-CPSI symptom scores. However, these improvements were not reflected in the GRAs at months 1 and 6 when only 47% and 36% of the patients, respectively, reported moderate to marked improvements after therapy. This could be interpreted as the patients having very high expectations for therapy outcome because these patients with refractory, chronic pelvic pain had previous therapy failures. However, it also highlights a disconnect that we have often observed in our clinical experience in that scores on validated questionnaires for outcome measures used in clinical trials such as the NIH-CPSI, which have supposedly *clinically meaningful* decreases do not coincide with patient satisfaction. The reverse of satisfaction with improved symptom scores is also often observed.

In consideration of our results, it is useful to highlight some of the methodological issues that may have impacted our findings. The uncontrolled study examined the feasibility of multimodal CBT, hypnotic intervention, and daily self-hypnosis in a small cohort of men with refractory CP/CPPS who were highly motivated to explore a new therapeutic modality. However, the number of sessions was limited and continued psychologist intervention would likely have been advantageous. This was not an instruction manual-based program of guided imagery; rather, therapy sessions were individualized for each patient and required a skilled practitioner. We could not objectively measure compliance, and longer-term follow-up is needed to determine duration of pain reduction in individuals who continue use of self-hypnosis. A prospective, randomized trial comparing intensive intervention with a therapist providing education, discussion, emotional venting, and empathy compared with CBT and self-hypnosis would have merit in discerning the most valuable alternative modality for men with CP/CPPPS.

CONCLUSION

Results indicate the feasibility of CBT intervention and self-hypnosis training for selected patients with refractory CP/CPPS. The self-directed methods improved the patient's sense of control and ability to cope with and dissociate from pain symptoms. Longer-term follow-up is required to determine the impact of this therapeutic modality for men with this disorder and its application in multimodal therapy. However, the therapeutic value of a cooperative relationship between the urologist and psychologist cannot be underestimated.

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Conflict of Interest: None declared.

APPENDIX

CBT and Hypnosis Procedures

Session 1. Extensive Case History Evaluation

- Psychosocial, educational, developmental, family, physical and mental health, marital, work, major losses, and life transitions history (~ 90 minutes)

Session 2. Introduction to CBT

- Overview: negative emotions (eg, sadness, resentment, guilt, hopelessness) are caused by negative cognitions about life events rather than the actual events, either external (situational) or internal (physical pain sensations)

- Guidance in use of CBT paradigm: identification of 10 cognitive distortions (all-or-nothing thinking, overgeneralization, dwelling on the negatives, discounting the positives, jumping to conclusions, magnification or minimization, reasoning from your feelings, *should* statements directed at self or others, labeling yourself according to your behavior, blaming); learning how to alter the distortions with the following paradigm:
  - *Event*: occurrence in patient's life that seemed to cause an emotional reaction
  - *Automatic thought*: self-talk that actually caused the patient's mood to change (eg, "I'll never get over this pain")
  - *Emotion*: a one-word feeling (eg, angry, sad, guilty, shameful, worried)
  - *Behavior*: action taken by the patient when feeling a negative emotion (eg, avoiding a social engagement, drinking alcohol or taking excessive medication, confiding in a close friend or family member)
  - *Counter-arguments* to the automatic thought (the lynchpin of the homework assignment): creating a counter argument that effectively negates the *automatic thought* generating the negative emotion
- Didactic information and instructions on pain management given to the patient:
  - Factors exacerbating pain perception: sleep deprivation, increased daytime pelvic muscle tension, dwelling on pain, having a negative mood (eg, anger or despair)
  - Factors mitigating pain perception: increasing amount of sleep, remembering to relax pelvic floor muscles, increasing *fun* or *play* activities daily, increasing social or *normal* activities rather than avoiding or cancelling them, and increasing physical exercise rather than avoiding or cancelling them
- Homework assignments:
  - Read *Feeling Good: The New Mood Therapy* [31] and *A Headache in the Pelvis* [3]
  - Keep a CBT log of negative cognitions, feelings, and counter-arguments to their negative cognitions
- List major life transitions: positive and negative life events (eg, divorce, death of family member, moving to a new house, changing jobs) that occurred before the onset of their chronic pain

Session 3. CBT and Introduction to Hypnosis

- Review CBT log: *fine tune* patient's understanding of the basic concepts and assist with development of counter-arguments to their negative cognitions
- Explain hypnosis and its use in treating pain conditions, including 4 aspects: relaxation, symptom management (pain management), investigation, and training in self-hypnosis
- Hypnosis training and evaluation session (20 minutes) including imaginative exercises and focus of attention on the most vivid sensory aspects (sight, hearing, smell, touch, or kinesthetic input)
- Homework assignments: continue with CBT log and reading of *Feeling Good: The New Mood Therapy*

Session 4. CBT and Hypnotic Intervention

- Review CBT log sheets for emphasis on aggressively developing counter arguments to their negative cognitions
- First hypnotic session (~ 25 minutes), including: generic relaxing imagery (eg, an ocean beach, meadow, another place in nature); awareness of altered physical sensations to be used as *cues* that they have achieved hypnotic trance (eg, subjective feelings of lightness, heaviness, warmth, coolness, paraesthesia, other sensations); remembering a pleasant, proud, or happy moment from their past in vivid detail
- Homework assignments: continue keeping CBT log with focus on specific negative emotions that recur and developing effective counter-arguments to them; read *Feeling Good: The New Mood Therapy*; practice some aspect of the relaxing imagery experienced in hypnosis

Session 5. CBT and Hypnotic Intervention

- Review CBT log sheets
- Hypnotic intervention (preparation of digital recording of ~ 25-minute session that is accompanied by a handout and used for homework): imagine a pleasant place in nature, remove a backpack filled with stressful events and negative thoughts, loosen and relax each muscle

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from head to toe, lie down in the sunshine and notice warmth in certain parts of the body, place one hand in warm water, let the hand grow numb (inducing *glove anesthesia*), move the hand to the pelvic area and transfer the numbness to areas in pain, and contemplate an important positive thought or goal about the patient's life or health

- Homework assignment: Continue keeping CBT log; use hypnosis recording at least once per day

Session 6. CBT and Hypnotic Intervention

- Review CBT log sheets
- Exploratory hypnotic session (~ 40 minutes): inquiry about psychological factors and traumatic events that might be contributing to or causing pelvic pain through *ideomotor questioning*; inquiry themes include history of family member with pelvic pain or chronic pain, having been told that they would suffer chronic or pelvic pain some day by someone in their past, any personal experience that caused or contributed to the pain (eg, childhood sexual molestation, other physical or psychological trauma), engaging in self-punishment for some perceived infraction (eg, an infidelity), having an ongoing negative emotion that causes or contributes to the pain (eg, anger, fear, sadness, guilt, shame), chronic pelvic pain as a reflection of the ongoing psychological stressor, secondary gain from retention of symptom(s) (eg, avoid sex with a difficult spouse, receive long-term disability insurance), visualize a calendar with a particular month and week when the symptoms could be significantly diminished or disappear completely
- Homework assignment: continue keeping CBT log; engage in two hypnotic sessions (~ 25 minutes) per day, once using the recording and once on their own

Session 7. CBT and Hypnotic Intervention

- Review CBT log sheets, assess success with self-hypnosis practice; evaluate mood and problem areas that arose in prior hypnotic inquiry session
- Hypnotic session (~ 25 minutes) and review imagery for relaxation and pain reduction
- Take-away instructions: continue using self-hypnosis in a preventive manner (eg, early in the day or before pain symptoms worsen or if anticipating a pain-inducing or stressful experience); practice CBT methods as a matter of course, until they become automatic

REFERENCES

1. Anderson RU, Wise D, Sawyer T, Chan C. Integration of myofascial trigger point release and paradoxical relaxation training for treatment of chronic pelvic pain in men. *J Urol*. 2005;174(1):155-160.
2. FitzGerald MP, Anderson RU, Potts J, et al; Urological Pelvic Pain Collaborative Research Network. Randomized multicenter feasibility trial of myofascial physical therapy for the treatment of urological chronic pelvic pain syndromes. *J Urol*. 2009;182(2):570-580.
3. Wise D, Anderson RU. *A Headache in the Pelvis: A New Understanding and Treatment for Prostatitis and Chronic Pelvic Pain Syndromes*. 6th ed. Occidental, CA: National Center for Pelvic Pain Research; 2010.
4. Tugcu V, Tas S, Eren G, Bedirhan B, Karadag S, Tasci A. Effectiveness of acupuncture in patients with category IIIB chronic pelvic pain syndrome: a report of 97 patients. *Pain Med*. 2010;11(4):518-523.
5. Sikiru L, Shmaila H, Muhammed SA. Transcutaneous electrical nerve stimulation (TENS) in the symptomatic management of chronic prostatitis/chronic pelvic pain syndrome: a placebo-control randomized trial. *Int Braz J Urol*. 2008;34(6):708-713; discussion 714.
6. Shoskes DA, Zeitlin SI, Shahed A, Rajfer J. Quercetin in men with category III chronic prostatitis: a preliminary prospective, double-blind, placebo-controlled trial. *Urology*. 1999;54(6):960-963.
7. Wagenlehner FM, Schneider H, Ludwig M, Schnitker J, Brähler E, Weidner W. A pollen extract (Cernilton) in patients with inflammatory chronic prostatitis-chronic pelvic pain syndrome: a multicentre, randomised, prospective, double-blind, placebo-controlled phase 3 study. *Eur Urol*. 2009;56(3):544-551.
8. Shoskes DA, Nickel JC, Kattan MW. Phenotypically directed multimodal therapy for in chronic prostatitis/chronic pelvic pain syndrome: a prospective study using UPOINT. *Urology.* 2010;75(6):1249-1253.
9. Nickel JC, Mullins C, Tripp DA. Development of an evidence-based cognitive behavioral treatment program for men with chronic prostatitis/chronic pelvic pain syndrome. *World J Urol*. 2008;26(2):167-172.
10. Brown D, Fromm E. *Hypnosis and Behavioral Medicine*. Hillsdale, NJ: Lawrence Erlbaum Associates; 1987.

doi:10.3834/uij.1944-5784.2011.08.02
ISSN 1944-5792 (print), ISSN 1944-5784 (online)

11. Elkins G, Jensen MP, Patterson DR. Hypnotherapy for the management of chronic pain. *Int J Clin Exp Hypn*. 2007;55(3):275-287.

12. Pukall C, Kandyba K, Amsel R, Khalifé S, Binik Y. Effectiveness of hypnosis for the treatment of vulvar vestibulitis syndrome: a preliminary investigation. *J Sex Med*. 2007;4(2):417-425.

13. Webb AN, Kukuruzovic RH, Catto-Smith AG, Sawyer. Hypnotherapy for treatment of irritable bowel syndrome. *Cochrane Database Syst Rev.* 2007;17(4):CD005110.

14. Barabasz AF, Olness K, Boland R, Kahn S. *Medical Hypnosis Primer: Clinical and Research Evidence*. New York, NY: Routledge; 2010.

15. Martínez-Valero C, Castel A, Capafons A, Sala J, Espejo B, Cardeña E. Hypnotic treatment synergizes the psychological treatment of fibromyalgia: a pilot study. *Am J Clin Hypn*. 2008;50(4):311-321.

16. Jensen MP, Hakimian S, Sherlin LH, Fregni F. New insights into neuromodulatory approaches for the treatment of pain. *J Pain*. 2008;9(3):193-199.

17. Anderson RU, Orenberg EK, Chan CA, Morey A, Flores V. Psychometric profiles and hypothalamic-pituitary-adrenal axis function in men with chronic prostatitis/chronic pelvic pain syndrome. *J Urol*. 2008;179(3):956-960.

18. Tellegen A, Atkinson G. Openness to absorbing and self-altering experiences ("absorption"), a trait related to hypnotic susceptibility. *J Abnorm Psychol*. 1974;83(3):268-277.

19. Melzack R. The short-form McGill pain questionnaire. *Pain*. 1987;30(2):191-197.

20. Beck AT, Steer RA, Ball R, Ranieri W. Comparison of Beck Depression Inventories -IA and -II in psychiatric outpatients. *J Pers Assess*. 1996;67(3):588-597.

21. Beck AT, Steer R. Beck *Anxiety Inventory Manual*. San Antonio, TX: The Psychological Corporation; Harcourt, Brace & Co; 1993.

22. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *J Health Soc Behav*. 1983;24(4):385-396.

23. Derogatis LR. *Brief Symptom Inventory (BSI), Administration, Scoring and Procedure Manual*. Minneapolis, MN: National Computer Systems Inc.; 1993.

24. *Diagnostic and Statistical Manual of Mental Disorders.* 4th ed. Text Revision (DSM-IV-TR). Washington, DC: American Psychiatric Association; 2000.

25. Milling LS. Is high hypnotic suggestibility necessary for successful hypnotic pain intervention? *Curr Pain Headache Rep*. 2008;12(2):98-102.

26. Ullrich PM, Turner JA, Ciol M, Berger R. Stress is associated with subsequent pain and disability among men with nonbacterial prostatitis/pelvic pain. *Ann Behav Med*. 2005;30(2):112-118.

27. de la Rosette JJ, Ruijgrok MC, Jeuken JM, Karthaus HF, Debruyne FM. Personality variables involved in chronic prostatitis. *Urology*. 1993;42(6):654-662.

28. Tripp DA, Nickel JC, Wang Y, et al; National Institutes of Health-Chronic Prostatitis Collaborative Research Network (NIH-CPCRN) Study group. Catastrophizing and pain-contingent rest predict patient adjustment in men with chronic prostatitis/chronic pelvic pain syndrome. *J Pain*. 2006;7(10):697-708.

29. Dersh J, Polatin PB, Gatchel RJ. Chronic pain and psychopathology: research findings and theoretical considerations. *Psychosom Med*. 2002;64(5):773-786.

30. Fishbain DA, Cole B, Cutler RB, Lewis J, Rosomoff HL, Rosomoff RS. Chronic pain and the measurement of personality: do states influence traits? *Pain Med*. 2006;7(6):509-529.

31. Burns D. *Feeling Good: The New Mood Therapy, Revised and Updated*. New York, NY: Avon Books; 1999.

doi:10.3834/uij.1944-5784.2011.08.02
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