Original article

Relationship among symptoms, mood, and personality traits in patients with interstitial cystitis/bladder pain syndrome

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A R T I C L E   I N F O

Article history:
Received 30 April 2015
Received in revised form 3 May 2016
Accepted 5 May 2016
Available online xxx

Keywords:
anxiety
interstitial cystitis/bladder pain syndrome
personality

A B S T R A C T

Objective: We have proposed an analysis of personality traits to classify patients with interstitial cystitis/bladder pain syndrome (IC/BPS) to determine the association between symptoms, mood, and personality traits in IC/BPS patients.

Materials and methods: A total of 57 patients (7 males and 50 females) diagnosed according to the National Institute of Diabetes and Digestive and Kidney Diseases criteria were recruited from December 2005 to June 2006. All of these patients were newly diagnosed cases of IC/BPS, and the evaluation was made during the admission after hydrodistension. This study used the O’Leary–Sant Symptom Index and Problem Index (interstitial cystitis system index and interstitial cystitis problem index) to record the clinical symptoms of all IC/BPS patients. Basic Personality Inventory and Back Anxiety Inventory were used to analyze personality traits and mood status.

Results: IC/BPS patients have personality traits of depression and hypochondriasis, and show moderate anxiety mood. The duration of the symptoms is longer in depressive IC/BPS patients. Significant positive correlations were found among pain and anxiety mood, symptoms and interpersonal problems, and problem index and depression, respectively. Patients with severe anxiety mood status have abnormal personality traits such as depression, anxiety, self-depreciation, and others.

Conclusions: IC/BPS patients frequently exhibit several mental health disorders and negative personality traits. Therefore, in addition to targeting the bladder pathological condition, psychological intervention focusing on personality traits and anxiety mood status should be provided to improve quality of life of IC/BPS patients.

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1. Introduction

Interstitial cystitis/bladder pain syndrome (IC/BPS) is a chronic disease characterized by pelvic pain and lower urinary tract symptoms.1,2 When symptoms become chronic, patients tend to develop generalized anxiety and helplessness.3,4 Recent studies showed that IC/BPS may be associated with other comorbid diseases, such as irritable bowel syndrome, fibromyalgia, or mental health disorders.5,6 The prevalence of a combination of depression and panic attacks in IC/BPS patients is high, and there is an increase in patients seeking psychological treatment.5

A recent study tried to develop the phenotyping classification system, and direct the treatment strategy for IC/BPS patients.10 Psychological domains including depression, anxiety, and mood catastrophizing that function outside of the bladder predict a significant impact on IC/BPS symptoms, especially on bladder pain, as a hallmark symptom of IC/BPS. However, almost 60% of IC/BPS patients had continuous or unremitting pain, whereas almost 90% had given up their social activities.11 To date, no curative treatment for IC/BPS has yet been found and no adequate method has yet been found to treat it, therefore, adaptation to the disease including management of mental health disorders has become an important quality-of-life care for IC/BPS patients. The aim of our study is to investigate the association between symptoms, mental health disorders, and personality traits in IC/BPS patients.

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http://dx.doi.org/10.1016/j.urols.2016.05.003
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Please cite this article in press as: Chen W-C, et al., Relationship among symptoms, mood, and personality traits in patients with interstitial cystitis/bladder pain syndrome, Urological Science (2016), http://dx.doi.org/10.1016/j.urols.2016.05.003
2. Materials and methods

2.1. Inclusion and exclusion criteria

This is a self-reported cross-sectional study. A total of 57 patients (7 males and 50 females) were recruited from a regional hospital in Central Taiwan from December 2005 to June 2006. The inclusion criteria and exclusion criteria were elicited according to the National Institute of Diabetes and Digestive and Kidney Diseases criteria,1,2 and the confusable disease, benign prostatic hyperplasia in males, was also excluded (based on volume measured by transrectal ultrasound > 40 gm). The clinical pictures were evaluated using symptoms of frequency, urgency, pelvic pain, and cystoscopic appearance of glomerulations or ulceration without definite causes. All of these patients were newly diagnosed cases of IC/BPS, and the psychological evaluation was performed during the admission after hydrodistention.

Cross-sectional data—including age, sex, symptom duration, severity of bladder symptoms, and psychiatric problems—were assessed using demographics and validated questionnaires. The bladder symptom measures consisted of validated self-reported instruments including visual analog pain (VAS pain) and urgency scale (VAS urgency) on separate analog scales from 0 to 10. IC/BPS-specific questionnaires were performed using O’Leary—Sant Symptom Index and Problem Index.3,4 Psychiatric mood domains were assessed by Back Anxiety Inventory (BAI). Affective personality styles were assessed by validated instruments such as Basic Personality Inventory (BPI). A clinical psychologist analyzed each participant’s personality traits (BPI) and anxiety mood status (BAI).

2.2. Measures

2.2.1. O’Leary—Sant Symptom Index and Problem Index

The O’Leary—Sant Symptom Index and Problem Index Questionnaire is designed to measure the severity of symptoms and their impact on patients with IC/BPS. It is composed of eight questions and two indices. The “symptom index” consists of four questions pertaining to the quantity of urinary and pain symptoms. The “problem index” includes four questions regarding the degree to which patients are bothered. Each question is graded from 0 to 4 or 5. Higher scores indicate more severe impairment.

2.2.2. Basic Personality Inventory

The Chinese version of the BPI was used in this study.14,15 The BPI is a multiphasic personality inventory intended for use with both clinical and healthy populations to identify sources of maladjustment and personal strengths. The BPI consists of 150 true/false items and 10 substantive scales, which are Depression, Anxiety, Social Introversion, Self-Depreciation, Interpersonal Problems, Impulse, Deviation, Hypochondriasis, Persecutory Ideas, and Thinking Disorder. The raw score of each scale is transformed into T score by norm. When the T score of each item exceeds 60 points, it means that the individual has a manifest personality trait in this item.

2.2.3. Beck Anxiety Inventory

The BAI consists of 21 items, each describing a common symptom of anxiety, such as feeling hot, unable to relax, fear of worst happening, unsteady, terrified and afraid, feeling of losing control, scared, hot and cold sweats, uneasiness, and difficulty in breathing.16 The patient is asked to rate how much he or she has been bothered by each symptom over the past week on a 4-point scale, with scores ranging from 0 to 3.

The items are summed to obtain a total score that can range from 0 to 63. A total score between 0 and 7 indicates normal mood status, a score of 10—15 indicates mild anxiety mood status, 16—25 indicates moderate anxiety mood status, and more than 26 indicates severe anxiety mood status.

2.3. Statistical analysis

The data were analyzed using the SPSS 21.0 software (SPSS Inc., Chicago, IL, USA). We calculated the means and standard deviations for the VAS pain scale, urgency scale, O’Leary—Sant Indices, BAI, and each subscale of BPI. Pearson correlation was used to measure the correlation between IC/BPS symptoms and personality traits and anxiety state. Moreover, we examined the personality traits among IC/BPS patients according to anxiety score using the following categories—<7 (normal mood status), 10—15 (mild anxiety mood status), 16—25 (moderate anxiety mood status), and >26 (severe anxiety mood status)—by means of a general linear model.

3. Results

3.1. Demographics, symptom duration, and severity of bladder symptom

During a period of 7 months (December 2005 to June 2006), 50 female and seven male patients were enrolled into the study. The mean age of patients with IC/BPS in this study was 40.0 ± 11.9 years, and the mean duration of symptoms was 60.8 ± 69.1 months. The mean VAS pain and VAS urgency were 5.5 ± 2.8 and 5.9 ± 2.4, respectively. For interstitial cystitis symptom index and interstitial cystitis problem index, the average scores were 11.4 ± 3.7 and 9.7 ± 3.3, respectively.

3.2. Depression, hypochondriasis personality trait, and bladder symptom

In our study population, the result of BPI analysis indicated that IC/BPS patients had significant depression (T score = 62.5 ± 4.7) and hypochondriasis (T score = 66.2 ± 2.3) traits but not anxiety traits (T score = 58.3 ± 3.5). Furthermore, we divided the participants according to depression and hypochondriasis scores of BPI, using the score of >60 as the criterion. We found that the course of disease was significantly longer in individuals with evident depression traits (mean = 74.5 ± 8.8, n = 32) than those without depression traits (mean = 47.1 ± 5.7, n = 25; F1,55 =179.09, p < 0.005). However, there is no difference in terms of symptom duration between patients with and without hypochondriasis personality traits.

The Pearson correlations of IC/BPS symptoms and personality traits are shown in Table 1. The depression personality trait was statistically significant with problem index (γ = 0.27, p < 0.05) and showed a positive trend in symptom index. Moreover, the association between interpersonal problems personality traits, and symptom index was statistically significant (γ = 0.29, p < 0.05). However, bladder symptom is not associated with the depression or anxiety personality trait.

3.3. Anxiety mood status and bladder symptom

BAI analysis found that IC/BPS patients had moderate anxiety mood status (mean = 20.8 ± 12.9). The Pearson correlations of IC/BPS symptoms and anxiety mood status are shown in Table 1. We found that the pain scale was significantly associated with anxiety mood status (γ = 0.31, p < 0.05).

3.4. Anxiety mood status and personality traits

We further divided the participants into four groups (normal mood status, mild, moderate, and severe anxiety mood status)
IC/BPS patients are susceptible to depression than average women and those who suffer from nonpainful serious medical conditions. IC/BPS patients are more likely to have depression personality traits. The preliminary research suggests that IC/BPS patients have depression personality traits.

Our study further found that a significant positive correlation between the index and depression personality trait, and also a trend between the symptom index and depression personality trait. The problem index mainly assessed the subjective bothering of symptom distress. The result indicated that the more negative the effect on one’s view about the symptom, the more severe the depressed mood becomes. A German study on chronically ill individuals with a variety of diagnoses indicated that those who saw illness as a positive challenge were less depressed and more emotionally stable than patients who regarded their illness as an enemy, a punishment, or a sign that they were damaged human beings. In a breast cancer study, women who use problem-solving coping strategies to seek out and use supportive resources have been reported to be more optimistic and less distressed. A person’s self-statement and appraisal of events mediate feelings and behavior. Catastrophizing and venting were associated with depressive symptoms. Thus, clinicians should instruct IC/BPS patients to modify negative thinking and irrational beliefs to prevent further psychological effects.

4. Discussion

4.1. IC/BPS patients have depression personality traits

The results of this study indicate that IC/BPS patients have depression personality traits. The preliminary research suggests that IC/BPS women with moderate to severe symptoms may be more susceptible to depression than average women and those who suffer from nonpainful serious medical conditions. IC/BPS patients are significantly more likely to admit being depressed and having suicidal thoughts than the general population. Because the diagnosis is based largely on exclusion criteria and mimics several other diseases, IC/BPS patients are misdiagnosed and receive numerous uncomfortable and unnecessary treatments for several years.

Our study also found that IC/BPS patients with evident depression personality trait showed a longer duration of the symptom. Meanwhile, for medical conditions that are difficult to diagnose, respond poorly to treatment, and afflict women more than men, psychiatric disturbance is often suspected by physicians. Drucker points out that self-blame is inevitable if healthcare providers tell the patient that symptoms are caused by psychological problems, and also notes that self-blame contributes to lowered self-esteem, helplessness, and a sense that the patient has lost control over life. Depression becomes increasingly likely the longer an individual has been ill.

4.2. Depression personality trait may have influence on bother of bladder symptom

Our study further found that a significant positive correlation between the symptom index and depression personality trait, and also a trend between the symptom index and depression personality trait. The problem index mainly assessed the subjective bothering of symptom distress. The result indicated that the more negative the effect on one’s view about the symptom, the more severe the depressed mood becomes. A German study on chronically ill individuals with a variety of diagnoses indicated that those who saw illness as a positive challenge were less depressed and more emotionally stable than patients who regarded their illness as an enemy, a punishment, or a sign that they were damaged human beings. In a breast cancer study, women who use problem-solving coping strategies to seek out and use supportive resources have been reported to be more optimistic and less distressed. A person’s self-statement and appraisal of events mediate feelings and behavior. Catastrophizing and venting were associated with depressive symptoms. Thus, clinicians should instruct IC/BPS patients to modify negative thinking and irrational beliefs to prevent further psychological effects.

4.3. Chronic pain symptom mainly maybe the cause of anxiety mood status

Our study showed that IC/BPS patients had moderate anxiety mood status (mean = 20.8 ± 12.9). A previous study claimed that IC/BPS and panic disorder might share several plausible biological mechanisms. Autonomic dysregulation is implicated in the cause of panic disorder. The bladder’s function involves smooth muscle.

Table 1

correlations between IC/BPS symptoms, personality traits, and anxiety mood status.

<table>
<thead>
<tr>
<th>Personality and mood status</th>
<th>VAS pain score</th>
<th>VAS urgent score</th>
<th>ICPI</th>
<th>IC/CSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>0.05</td>
<td>0.00</td>
<td>0.22</td>
<td>0.27</td>
</tr>
<tr>
<td>Anxiety</td>
<td>0.09</td>
<td>0.13</td>
<td>0.00</td>
<td>0.06</td>
</tr>
<tr>
<td>Social introversion</td>
<td>-0.21</td>
<td>-0.05</td>
<td>0.22</td>
<td>-0.06</td>
</tr>
<tr>
<td>Self-deprecation</td>
<td>0.03</td>
<td>0.13</td>
<td>0.00</td>
<td>0.17</td>
</tr>
<tr>
<td>Interpersonal problems</td>
<td>-0.16</td>
<td>-0.14</td>
<td>0.29</td>
<td>0.18</td>
</tr>
<tr>
<td>Impulse expression</td>
<td>-0.06</td>
<td>0.00</td>
<td>0.00</td>
<td>0.02</td>
</tr>
<tr>
<td>Deviation</td>
<td>-0.01</td>
<td>-0.06</td>
<td>0.09</td>
<td>0.08</td>
</tr>
<tr>
<td>Hypochondriasis</td>
<td>0.10</td>
<td>0.02</td>
<td>0.09</td>
<td>0.10</td>
</tr>
<tr>
<td>Persecutory ideas</td>
<td>0.01</td>
<td>-0.21</td>
<td>0.06</td>
<td>0.09</td>
</tr>
<tr>
<td>Thinking disorder</td>
<td>0.08</td>
<td>0.00</td>
<td>-0.07</td>
<td>0.10</td>
</tr>
<tr>
<td>Anxiety mood status</td>
<td>Total score of BAI</td>
<td>0.21*</td>
<td>0.26</td>
<td>0.24</td>
</tr>
</tbody>
</table>

* p < 0.05.

BAI = Beck Anxiety Inventory; BPI = Basic Personality Inventory; IC/CSI = interstitial cystitis/bladder pain syndrome; ICPI = interstitial cystitis problem index; VAS = visual analog scale.

Table 2

different personality traits among different severity of anxiety mood status groups, analyzed using general linear model.

<table>
<thead>
<tr>
<th>Personality trait (BPI)</th>
<th>Normal mood status (n=6)</th>
<th>Mild anxiety status (n=17)</th>
<th>Moderate anxiety status (n=15)</th>
<th>Severe anxiety status (n=19)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td>Depression</td>
<td>48.17 (9.02)</td>
<td>56.41 (13.39)</td>
<td>63.27 (15.87)</td>
<td>71.89 (13.81)</td>
</tr>
<tr>
<td>Anxiety</td>
<td>48.00 (3.79)</td>
<td>55.29 (9.62)</td>
<td>59.60 (8.01)</td>
<td>63.37 (8.54)</td>
</tr>
<tr>
<td>Social introversion</td>
<td>41.33 (3.98)</td>
<td>51.24 (12.46)</td>
<td>53.87 (11.43)</td>
<td>48.89 (10.77)</td>
</tr>
<tr>
<td>Self-deprecation</td>
<td>45.83 (8.68)</td>
<td>54.47 (11.58)</td>
<td>58.00 (12.58)</td>
<td>63.42 (12.17)</td>
</tr>
<tr>
<td>Interpersonal problems</td>
<td>51.17 (10.15)</td>
<td>57.06 (13.76)</td>
<td>56.40 (9.67)</td>
<td>58.11 (9.76)</td>
</tr>
<tr>
<td>Impulse</td>
<td>47.83 (9.00)</td>
<td>53.76 (7.80)</td>
<td>61.60 (13.80)</td>
<td>57.42 (11.20)</td>
</tr>
<tr>
<td>Deviation</td>
<td>48.00 (10.75)</td>
<td>55.06 (11.63)</td>
<td>58.93 (14.01)</td>
<td>64.47 (11.64)</td>
</tr>
<tr>
<td>Hypochondriasis</td>
<td>57.83 (11.65)</td>
<td>65.00 (10.06)</td>
<td>67.07 (9.11)</td>
<td>69.26 (12.51)</td>
</tr>
<tr>
<td>Persecutory ideas</td>
<td>48.50 (6.12)</td>
<td>56.06 (13.31)</td>
<td>56.60 (12.38)</td>
<td>58.89 (12.62)</td>
</tr>
<tr>
<td>Thinking disorder</td>
<td>45.83 (4.58)</td>
<td>53.00 (11.66)</td>
<td>52.33 (7.75)</td>
<td>58.26 (14.91)</td>
</tr>
</tbody>
</table>

BAI = Beck Anxiety Inventory; BPI = Basic Personality Inventory; SD = standard deviation.

a Significant difference compared with the normal mood status group.
b Significant difference compared with the mild anxiety mood status group.

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function regulated through innervation from autonomic nuclei, so that changes in autonomic tone might lead to voiding difficulties, as seen in patients with IC/BPS. Stress, which arouses the noradrenergic system, was shown to be associated with symptom exacerbation in IC/BPS patients.

Previous pain studies showed that although pain lasted for several months, patients would be nervous, irritable, and anxious, and tend to develop a sense of hopelessness and helplessness. Pain is the major clinical symptom of IC/BPS patients. Our study found that pain index was associated with anxiety mood status. Furthermore, patients with or without cancer who had pain symptoms were more anxious than both chronically ill patients who were free of pain and a control group consisting of physically healthy individuals. These data may support further investigation of the relation between pain and anxiety mood in the IC/BPS population.

4.4. Long-term anxiety mood status may cause abnormal personality traits

The comparison of IC/BPS patients with normal mood status and those with severe anxiety mood status showed manifest personality trait of depression, anxiety, self-deprecation, and deviation. This might indicate that IC/BPS patients who got anxious and irritable easily were low-spirited and easily vigilant, and had low arousal, low self-confidence, and “blameful” personality. Furthermore, they usually showed abnormal behavior such as having extreme ideas or feeling as if they are losing their minds. Previous studies have observed that when illness becomes chronic, neurotic triad, hypochondriasis, depression, and hysteria become a manifest character.

4.5. IC/BPS patients also have a characteristic of hypochondriasis personality trait

There was evidence that IC/BPS patients have a manifest trait of hypochondriasis in our study. Hypochondriasis refers to an excessive preoccupation or worry about having a serious illness. Based on the result, psychological intervention is necessary while taking care of these patients. Even if no cure is possible, IC/BPS patients should not suffer from the vicious cycle of physiological and psychological problems. Researchers have identified two types of chronically ill persons who suffer from such painful conditions as IC/BPS and who respond suboptimally to conventional medical care: problem solvers, and avoiders and self-blamers. Problem solvers actively seek information about their illness, make full use of available social support, and engage in self-care with enthusiasm. Avoiders and self-blamers, in contrast, futilely wish for a miracle cure, deny the reality of their chronic illness, and blame themselves for getting sick. Not surprisingly, problem solvers are significantly less physically disabled and more likely to be free from mood disturbance than equally ill patients who engage in avoidance and self-blame.

4.6. The severity of symptom may cause interpersonal problem

Finally, this study also revealed a positive correlation between symptom index and the interpersonal problems personality trait. The symptom index mainly evaluated the severity of IC/BPS symptoms. When a patient frequently suffers from IC/BPS symptoms, IC/BPS plays a major role in the structuring of daily activities and reducing patient energy. IC/BPS patients often structure their lives around access to public toilets. The demands of illness and frequent treatments may interfere with patients’ productivity at work. Some patients can no longer work outside their homes or full time. As a result of severe IC/BPS symptoms, patients may have to forgo leisure and social activities and usually suffer from frustrating interpersonal relationships. The life of IC/BPS patients would become considerably restricted after a lengthy period. Clinical staff should encourage patients to join interstitial cystitis support groups, where they will learn more about the disease through lectures and sharing of experiences. Guiding IC/BPS patients to accept their illness as a positive challenge is also important. There is an extensive research literature on the relationship between beliefs about illness and the psychological adjustment of chronically ill persons. Chronically ill individuals who feel in control of their lives, who are willing to put up with discomfort in order to resume normal activities, and who have high self-efficacy are better and happier than their passive counterparts.

5. Conclusions

Patients with IC/BPS in our study experienced moderate anxiety mood status and significantly abnormal personality traits such as depression and hypochondriasis. Both the severity and bother of bladder symptoms affect the psychiatric status of IC/BPS patients. Moreover, interpersonal problem personality trait has also been found in our study. Based on the Bio-Psycho-Social model, clinical staff must focus not only on physiological illness but also psychological issues in order to help these patients adapt well to their illness.

Conflicts of interest

All contributing authors declare no conflicts of interest.

Acknowledgments

The authors gratefully acknowledge the assistance of Chao-Cheng Chen and Ching-Wei Lin in carrying out this project.

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