



Alexithymia and anesthetic bladder capacity in interstitial cystitis/bladder pain syndrome



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ABSTRACT

Objective: In contrast to the inconsistent results of organic causes, it has been found that psychological risk factors are reliably related to functional somatic syndromes (FSSs), including interstitial cystitis/bladder pain syndrome (IC/BPS). Compared to patients with acute cystitis, a subgroup of IC/BPS patients with a history of childhood relational trauma reported intensified unregulated affective states (i.e., anxiety and depression) and trauma-related psychopathology (i.e., dissociation). Nevertheless, it remains unknown whether psychosocial risk factors can be separated from bladder-centric factors. This study aimed to verify whether psychosocial factors such as alexithymia, which is a key psychological factor of FSSs, are less likely to be linked to a low bladder capacity in patients with IC/BPS.

Methods: Ninety-four female IC/BPS patients were recruited from the outpatient departments of urology, obstetrics, and gynecology. Anxiety, depression, dissociation, childhood relational trauma, and alexithymia were assessed using standardized scales, and anesthetic bladder capacity was examined by cystoscopic hydrodistention.

Results: Positive correlations were found between anesthetic bladder capacity and the psychosocial variables, including alexithymia. An increased bladder capacity was associated with anxiety, dissociation, and childhood relational trauma, and a combination of high cognitive and low affective alexithymia mediated the correlations between bladder capacity and the psychosocial variables.

Conclusions: Psychosocial variables that are associated with an aversive childhood relational environment and affect dysregulation may constitute a pathogenic trajectory that differs from bladder-centric defects such as a lower bladder capacity. The findings of this study support the notion that IC/BPS in some patients may be due to an FSS.

1. Introduction

Interstitial cystitis/bladder pain syndrome (IC/BPS), which is characterized by (1) chronic unpleasant sensations (pain, pressure, and discomfort) over the bladder or pelvic area and (2) lower urinary tract symptoms such as a persistent urge to void, frequent urination, and nocturia, is a complex urogenital condition that primarily affects females [1]. Laboratory studies that have investigated its pathogenesis have focused primarily on the bladder. The results, however, are inconsistent. For instance, a lower anesthetic bladder capacity, which is a heritable biomarker of IC/BPS [2,3], was found in only a subgroup of patients, and it had a limited predictive effect on their prognosis [4,5]. Instead, IC/BPS patients frequently presented with functional somatic syndromes (FSSs, such as irritable bowel syndrome, chronic fatigue

syndrome, and fibromyalgia) [6,7,8]. An array of psychosocial variables, including unregulated affective states (i.e., anxiety and depression) [9,10], aversive childhood relational environment (e.g., emotional and physical maltreatment) [11,12], and disintegration of the processing of cognitive and sensorimotor information (dissociative pathology) [12], also characterized this population. The lack of reliable evidence of an organic cause and an association with psychosocial factors gave rise to the speculation that IC/BPS may be an FSS [13]. A psychological mechanism may be involved in the pathogenesis of IC/BPS [14,15].

In a case-control study [12], we investigated the urogenital symptoms, psychiatric dysfunction, and potentially traumatizing experiences of patients with IC/BPS. Compared to other types of trauma, those involving trust and people close to the subjects in childhood (i.e.,

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childhood relational trauma, CRT) were found to be more prevalent in patients with IC/BPS than in control patients with similar urogenital symptoms stemming from a laboratory-proven organic cause (acute cystitis, AC; 40% versus 6%). An intriguing clinical profile emerged when we divided the IC/BPS patients into two groups: one group included those who reported CRT, and the other included those who denied CRT. Although the two subgroups did not differ in their manifestation of urogenital symptoms, disparate profiles of psychiatric dysfunctions were found. Whereas the CRT subgroup had heightened dissociative pathology and anxiety compared to the control participants with AC, this complex array of psychiatric disturbances was not evident in IC/BPS patients without CRT.

The emerging psychiatric profile of IC/BPS patients with CRT was congruent with the mainstream framework of psychosomatic medicine focusing on childhood relational experiences, affect regulation, and mental and physical health [16,17]. An insufficient quality of care and a stressful experience with caregivers hinder the acquisition of the knowledge and skills required to interpret one's own mental state [18]. As a consequence, psychiatric and somatic symptoms emerge due to the distorted perception and ineffective regulation of intensified emotional arousal and physiological reactions [19]. This model has been vigorously tested in empirical studies, and several aspects of this framework have been supported in various FSSs, including intensified negative affective states [20–22] and a prevailing CRT and dissociative pathology [23–27]. Of note, alexithymia, a diminished emotional awareness that is characterized by “no words for feelings” [28,29], has been considered the core underlying affect dysregulation of FSSs [30,31]. The mediating role of alexithymia in somatic and mental symptoms of FSSs has been supported by its link to CRT [32–34].

Alexithymia has been posited as a non-unitary personality trait composed of two latent factors [35,36]. The cognitive dimension refers to not being able to identify, analyze, and discriminate emotions. The affective dimension refers to a diminished emotional experience, including a lack of emotional reactivity and fantasizing. The two dimensions constitute various types of alexithymia [37,38], each of which involves a distinct set of neural substrates [39–41]. The type with a preserved and even enhanced ability to experience emotions but without the ability to cognitively process experienced emotions, type II alexithymia, may be of particular importance in FSSs. This type of alexithymia is related to a clinical profile that is commonly found in patients with FSSs (e.g., elevated somatic complaints and debilitating anxiety) [38]. Additionally, not being able to cognitively process experienced emotions was correlated with a dissociative pathology [42].

The current study aimed to verify the psychosomatic model in IC/BPS. Specifically, we addressed whether psychosocial factors can constitute a pathogenic mechanism that is separable from bladder-centric factors. To our knowledge, although several conceptual works have been proposed regarding the various phenotypes of IC/BPS [14], few studies have been conducted to clarify the relationship between bladder-centric factors and psychosocial variables. An exceptional study reported preliminary evidence in support of the differentiation between psychosocial and bladder-centric factors. In that study, anesthetic bladder capacity was found to be positively correlated with unregulated affective states and other FSSs [4]. As a candidate biomarker of the bladder-centric type of IC/BPS, a lower bladder capacity seemed less likely to be a feature of IC/BPS patients with somatic and mental symptoms. This result implies that affect dysregulation, rather than a bladder-centric defect, may underlie the psychosocial subtype of IC/BPS. However, several key variables of the affect dysregulation model, including CRT, dissociative pathology, and alexithymia, were not tested. It remains unclear whether these psychosocial variables are separable from bladder-centric factors.

This study examined the interrelations between the psychosocial factors and anesthetic bladder capacity in patients with IC/BPS. IC/BPS has been described to have several heterogeneous subtypes that are associated with different sets of risk factors [14]. Given the positive

correlation between anesthetic bladder capacity and both unregulated affective states and FSSs [4], an increased bladder capacity was expected to be associated with the psychosocial type of IC/BPS, and a positive correlation was predicted between bladder capacity and psychosocial variables such as alexithymia. Although not completely exclusive, the psychosocial factors should be separable from the bladder-centric factors.

2. Methods

2.1. Participants

Ninety-four female patients with IC/BPS were recruited from the outpatient departments of urology, obstetrics, and gynecology. The inclusion and exclusion criteria of the diagnosis were adopted based on the consensus of the American Urology Association in 2010. All patients were diagnosed based on chronic (> 6 weeks) unpleasant sensations (pain, pressure, or discomfort) perceived to be related to the bladder, associated with frequency and nocturia, and in the absence of infections or other identifiable causes. Various diseases, including neurogenic bladder, radiation cystitis, urolithiasis, and chronic urinary tract infection, were differentiated and excluded. Participants with Hunner's ulcers were also excluded. The average age was 40.6 ± 10.0 years, and the average number of years of education was 12.0 ± 4.1 .

2.2. Measures

2.2.1. Childhood relational trauma

CRT was assessed with the Childhood Trauma Questionnaire, Short Form (CTQ) [43]. The CTQ is a self-report tool for aversive interpersonal events at early ages. Five types of childhood trauma are covered, including emotional, physical, and sexual abuse, and emotional and physical neglect. Each of the five types comprises five items, measured on a five-point Likert scale from 1 (*never*) to 5 (*always*).

2.2.2. Alexithymia

The Bermond-Vorst Alexithymia Questionnaire (BVAQ) is a tool designed to assess impaired emotional awareness [35,36]. The questionnaire comprises two latent factors [37]: the affective dimension (emotionalizing and fantasizing) and the cognitive dimension (identifying, verbalizing, and analyzing). The full scale includes 40 items, and each item is rated on a five-point Likert scale from 1 (“This definitely applies”) to 5 (“This in no way applies”).

2.2.3. Negative affective states

The second edition of the Beck Depression Inventory (BDI-II) was used to assess the cognitive, psychological, and bodily symptoms of depression [44]. The BDI-II has 21 items, and each item is scored on a 4-point Likert scale ranging from 0 (*absence of symptoms*) to 3 (*very intense symptoms*). The Beck Anxiety Inventory (BAI) was adopted to measure the severity of anxiety symptoms [45]. The BAI consists of 21 items, and the severity levels of anxiety symptoms are rated on a 4-point Likert scale from 0 (*not at all*) to 3 (*severe*).

2.2.4. Dissociative pathology

The Traumatic Dissociation Scale (TDS) measures dissociation [46], including a loss of continuity of one's subjective experience with accompanying involuntary and unwanted intrusions in awareness and behavior (gaps in awareness and re-experiencing), an inability to access information or control mental functions or behaviors that are normally amenable to such access or control (gaps in awareness and amnesia), and a sense of experiential disconnectedness that may include perceptual distortions about oneself or the environment (depersonalization and derealization) [47]. The TDS has 24 items, and each item is measured on a 5-point scale from 0 (*not at all*) to 4 (*more than once a day within one week*).

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