

EXAMINING PHENOTYPICAL DIFFERENCES IN WOMEN WITH ULCERATIVE INTERSTITIAL CYSTITIS, NON-ULCERATIVE INTERSTITIAL CYSTITIS/BLADDER PAIN SYNDROME AND CONTROLS

Hypothesis / aims of study

Characteristic differences in women with and without bladder pain syndrome/interstitial cystitis (BPS/IC) have been described [1, 2]. However, variations between the ulcerative (ULC) and non-ulcerative (N-ULC) subtypes have not been fully explored even though distinct differences exist in clinical presentation and response to treatment. To identify similarities and differences in each subtype, we evaluated comorbidity prevalence, abuse history, and urinary, psychological, and pain symptoms in women with ULC or N-ULC BPS/IC, and controls without BPS/IC.

Study design, materials and methods

Adult women with BPS/IC were identified from the investigator's practice and hydrodistention reports were reviewed to determine subtype. Community controls were obtained from a marketing list vendor. A survey was developed and mailed to assess for 28 diagnoses previously associated with BPS/IC, abuse history, and other patient characteristics. Voiding symptoms, chronic pain, stress, and depression were evaluated with standardized questionnaires that were included in the survey [Interstitial Cystitis Symptom/Problem indices (ICSI-PI); Brief Pain Inventory (BPI); Perceived Stress Scale (PSS); Center for Epidemiologic Studies Depression Scale (CES-D)]. Data were analyzed using Pearson's Chi-square, Fisher's Exact, or Wilcoxon rank test.

Results

ULC (n=36) were older than N-ULC (n=178) and controls (n=425) (p=0.002). More ULC were postmenopausal (p=0.0001) and body mass index (BMI) was highest in ULC (p<0.0001) (Table I). N-ULC reported more comorbid diagnoses than ULC and controls (p<0.0001). More N-ULC also had history of emotional abuse (p=0.001), allergies during childhood and/or adulthood (p<0.0001), and more stress and depression symptoms as evidenced by higher mean PSS (p<0.0001) and CES-D scores (p<0.0001) when compared to ULC and controls. On the BPI, N-ULC also reported higher pain severity (p=0.005) and interference scores (p<0.0001) reflecting the negative impact of pain on daily life. In contrast, of the three groups ULC had more severe urinary symptoms/higher composite ICSI-PI scores (p<0.0001). When only N-ULC and ULC were compared to each other, age was still significantly different (p=0.003). The N-ULC group still had significantly more comorbid diagnoses (p=0.009), allergies during childhood and/or adulthood (p=0.032), higher PSS scores (p=0.0012), and CES-D scores (p=0.018). ULC had a higher BMI (p=0.009), more were postmenopausal (p=0.001), and daytime voiding frequency (p=0.031) and nocturia were higher (p<0.0001). Bladder capacity during hydrodistention was less (p<0.0001). The two groups were not significantly different on history of abuse (emotional, sexual, or physical abuse), BPI or ICSI-PI scores.

Interpretation of results

These data provide further support for a higher prevalence of comorbid diagnoses and symptoms in women with BPS/IC compared to controls. However, our findings also suggest that key differences exist between women with BPS/IC categorized by cystoscopic subtype. Women with N-ULC BPS/IC experience more emotional issues and diffuse comorbid symptoms/conditions whereas in the ULC subtype symptoms and characteristics are more localized to the bladder. These findings suggest that N-ULC IC/PBS may be more centrally mediated than ULC.

Concluding message

The possibility that these two BPS/IC subtypes are in actuality two distinct conditions cannot be ruled out. More research is needed to determine the temporal relationship between comorbid conditions and BPS/IC and whether each subtype represents a different physiological reaction to a similar stressor or are actually different disease entities altogether.

Table I. Means/Frequencies of Characteristics in the 3 Groups

	Controls	N-ULC	ULC
Age (years) <i>Mean ± SD (median)</i>	53 ± 17 (53)	55 ± 14 (55)	62 ± 14 (63)
Postmenopausal <i>N (%)</i>	228/425 (54)	107/178 (61)	32/36 (89)
Body Mass Index <i>Mean ± SD (median)</i>	27.6 ± 7.1 (25.8)	24.9 ± 4.8 (24)	27.1 ± 4.8 (26.3)
Comorbid diagnoses <i>Mean ± SD (median)</i>	1.8 ± 1.9 (1)	4.3 ± 2.7 (4)	3.0 ± 2.3 (2)
Allergies during childhood and/or adulthood <i>N (%)</i>	221/420 (53)	132/176 (75)	20/35 (57)
History of emotional abuse <i>N (%)</i>	117/420 (28)	76/176 (43)	10/36 (28)
PSS Scores <i>Mean ± SD (median)</i>	13 ± 7.7 (13)	17 ± 7.8 (17)	12 ± 8.5 (10.5)
CES-D Score <i>Mean ± SD (median)</i>	11 ± 11 (8)	15 ± 12 (13)	11 ± 12 (7)
BPI Severity <i>Mean ± SD (median)</i>	13.7 ± 8.6 (12)	17 ± 8.2 (16)	16 ± 7.0 (17)
BPI Interference Score			

<i>Mean ± SD (median)</i>	23 ± 19 (16)	32 ± 19 (30)	30 ± 20 (32)
Composite ICSI-PI Score <i>Mean ± SD (median)</i>	6.6 ± 6.4 (5)	17 ± 9.0 (18)	19 ± 10 (21.5)
Daytime Frequency <i>Mean ± SD (median)</i>	5.7 ± 2.3 (5)	9.4 ± 6.4 (8)	11.1 ± 5.8 (10)
Nocturia <i>Mean ± SD (median)</i>	1.1 ± 1.0 (1)	2.4 ± 2.4 (2.0)	4.3 ± 3.2 (3.5)
Bladder capacity (ml) <i>Mean ± SD (median)</i>	N/A	752 ± 270 (700)	416 ± 188 (375)

References

1. Clemens JQ, Meenan RT, O'Keefe Rosetti MC, et al. Case-control study of medical comorbidities in women with interstitial cystitis. *J Urol* 179: 2222-5, 2008.
2. Aaron LA, Buchwald D. A review of the evidence for overlap among unexplained clinical conditions. *Ann Intern Med* 134: 868-80, 2000.

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<i>Is this a clinical trial?</i>	No
<i>What were the subjects in the study?</i>	HUMAN
<i>Was this study approved by an ethics committee?</i>	Yes
<i>Specify Name of Ethics Committee</i>	William Beaumont Hospital Human Investigation Committee
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	Yes