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Mental Health Diagnoses In Patients with Interstitial Cystitis/ Painful Bladder Syndrome and Chronic Prostatitis/ Chronic Pelvic Pain Syndrome: A Case/Control Study

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Abstract

Purpose—To compare the rate of mental health disorders in male and female pelvic pain patients and control subjects.

Materials and Methods—Male patients with chronic prostatitis/ chronic pelvic pain syndrome (CP/CPPS) (n=174) and female patients with interstitial cystitis/ painful bladder syndrome (IC/PBS) (n=111) were identified from a urology tertiary care clinic population. A control group consisting of 72 men and 175 women was also recruited. Subjects completed self-administered questionnaires that included items about demographics, medical history, medication use, and urologic symptoms. The Patient Health Questionnaire was used to identify depression and panic disorder. Multiple logistic regression was used to determine odds ratios (OR) for the presence of a mental health diagnosis.

Results—Mental health disorders were identified in 13% of the CP/CPPS cases and 4% of male controls (OR 2.0, p = 0.04), and in 23% of IC/PBS cases and 3% of female controls (OR 8.2, p<. 0001). Disease status (case vs. control) (OR 10.4, p=0.001) and income > $50,000 (OR 0.34, p=0.008) were the only two variables independently predictive of the presence of a mental health diagnosis. Age, gender, race/ethnicity, and education were not predictive. Medications for anxiety, depression or stress were being taken by 18% of CP/CPPS patients, 37% of IC/PBS patients, 7% of male controls, and 13% of female controls.

Conclusions—Depression and panic disorder are significantly more common in men and women with pelvic pain conditions than in controls. Medication use data suggest that anxiety and depression may be more difficult to treat in patients with urologic pain syndromes than in controls.

Keywords

Depression; panic disorder; anxiety; psychiatric

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INTRODUCTION

Chronic prostatitis/ chronic pelvic pain syndrome (CP/CPPS) is characterized by chronic pain in the perineum, tip of the penis, suprapubic region, or scrotum which is often worsened with voiding or ejaculation[1]. Interstitial cystitis/ painful bladder syndrome (IC/PBS) indicates the presence of pain referable to the suprapubic region, and is often accompanied by increased urinary frequency, persistent urgency to void, or nocturia[2]. Although these conditions are frequently considered as separate entities, there is debate about whether in fact they may represent the same underlying condition[3–7]. Direct comparisons of the clinical characteristics of patients with both diagnoses may provide further insight into this issue.

Previous studies have demonstrated a higher rate of mental health disorders in patients with CP/CPPS and IC/PBS[8–13]. However, a direct comparison between patients with these conditions and controls has not been performed. The objective of this study was to compare the rate of depression and panic disorder in male and female patients with these urologic pain syndromes and controls.

METHODS

Institutional Review Board approval was obtained prior to study initiation. Participants were recruited from existing Northwestern University urology clinic patients. A search of the patient database covering years 1999 through 2002 was done to identify patients previously diagnosed with CP/CPPS (men) or IC/PBS (women). Identification was based on ICD-9 coding at the time of the office visit. Importantly, all men with CP/CPPS are coded as ‘prostatitis not otherwise specified’ (ICD-9 601.9) for documentation purposes, so such patients could be reliably identified. Males with IC/PBS were not included in the study, as few such patients were identified. A total of 832 questionnaires were mailed (246 to IC/PBS patients and 586 to CP/CPPS patients). An identical questionnaire was mailed 6 months later to those who did not respond to the first mailing. Completed questionnaires were received from 174 men (29.6%) and 111 women (45.1%).

Control subjects were recruited from three different sources. Group one (25 men and 80 women) included friends or family members of patients waiting to be seen in the Northwestern Urology clinic. These subjects completed the questionnaires in person during the visit, or returned them via the mail. The second group (47 men and 80 women) included individuals in a research registry from the Beuhler Center on Aging at Northwestern University. These subjects received and returned the questionnaires via the mail. The third group (15 women) included nursing staff at Evanston Northwestern Hospital; these individuals were recruited by placing questionnaire packets in employee mailboxes with stamped return envelopes. Controls with a self-reported history of bladder cancer, prostate cancer, uterine cancer, cervical cancer, urethral stricture, radiation cystitis, spinal cord injury, neurogenic bladder, Parkinsons disease, multiple sclerosis, stroke, and spina bifida were excluded. The final control group consisted of 175 women and 72 men.

The questionnaire included demographic information, current medication use, medical history, the National Institutes of Health Chronic Prostatitis Symptom Index (NIH-CPSI)[1] for male subjects, and the Interstitial Cystitis Symptom Index (ICSI) and Problem Index (ICPI)[14] for females. The Patient Health Questionnaire (PHQ)[15] was used to assess for mental health disorders. This instrument consists of a nine-item depression module (PHQ-9) and a five-item anxiety module. Based on questionnaire responses, subjects can be assigned diagnoses of major depression, panic disorder, or other depressive disorder based on their responses to these items. The diagnoses for major depression and panic disorder correspond to specific DSM-IV diagnostic criteria, while a diagnosis of other depressive disorder encompasses fewer

symptoms than are required for any specific DSM-IV diagnosis, but which may indicate symptoms associated with significant functional impairment. The depression scale score also serves as a measure of depression severity as follows: minimal depression (0–4), mild (5–9), moderate (10–14), moderately severe (15–19), and severe depression (20–27)[16]. The PHQ has demonstrated a sensitivity of 73% and a specificity of 98% for the diagnosis of major depressive disorder, and a sensitivity of 81% and specificity of 99% for the diagnosis of panic disorder[15].

Survey responses were coded and analyzed using chi-square and t-tests to determine differences between cases and controls. Multiple logistic regression was used to determine predictors of having a PHQ-defined mental health diagnosis. Independent variables in the regression model included disease status (case vs. control), gender, age, education, income, and race/ethnicity (white vs. nonwhite). Statistical analyses were performed using commercially available software (SPSS, Chicago, IL).

RESULTS

Demographics are shown in Table 1. The majority of subjects were white and well educated with an annual household income of greater than $50,000 per year. Male cases did not differ from controls in race or income, but they were better educated ($p = 0.002$) and younger ($p < 0.0001$). Female cases were also younger than controls ($p < 0.0001$).

As anticipated, there was a significant difference in symptom scores between the case and control groups. In men the mean NIH-CPSI score was 15.3 in cases compared to 3.6 in controls ($p< 0.0001$). Of note, 103 (59%) of male cases had a NIH-CPSI score of ≥12 and a non-zero pain subscale score. These criteria have been used as entry criteria for NIH-sponsored clinical trials of CP/CPPS (www.cceb.med.upenn.edu/uppcrn). In women the mean ICSI score was 10.3 in cases and 3.1 in controls ($p<0.0001$), and the mean ICPI score was 9.0 in cases and 1.9 in controls ($p<0.0001$).

Table 2 presents a comparison of mental health diagnoses between cases and controls. In men, 13% of the cases met criteria for a mental health diagnosis (major depression, panic disorder, or other depression), compared to 4% of controls (OR 2.0, $p = 0.04$). Seven percent of cases had major depression, and an additional 5% had depression symptoms. These proportions were significantly greater than those for male controls (1% and 1%, respectively). Six percent of males had panic disorder, compared to 1% of controls. Among women, 23% of cases had evidence of a mental health disorder compared with 3% of the controls (OR 8.2, $p<0.0001$). Five percent had a diagnosis of major depression, and an additional eleven percent had depression symptoms, compared to 1% and 2% of the controls, respectively. Panic disorder was detected in 14% of the female case subjects and 1% of the female controls. The mean depression severity score was 5.7 (sd 5.08) in female cases and 4.8 (sd 5.84) in male cases ($p=0.19$).

Table 3 presents a summary of mental health conditions and use of medications for anxiety, depression or stress. Such medications were being taken by 37% of IC/PBS patients, 18% of CP/CPPS patients, 13% of female controls, and 7% of male controls. The questionnaire did not provide additional details about medication name or type. A substantial number of men and women in both case and control groups were currently taking these medications, but did not demonstrate symptoms of depression or anxiety. Our definition of a mental health condition could be expanded to include these individuals with ‘treated’ depression or anxiety symptoms. A repeat analysis of the data using this definition results in slightly lower odds ratios (3.1 for CP/CPPS and 4.9 for IC/PBS).

The medication data suggest that there may be a relationship between treatment efficacy for mental health disorders and the presence of urologic pain symptoms. Fully 39% (16/41) of women with IC/PBS who were taking a medication for depression, anxiety or stress demonstrated a mental health diagnosis despite these medications, compared with only 14% (3/22) of female controls who were taking these medications (p=0.05). However, this relationship was not seen in men, where 34% (11/32) of CP/CPPS patients had mental health symptoms despite medications, compared with 20% (1/5) in controls (p=NS).

Results of the multiple logistic regression are presented in Table 4. Disease status and income were the only two variables predictive of the presence of a mental health diagnosis. The OR of having a mental health disorder for cases as compared to controls is 10.4, while subjects with an annual household income of more than $50,000 demonstrated a lower odds (0.34) of having a mental health diagnosis. Age, gender, race/ethnicity and education were not predictive.

DISCUSSION

Our results support the findings of previous case-control studies that showed a higher rate of mental health diagnoses associated with IC/PBS and CP/CPPS. Novi et al administered the PHQ to 46 women with IC/PBS and 46 age-matched controls, and identified a higher rate of depression (OR 4.0) in cases[8]. Weissman et al utilized standardized interviews to assess for the presence of panic disorder in 67 cases (56 women with IC/PBS and 11 men with CP/CPPS), and compared them with 79 controls (33 women and 46 men) with other urologic conditions[9]. Compared with controls, the odds ratio for the lifetime prevalence of panic disorder in cases was 4.1. Other investigators have demonstrated significantly higher depression scores in men with CP/CPPS when compared with age-matched controls[11–13]. Our findings are consistent with these previous studies, although our odds ratios for depression and panic disorder in IC/PBS are somewhat greater than those reported previously. It is possible that these differences are simply due to chance, however, as our OR confidence intervals overlap with the values previously reported. Whether the increased proportions of depressive symptoms among cases are a reaction to the experience of pelvic pain or predates the pelvic pain cannot be determined from these data. These results reinforce the relevance of a multidisciplinary approach to treating patients with IC/PBS and CP/CPPS.

Depression affects between 5–10% of individuals in primary care settings[17]. Using the same instrument employed in our study (PHQ), the rates of mental health disorders in various primary care clinic samples were as follows: major depression 5–13%, other depression 5–16%, any depression 11–28%, and panic syndrome 2–9%[15]. These numbers are similar to those identified in our pelvic pain patients, although the rate of panic disorder appears to be greater in women with IC. Therefore, although the rate of mental health disorders was greater in cases than in controls in our study, these rates appear to be similar to the rate of mental health disorders in primary care settings.

The inclusion of both IC/PBS and CP/CPPS in this study permits a direct comparison of the two conditions. Mental health diagnoses were slightly more common in our female patients with IC/PBS (23%) than in the male patients with CP/CPPS (13%) (p=0.04), and this difference was predominantly due to a higher rate of panic disorder in IC/PBS patients. However, gender was not an independent predictor of the presence of a mental health condition. This finding suggests that the association between mental health disorders and urologic pain conditions is quantitatively the same for men and women.

Another novel aspect of this study is the inclusion of data about medication use for anxiety, depression or stress. This information may be important, because the use of these medications

may bias the results by 'masking' the presence of mental health conditions that we are attempting to identify. Indeed, when we utilized medication use to identify additional cases of mental health disorders, our odds ratios were attenuated slightly. However, the primary conclusion that mental health conditions are more common in cases than controls was not changed.

The medication data also suggests that anxiety and depression may be more difficult to treat in women with IC/PBS than in controls, as a greater proportion of IC/PBS patients than controls had persistent symptoms despite taking these medications. However, these findings should be interpreted with caution as this study was not designed to assess medication treatment efficacy, and there are numerous potential confounding factors that could explain these findings (e.g. medication adherence, disease severity at baseline, lack of specific medication data). Furthermore, this observation was not seen in men with CP/CPPS. Nevertheless, it is recognized that depression symptoms are often more difficult to treat in patients with concomitant chronic pain conditions[18].

These findings confirm that mental health, pain and urinary symptoms are correlated. In a previous study[19], we examined predictors of symptom severity in this same cohort of men and women with pelvic pain symptoms. We found that self-reported pelvic pain symptoms, education and depression severity were the factors most strongly predictive of symptom severity in patients with CP/CPPS and IC.

There are limitations to the study. The control group was older and less well educated than the cases, so unadjusted comparisons between these groups may be affected by these differences. However, we were able to control for this on our statistical analysis by using multivariate techniques. Second, our identification of a mental health disorder relied entirely on the PHQ questionnaire, which is less accurate than structured diagnostic interviews. However, we would expect this limitation to apply equally to cases and controls, and therefore it should have limited potential to bias our results. Finally, the population is primarily well-educated and white, so the results may not be generalizable to other demographic groups.

CONCLUSION

Depression and panic disorder are significantly more common in men with CP/CPPS and women with IC/PBS than in controls. Gender has no demonstrable effect on these findings. Many urologic pain patients report depressive and anxiety symptoms despite the use of medications to control them, suggesting that these mental health disorders may be more difficult to treat in patients with urologic pain syndromes. CP/CPPS and IC/PBS may be best managed using a multidisciplinary approach, including routine psychological assessment.

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Abbreviations

CP/CPPS, Chronic prostatitis/ chronic pelvic pain syndrome; IC/PBS, Interstitial cystitis/ painful bladder syndrome; ICSI, Interstitial Cystitis Symptom Index; ICPI, Interstitial Cystitis Problem Index; NIH-CPSI, National Institutes of Health Chronic Prostatitis Symptom Index; PHQ, Patient Health Questionnaire.

Table 1

Demographic

Patient Characteristics	Male			Female		
	Case	Control	p-value	Case	Control	p-value
Subjects (n)	174	72		111	175	
Mean age (range)	52 (24–90)	68(34–91)	**<0.0001**	50(23–89)	62(18–90)	**<0.0001**
Race/ Ethnicity:			0.832			0.282
White	146 (84%)	60 (82%)		92 (83%)	138 79%)	
Non-white	25 (14%)	11 (15%)		16 (14%)	34 (19%)	
Education:			**0.002**			0.127
< High school	2 (1%)	1 (1%)		4 (4%)	3 (2%)	
High school	10 (6%)	6 (8%)		13 (12%)	18 (10%)	
Some college	19 (11%)	16 (22%)		24 (22%)	35 (20%)	
College graduate	59 (34%)	32 (44%)		35 (32%0	48 (27%)	
Post graduate	82 (47%)	17 (22%)		31 (28%)	68 (39%)	
Annual Income:			0.361			0.436
$50,000 – 100,000	51 (29%)	34 (47%)		38 (34%)	58 (33%)	
> $100,000	73 (42%)	13 (17%)		26 (23%)	34 (19%)	

Table 2

Mental Health Diagnoses

	Male				Female			
	Case	**Control**	**OR [95% CI]**	**p-value**	**Case**	**Control**	**OR [95% CI]**	**p-value**
Subjects (n)	174	72			111	175		
Depression:								
Major depression	12 (7%)	1 (1%)	5.3	0.12	6 (5%)	2 (1%)	4.9	0.48
Other depression	8 (5%)	1 (1%)	3.4	0.29	12 (11%)	3 (2%)	6.9 [1.9–25.2]	**0.002**
Total	20 (12%)	2 (8%)	4.5 [1.1–20.0]	**0.02**	18 (16%)	5 (3%)	6.6 [2.4–18.3]	**0.0001**
Panic syndrome	10 (6%)	1 (1%)	4.3	0.18	15 (14%)	2 (1%)	13.5 [2.0–60.4]	**<0.0001**
Any mental health	23 (13%)	3 (4%)	3.6 [1.1–12.4]	**0.03**	25 (23%)	6 (3%)	8.2 [3.2–20.7]	**<0.0001**
Medication for anxiety, depression, stress	32 (18%)	5 (7%)	3.1 [1.2–8.3]	**0.03**	41 (37%)	22 (13%)	4.1 [2.3–7.3]	**<0.0001**
*Depression severity:	n=20	n=2			n=18	n=5		
Minimal	--	--			--	--		
Minor	1 (5%)	--			6 (33%)	1 (20%)		
Moderate	5 (25%)	1 (50%)			6 (33%)	2 (40%)		
Moderate to severe	6 (30%)	--			5 (28%)	1 (20%)		
Severe	8 (40%)	1 (50%)			1 (6%)	1 (20%)		

* Of those subjects found to have depressive symptoms

Table 3

Mental health conditions and medication use in cases and controls.

	Medication Use	Mental Health Condition	
		Yes	No
Female IC/PBS (n=111)	Yes	16 (14%)[b]	25 (23%)[a]
	No	9 (8%)[c]	61
Female Control (n=175)	Yes	3 (2%)[b]	19 (11%)[a]
	No	3 (2%)[c]	150
Male CP/CPPS (n=174)	Yes	11 (6%)[b]	21 (12%)[a]
	No	12 (7%)[c]	130
Male Control (n=72)	Yes	1 (1%)[b]	4 (6%)[a]
	No	2 (3%)[c]	65

Table 4

Logistic regression results

	Mental health diagnosis		
Predictors	***β***	***p-value***	**Odds Ratio**
Source (Control)			
Case	**2.342**	**0.001**	**10.4**
Age	−0.016	0.19	0.98
Gender (Female)*			
Male	−0.655	0.08	0.52
Education (High school or less)*			
College degree and some college	−0.338	0.54	0.71
Graduate school	−1.060	0.11	0.35
Income (Less than $50,000)*			
More than $50,000	**−1.087**	**0.008**	**0.34**
Race/ Ethnicity (Non-white)*			
White	−0.324	0.50	0.72

*Reference group