E-ISSN: 2616-3470
P-ISSN: 2616-3462

www.surgeryscience.com
2019; 3(1): 358-360
Received: 29-08-2018
Accepted: 26-09-2018

Dr. Robindera Kour
In charge Consultant Surgery, Govt. Hospital Sarwal, Jammu, Jammu and Kashmir, India

Dr. Gurpreet Kour
Medical Officer, Acharya Shri Chander College of medical Sciences, Jammu, Jammu and Kashmir, India

Dr. Iqbal Singh
Assistant Professor, Public Health Dentistry, Indira Gandhi Government Dental College, Jammu, Jammu and Kashmir, India

Dr. Neeru Khajuria
Medical Officer, Department of Gynecology, Govt. Hospital Sarwal, Jammu, Jammu and Kashmir, India

Dr. Rajiv Sharma
Medical superintendent, Govt. Hospital Sarwal, Jammu, Jammu and Kashmir, India

Correspondence
Dr. Robindera Kour
In charge Consultant Surgery, Govt. Hospital Sarwal, Jammu, Jammu and Kashmir, India

A study to find out the association between BPS/IC and PID among 18-60 years old patients: A prospective case-control study

Dr. Robindera Kour, Dr. Gurpreet Kour, Dr. Iqbal Singh, Dr. Neeru Khajuria and Dr. Rajiv Sharma

DOI: https://doi.org/10.33545/surgery.2019.v3.i1f.376

Abstract
Objective: To study the association between BPS/IC and PID among 18-60 years old patients.
Methods: A case control study was conducted among 60 female patients (30 cases and 30 controls) attended the OPD of General surgery department of Government Hospital Sarwal, Jammu, India between. Demographic details and associated co morbidities were studied.
Results: Majority of the subjects belongs to 39-48 years of age group. 56.7% of the patients belonged to the middle class while 43.3% were from the lower class. Patients with PID, hypertension, diabetes and IBS were at high risk of BPS/IC.
Conclusions: Showed association between PID and BPS/IC. Clinicians while treating female subjects with PID should take extra care and educate the patients about the association between PID and BPS/IC.

Keywords: Bladder pain syndrome, pelvic inflammatory disease, risk factors

Introduction

Pelvic inflammatory disease is one of the most common gynecological disorders of women all over the world. It is a clinical condition where in the endometrial, fallopian tubes and the adjacent pelvic structures are infected due to the ascending infection from the lower genital tract such as vagina and cervix through the uterine cavity [1, 2]. This leads to severe morbidity and complication such as infertility, ectopic pregnancy or chronic pelvic pain [3-5].

Interstitial cystitis (IC) or bladder pain syndrome (BPS) is a clinical condition that manifests as a sensory hypersensitivity of unknown cause, characterized by urinary frequency, bladder discomfort, and pelvic pain [6].

In 2002, the International Incontinence Society revised the definition of BPS [7]. BPS was defined as the complaint of suprapubic pain related to bladder filling, accompanied by other symptoms such as increased daytime and nighttime frequency without evidence of proven urinary infection or other obvious pathology.

More recently, the European Society for the study of IC/BPS (ESSIC) suggested a new nomenclature and classification system [8]. Since pain is the fundamental character of the condition, it was proposed that the name be changed to BPS. BPS is diagnosed based on the presence of chronic pelvic pain lasting more than 6 months, pressure/discomfort perceived to be related to the urinary bladder, and one or more urinary symptoms such as urinary urgency or frequency. The American Urological Association defined IC/BPS [9] as follows: "An unpleasant sensation (pain, pressure, or discomfort) perceived to be related to the urinary bladder, and associated with lower urinary tract symptoms of more than six weeks duration in the absence of infection or other identifiable cause".

The quality of life for patients with BPS/IC might be impaired because of chronic pelvic pain and irritating voiding or storage urinary symptoms. BPS/IC and PID share pelvic pain as a common symptom, and both are associated with chronic inflammation. Hence the present case control study was conducted to find the association between BPS/IC and PID.

Materials and methods

Study Design

A Prospective case control study was conducted among female patients belong to 18-60 years age attended the OPD of General surgery department of Government Hospital Sarwal, Jammu, India between.

Ethical approval and Informed consent

The study protocol was reviewed by the Ethical Committee of the Hospital and granted ethical clearance. After explaining the purpose and details of the study, a written informed consent was obtained.

Inclusion Criteria

- Patients between 18-60 years of age
- Those were willing to participate in study.

Exclusion Criteria

- Patients other than 18-60 years of age
- Patients who are not willing to give written informed consent

Sample Selection

The sample size was calculated using a prior type of power analysis by G* Power Software Version 3.0.1.0 (Franz Faul, Universitat Kiel, Germany). The minimum sample size of each group was calculated, following these input conditions: power of 0.80 and $P \leq 0.05$ and sample size arrived were 60 patients i.e. 30 per group.

Group-A (Case): Newly diagnosed Patients with BPS/IC.

Group-B (Control): Patients without BPS/IC

Methodology

Detailed history of both the cases and controls were obtained that includes demographic details such as age, socio-economic status, education levels etc. were noted. They were all subjected to complete physical and clinical examination. Investigations such as hemoglobin levels, complete blood picture, erythrocyte sedimentation rate, Random blood sugar, serum bilirubin levels, SGPT, SGOT, urea, creatinine were performed. Tests for VDRL, routine urine examination, gram's stain, PAP smear, etc. were also done.

Statistical Analysis

The recorded data was compiled and entered in a spreadsheet computer program (Microsoft Excel 2010) and then exported to data editor page of SPSS version 19 (SPSS Inc., Chicago, Illinois, USA). Descriptive statistics included computation of percentages. The associations between the variables were assessed using chi-square test. The confidence interval and level of significance were set at 95% and ≤0.05

Results

Table 1: Age distribution of study subjects

Age (Years)	Group		Total
	Case	Control	
18-28	6	5	11
	20.0%	16.7%	18.3%
29-38	8	9	17
	26.7%	30.0%	28.3%
39-48	12	13	25
	40.0%	43.3%	41.7%
>48	4	3	7
	13.3	10.0%	11.7%
Total	30	30	60
	100.0%	100.0%	100.0%
Mean ±SD	48.21±1.81	48.71±2.01	
p-value	0.213 (NS)		

Test applied: Chi-square test

Table 2: Socio-economic distribution of study subjects

Socio-economic status	Groups		Total
	Case	Control	
Lower class	14	12	26
	46.7%	40.0%	43.3%
Middle class	16	18	34
	53.3%	60.0%	56.7%
Total	30	30	60
	100.0%	100.0%	100.0%
p-value	0.121 (NS)		

Test applied: Chi-square test

Table 3: Distribution of co-morbidities in the study subjects

Co-morbidities	Group		Total	p-value
	Case	Control		
PID	12	4	16	0.001 (Sig.)
Hypertension	7	2	9	0.034 (Sig.)
Diabetes	4	3	7	0.721 (NS)
IBS	2	1	3	0.221 (NS)
IBD	1	0	1	0.092 (NS)

Test applied: Chi-square test

Discussion

To the best of our knowledge, this study is the first region to investigate the association between PID and subsequent BPS/IC in Indian population. In this study, we also found that different age groups of women with PID history were more likely to have BPS/IC. Moreover, patients with PID, hypertension, diabetes and IBS were at high risk of BPS/IC.

Previous studies have reported associations of BPS/IC with nonbladder syndrome, including fibromyalgia, chronic fatigue syndrome, and IBS [10, 11]. They suggested that sympathetic dysfunction may be their common underlying pathogenesis.[11]

Increasing evidence has shown that chronic inflammation is important in the development of BPS/IC, specifically in cases of high severity [12, 13] A recent study reported that BPS/IC patients have reduced pain thresholds [14] Schrepf *et al*. [13] indicated that Toll-like receptor-4 (TLR-4)-mediated inflammation plays a critical role in pelvic pain of BPS/IC. Previous studies have shown that proinflammatory TLR-4 activation of spinal cord glial cells is essential in the development and maintenance of chronic pain [15, 16]

Limitation

We either were unable to evaluate whether severity or frequency of PID will be associated with higher risk of BPS/IC than those with mild or less frequent PID.

Previous pelvic operations or trauma history might also be associated with the occurrence of BPS/IC symptoms; however, these data were absent.

Conclusion

Our study concluded a strong association between PID and BPS/IC. Clinicians while treating female subjects with PID should take extra care and educate the patients about the association between PID and BPS/IC. Further study is needed to confirm these findings and explore the underlying patho-mechanisms. In addition, clinical practitioners treating subjects with PID should be reminded to be alert for urinary complaints.

References

1. Westrom L, Eschenbach D. Pelvic inflammatory disease. Sexually transmitted diseases. 3rd ed. New York: McGraw-Hill, 1999, 783-809.
2. Westrom L, Joesoef R, Reynolds G, Hagdu A, Thompson SE. Pelvic inflammatory disease and infertility. A cohort study of 1,844 women with laparoscopically verified disease and 657 control women with normal laparoscopic results. Sex Transm Dis. 1992; 19(4):185-92.
3. Aral SO, Mosher WD, Cates W JR. Self-reported pelvic inflammatory disease in the United States, 1988. JAMA. 1991; 266(18):2570-3.
4. US Department of Health and Human Services. Pelvic inflammatory disease. Research directions in the 1990s. Sex Transm Dis. 1991; 18:46-64.
5. Kani J, Adler MW. Epidemiology of pelvic inflammatory disease. Pelvic inflammatory disease. New York: Raven Press, 1992, 7.
6. Dasgupta J, Tincello DG. Interstitial cystitis/bladder pain syndrome: an update. Maturitas. 2009; 64:212-7.
7. Abrams P, Cardozo L, Fall M, Griffiths D, Rosier P, Ulmsten U *et al*. The standardisation of terminology of lower urinary tract function: report from the Standardisation Sub-committee of the International Continence Society. Neurourol Urodyn. 2002; 21:167-78.
8. Van De Merwe JP, Nordling J, Bouchelouche P, Bouchelouche K, Cervigni M, Daha LK *et al*. Diagnostic criteria, classification, and nomenclature for painful bladder syndrome/interstitial cystitis: an ESSIC proposal. Eur Urol 2008; 53:60-7.
9. Hanno P, Dmochowski R. Status of international consensus on interstitial cystitis/bladder pain syndrome/painful bladder syndrome: 2008 snapshot. Neurourol Urodyn. 2009; 28:274-86.
10. Fan YH, Lin AT, Lu SH *et al*. Non-bladder conditions in female Taiwanese patients with interstitial cystitis/hypersensitive bladder syndrome. Int J Urol. 2014; 21:805-809.
11. Martinez-Martinez LA, Mora T, Vargas A *et al*. Sympathetic nervous system dysfunction in fibromyalgia, chronic fatigue syndrome, irritable bowel syndrome, and interstitial cystitis: a review of case–control studies. J Clin Rheumatol. 2014; 20:146-150.
12. Logadottir Y, Delbro D, Fall M *et al*. Cytokine expression in patients with bladder pain syndrome/interstitial cystitis ESSIC type 3C. J Urol. 2014; 192:1564-1568.
13. Schrepf A, O'Donnell M, Luo Y *et al*. Inflammation and inflammatory control in interstitial cystitis/bladder pain syndrome: associations with painful symptoms. Pain. 2014; 155:1755-1761.
14. Ness TJ, Lloyd LK, Fillingim RB. An endogenous pain control system is altered in subjects with interstitial cystitis. J Urol. 2014; 191:364-370.
15. Hutchinson MR, Zhang Y, Brown K *et al*. Non-stereoselective reversal of neuropathic pain by naloxone and naltrexone: involvement of toll-like receptor 4 (TLR4). Eur J Neurosci. 2008; 28:20-29.
16. Milligan ED, Watkins LR. Pathological and protective roles of glia in chronic pain. Nat Rev Neurosci. 2009; 10:23-36.