



Improving chronic pelvic pain diagnosis; the role of clinical assessment and symptom evaluation

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Abstract

Introduction: Chronic pelvic pain (CPP) is primarily caused by several problems such as endometriosis, adhesions, irritable bowel syndrome (IBS), infection, interstitial cystitis, psychological issues. There is an estimation that fifty percent of CPP cases remain undiagnosed.

Objectives: In the present study, we tried to improve the CPP diagnosis rate by clinical assessment and symptom evaluation using a standard questionnaire.

Patients and Methods: We enrolled 70 women with CPP. Clinical examination was done using a questionnaire, namely pelvic pain assessment form from The International Pelvic Pain Society, to gather the data. Participants were requested for suitable paraclinical tests, and if they were suspected of non-gynaecological diseases, they were referred to related specialists. Patients were followed up 6 months after the visit and the final diagnosis was made at the end of follow-up.

Results: Endometriosis was the most prevalent diagnosis (n=13). Around 11 patients with musculoskeletal symptoms, 22 patients with gastrointestinal symptoms and one patient with psychological symptoms were referred to appropriate clinics. Among women who were suspected for gynaecological, gastrointestinal, and musculoskeletal diseases, 76.1%, 76.2%, and 68.8% patients reported improvements in their symptoms. The kappa coefficient for gynaecological, gastrointestinal, and musculoskeletal symptoms were estimated 0.65, 0.78, and 0.77, respectively. The accuracy of gynaecological, gastrointestinal, and musculoskeletal symptoms was 0.82, 0.91, and 0.93, respectively.

Conclusion: Physical examination findings and symptoms in the structure of pelvic pain assessment form can be valuable tools for diagnosis and treatment of CPP and will improve the diagnosis rate.

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Introduction

Chronic pelvic pain (CPP), defined as persistent disabling pain located in the minor pelvis lasting for more than six months, affects approximately 15% (ranging from 5.7% to 26.6%) of women annually in the US (1). Pain levels are quantified as severe enough to cause disability and necessitate medical care, yet they often remain unresponsive to treatment (2). Several well-known gynecological and extra-gynecological causes contribute to CPP, including adhesions, endometriosis, irritable bowel syndrome (IBS), infection, interstitial cystitis, psychological issues, and urethral syndrome (3,4). Notably, endometriosis is the most prevalent cause of CPP (5).

CPP can arise from one or more organ systems and is frequently associated with psychological disturbances (such as depression and anxiety), a history of sexual and physical abuse, and a variety of somatic complaints. This complexity makes evaluating, diagnosing,

Key point

- Chronic pelvic pain could be associated with psychological disturbances
- Pelvic pain assessment form is a valuable tool for diagnosis and treatment of chronic pelvic pain

and treating patients with CPP challenging (6).

The etiology of CPP is multifaceted, necessitating several diagnostic procedures for accurate diagnosis. History-taking and physical examinations serve as the initial steps. It is crucial to inquire about factors that trigger or intensify the pain, assess the impact of pain on patients' quality of life, and understand how patients are coping with the pain. Additionally, imaging tests, including transvaginal sonography, computer tomography (CT), and magnetic resonance imaging (MRI), play a valuable role in CPP diagnosis (7-9). Furthermore,

laparoscopy is a precious diagnostic procedure, performed in approximately 40% of CPP patients (10).

Given the limited data on the importance of history-taking and physical examinations in patients with CPP, we conducted a cross-sectional study to evaluate the value of these assessments using a standardized form in identifying the etiology of CPP. Additionally, we reported the prevalence of CPP etiologies.

Objectives

In the present study, we tried to improve the CPP diagnosis rate by clinical assessment and symptom evaluation using a standard questionnaire.

Patients and Methods

Study design

This cross-sectional study was conducted at our academic outpatient clinic for CPP. Between 2020 and 2022, we enrolled all patients who were referred to the Arash Hospital Clinic in Tehran, Iran, for CPP. All subjects were informed about the study's goals, and signed informed consent was collected. We defined CPP as pelvic pain and/or lower abdominal pain unrelated to menstruation or coitus, persisting for over six months. We excluded individuals with chronic medical conditions such as heart disease, kidney disease, connective tissue disease, diabetes, and pregnant women.

To gather data, we used the pelvic pain assessment form, a questionnaire developed by the international pelvic pain society. This questionnaire covers socio-demographic features, patients' pain (duration, cause, visual analogue scale score, drugs, and pain distribution maps), past and recent surgical history, eating habits, sexual abuse, and information related to urinary, reproductive, and gastrointestinal systems. The questionnaire was administered to women awaiting their clinic visit. Researchers conducted face-to-face interviews to complete the form (11). Subsequently, physical examinations were performed, and diagnoses were based on the history and physical assessments. Patients were also requested to undergo suitable paraclinical tests. If non-gynecological diseases were suspected, they were referred to relevant specialists. Follow-up occurred 6 months after the initial visit, and the final diagnosis was determined at that time.

Statistical analysis

Data analysis was performed using the Statistical Package for the Social Sciences (SPSS) statistical program, version 16 (IBM Corp., Armonk, NY, USA). We applied the Shapiro-Wilk test to evaluate the normality of data distribution. Baseline characteristics of the study population were presented as frequencies (%) for categorical variables and as mean (standard deviation: SD) values for continuous variables. To assess the agreement between symptoms and the final diagnosis, we calculated kappa coefficients. The statistical significance level was considered to be ≤ 0.05 .

Results

Basic demographics of patients

The baseline characteristics of the participants are presented in Table 1. All 70 subjects were followed until the end of the research. The mean age of participants was 42.48 ± 8.33 years. Among the study population, 90% (n = 63) were married, and 97.2% (n = 68) were housewives. The mean age at menarche for participants was 12.9 ± 1.5 years. Additionally, 18.6% (n = 13) were nulliparous, while 81.4% (n = 57) were multiparous.

Baseline complications of participants

All participants underwent interview and their examination results presented in Table 2. The majority of our participants complain about vomiting as a

Table 1. The baseline characteristics of the study population

Variable	No. (%)
Age (years), mean (SD)	42.4 (8.3)
Menarche age (y), mean (SD)	12.9 (1.5)
History of C-section, n (%)	25 (35.7)
Familial history of pelvic pain, n (%)	2 (2.8)
Positive medical history, n (%)	18 (25.7)
Gravid, n (%)	0
	≥1
Employment status, n (%)	Housewife
	Employed
Marital status, n (%)	Married
	Single
Educational status, n (%)	Primary
	Tertiary
Medical history	Natural delivery
	Caesarean
Menstruation	Dysmenorrhea
	Regular
	Clotting
Birth control	Not use any birth control
	Withdrawal
	Condoms
	Undergone tubal ligation
	OCP
Coffee consumption	IUD
	Hysterectomy
	1 to 3 times a day
	4 to 6 times a day
Alcohol usage	>6 times a day
	Not consume coffee
	2 (2.9)
Drug abuse	2 (2.9)
	Sexual abuse
	Physical violence before age 13
History of abuse and violence	Physical violence after age 13
	2 (2.9)

IUD, Intrauterine devices; OCP, Oral contraceptive pill.

Table 2. Baseline examination results of all participants (n=70)

Examinations	Variable	No. (%)
Gastrointestinal symptoms	Vomiting	17 (24.3)
	Pain after eating	13 (18.6)
	Change in bowel habits	12 (17.1)
	Eating disorders	8 (11.4)
	Melena	7 (10)
Physical activity	Not exercising	47 (67.1)
	1-2 times a week	14 (20)
	3-5 times a week	2 (2.9)
	Daily exercise	1 (1.4)
Abdominal and pelvic tenderness	Right adnexal tenderness	15 (21.4)
	Left adnexal tenderness	14 (20)
Speculum examination	Pelvic tenderness	11 (15.7)
	Large uterus	9 (12.9)
	Abdominal tenderness	8 (11)
Pelvic pain	Vaginal discharge	6 (8.6)
	Dyspareunia (pain during sexual intercourse)	11 (15.7)
	Pain following sexual intercourse	11 (15.7)
	Pain after exercise	7 (10)
	Pain after lying down	3 (4.3)
	Sudden pelvic pain	2 (2.9)
	Pelvic pain during movement	1 (1.4)

gastrointestinal sign (24.3%), the do not work out as physical activity (67.1%), having right adnexal tenderness in abdominal and pelvic tenderness (21.4%), having pelvic tenderness by speculum examination (15.7%), and pain during or after sexual intercourse (15.7%).

Diagnosis

Endometriosis was the most prevalent diagnosis (n = 13, 18.57%). Other diagnoses included fibroma (n = 7, 10%), ovary cyst (n = 6, 8.57%), pelvic inflammatory disease (PID) (n = 5, 7.1%), urinary tract infection (UTI) (n = 2, 2.85%), atrophic vaginitis (n = 1, 1.42%).

Interventions

About 11 (15.71%) patients with musculoskeletal symptoms were referred to the physical medicine clinic, 22 (31.4%) patients with gastrointestinal symptoms were referred to the gastrointestinal clinic, one patient (1.42%) with psychological symptoms was referred to the psychological clinic, one patient (1.42%) remained without a specific diagnosis, two patients with suspected fibroma and musculoskeletal symptoms were referred to

the physical medicine clinic, five and two patients with endometriosis were referred to the gastrointestinal clinic and physical medicine clinic, respectively.

After six months follow-up

Table 3 presents the agreement between clinical findings and the final diagnosis. At the end of the follow-up period. Among 46 suspected women for gynaecological diseases, 35 (76.1%) patients reported improvement in their symptoms, 11 (23.9%) patients did not report any improvements. In the gastrointestinal complications, 16 (76.2%) patients reported improvements in their symptoms, six cases (23.8%) did not report any improvement. By physical medicine clinic, 11 (68.8%) patients reported improvements in their symptoms.

The diagnosis was considered correct if their symptoms improved. The kappa coefficients for gynecological, gastrointestinal, and musculoskeletal symptoms were estimated as 0.65, 0.78, and 0.77, respectively. Moreover, the accuracy of gynecological, gastrointestinal, and musculoskeletal symptom diagnoses was 0.82, 0.91, and 0.93, respectively.

Discussion

Chronic pelvic pain is a prevalent and crucial disorder that affect both men and women and can reduce health-related quality of life remarkably (12). It has been estimated that approximately 15% of women experience CPP at least for once throughout their life. CPP impose a great direct and indirect costs on the healthcare systems. Direct costs are attributed to dysfunctions of organ systems and indirect costs are absenteeism, productivity loss, and missed wages (13). Yearly direct costs were estimated to be about 2.8 billion dollars (14). The main aetiology of CPP in men is primarily chronic prostatitis (15), while a variety of etiologist in women have been identified so far. Of note, there is a chance that the reason behind CPP in women cannot be recognized (16). A number of pathologies related to urological, psychoneurological, gastrointestinal, and musculoskeletal systems were shown to be associated with CPP. In most cases, one of these pathologies is detected and treatments usually can cure them. More often the pain is associated with a number of pathologies and several etiologies should be taken into account, and in such cases, frequent treatment is not curative (17).

In the present study, we found that endometriosis was the most frequent diagnosis, followed by fibroma, ovary cyst, PID, UTI, and atrophic vaginitis. A cross-sectional

Table 3. Agreement between clinical findings and final diagnosis

Variable	Symptoms improved	Symptoms not improved	Kappa	Accuracy
	No. (%)	No. (%)		
Gynaecological suspicion	35 (76.1)	11 (23.9)	0.65	0.82
Gastrointestinal suspicion	16 (72.7)	6 (27.3)	0.78	0.91
Musculoskeletal suspicion	11 (68.8)	5 (31.3)	0.77	0.93

research among 656 women who were referred to a tertiary center of endometriosis and CPP in Canada demonstrated that 373 (57%), 350 (53%), and 281 of women were diagnosed with endometriosis, IBS, and painful bladder syndrome (PBS), respectively (18). Pelvic congestion is another major cause of CPP. In a previous study, Jurga-Karwacka et al found pelvic congestion in near 12% of patients suffering from CPP (19). A prospective cohort study demonstrated that 40%, 20%, and 18% of CPP patients had adhesions, pelvic congestion syndrome, and endometriosis, respectively, in the laparoscopic assessment (20). In the present study, the prevalence of endometriosis among CPP patients was slightly lower than other studies. The reason for this difference is that in those studies, the diagnostic method was laparoscopic, which is more accurate. However, this small difference indicates that the accuracy of this questionnaire in diagnose of gynaecological causes is acceptable.

In our study, 17% of patients presented with musculoskeletal symptoms and the accuracy of history and physical examination to diagnose musculoskeletal disorders was 93%. Mieritz et al performed a cross-sectional study to evaluate the prevalence of musculoskeletal disorders in 94 patients with CPP and found that over half of patients showed musculoskeletal symptoms in the lumbar/pelvic region (21). King et al examined the efficacy of physical therapy treatments in 132 patients women with CPP and the majority of patients experienced remarkable or complete improvements in their symptoms (22). A systematic review sought to study studies reporting association between CPP and musculoskeletal disorders. They failed to show the association between CPP and musculoskeletal disorders since validity and use of terms in the relevant studies were inconsistent (23). In the current study, multiple items of the assessment questionnaire were related to musculoskeletal disorders; therefore, we reached a high accuracy for the diagnosis of musculoskeletal disorders.

We found that approximately 30% of patients presented with gastrointestinal symptoms as the cause of CPP and the accuracy of questionnaire to diagnose GI causes was 91%. Tachawiwat et al reported that the prevalence of IBS in the mild-moderate and severe patients was about 20% and 19%, respectively. The prevalence of IBS in both groups was significantly higher relative to the control group; nevertheless, the prevalence of IBS was not significantly different between patients of mil-moderate and severe CPP patients (24).

In our study, only one patient was referred to a psychiatrist clinic. Siqueira-Campos et al designed a cross-sectional study to examine the prevalence of anxiety and depression among women with CPP. They found that 66%, 63%, and 54% of CPP women were suffering from anxiety, depression, and mixed anxiety and depressive disorder, respectively (25). In the study conducted by Siqueira-Campos et al, the prevalence of anxiety, depression and

mixed anxiety and depressive disorder was higher in women with CPP compared to the pain-free controls. Mixed anxiety and depressive disorder was present in 54% of the CPP group and in 28% of the controls (25). Therefore, it can be concluded that the assessment form in our study alone is not sufficient to screen for psychiatric disorders as a cause of CPP.

In the current study, none of the participants mentioned a history of sexual abuse and 8.6% and 2.8% of participants experienced physical violence in childhood and adulthood, respectively. In the study by Riedl et al, on 1480 individuals, the prevalence of physical violence was estimated at 38% in childhood and 16% in adulthood (26). Chiang et al found 67% physical violence in childhood, 33% sexual violence in childhood, in 566 Kenyan women (27). In our study, the information was gathered by the interviewer; however, Riedl et al collected the data from the patients' file information, which can explain the difference between the findings of these two studies since women are prone to the concealment of physical injuries (26). Additionally, the study by As-Sanie et al found that adolescent or adult sexual abuse was associated with greater pain-related disability among women with CPP (28). A history of physical abuse or sexual abuse appears to hold a stronger relationship with current depressive symptoms than the pain experienced by women with CPP (28).

In our study, we found the co-existence of gynecological, and gastrointestinal, and musculoskeletal symptoms. A systematic review of nine studies with 1016 CPP patients reported that the prevalence of endometriosis and PBS, and the co-existence of endometriosis and PBS was 70%, 61%, and 48%, respectively (29). Since our study had a limited number of patients, performing further studies with larger populations is merited.

Conclusion

The findings of the present study suggest that 1) the most prevalent diagnosis of women referred to CPP clinic is related to gynecological diseases, 2) gastrointestinal and musculoskeletal issues are prevalent among women with CPP, 3) physical examination findings and symptoms can be valuable tools for diagnosis of the aetiology of CPP and as a result, will improve patients' outcomes.

Limitations of the study

The study is limited by the small sample size, as it was conducted at a single center and had a relatively short 6-month follow-up period.

Authors' contribution

Conceptualization: Reihaneh Hosseini.

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Formal analysis: Mitra Alizadeh, Zahra Asgari.

Funding acquisition: Reihaneh Hosseini.

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Supervision: Reihaneh Hosseini.

Validation: Zahra Asgari.

Visualization: Mitra Alizadeh.

Writing—original draft: Mitra Alizadeh.

Writing—review & editing: Zahra Asgari.

Conflicts of interest

The authors declare that they have no competing interests.

Ethical issues

The research conducted in this study adhered to the principles outlined in the Declaration of Helsinki and was approved by the Ethics Committee of Tehran University of Medical Sciences (Ethical code # IR.TUMS.MEDICINE.REC.398.280). Prior to any intervention, all participants provided written informed consent. The study was extracted from Mitra Alizadeh thesis in the department of obstetrics and gynecology at this university (Thesis code#9611220018). The authors have fully complied with ethical issues, such as plagiarism, data fabrication, and double publication.

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