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ORIGINAL ARTICLE

Case Control Study

Chronic pelvic pain, psychiatric disorders and early emotional traumas: Results of a cross sectional case-control study

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Abstract

AIM

To compare the prevalence of psychiatric disorders and early emotional traumas between women with chronic pelvic pain (CPP) and healthy women.

METHODS

One hundred women in reproductive age, 50 of them had CPP (according to the criteria set by the International Association for Study of Pain), and 50 were considered healthy after the gynecological evaluation. The eligibility criteria were defined as follows: chronic or persistent pain perceived in the pelvis-related structures (digestive, urinary, genital, myofascial or neurological systems). Only women in reproductive age with acyclic pain for 6 mo, or more, were included in the present study. Menopause was the exclusion criterion. The participants were grouped according to age, school level and socio-economic status and were individually assessed through DSM-IV Structured Clinical Interview (SCID-I) and Early Trauma Inventory Self-report - short form (ETISR-SF Brazilian version). Descriptive statistics, group comparison tests and multivariate logistics regression were used in the data analysis.

RESULTS

The early emotional traumas are highly prevalent, but their prevalence did not differ between the two groups. The current Major Depressive Disorder was more prevalent in women with CPP. The CPP was associated

with endometriosis in 48% of the women. There was no difference in the prevalence of disorders when endometriosis was taken into account (endometriosis *vs* other diseases: $P > 0.29$). The current Major Depressive Disorder and the Bipolar Disorder had greater occurrence likelihood in the group of women with CPP (ODDS = 5.25 and 9.0).

CONCLUSION

The data reinforce the link between mood disorders and CPP. The preview evidences about the association between CPP and early traumas tended not to be significant after a stronger methodological control was implemented.

Key words: Pelvic pain; Psychiatric disorder; Early trauma; Emotional; Depression

Core tip: There is also evidence about the association between depressive and anxious symptoms and the presence of chronic pelvic pain (CPP). The weakest points in these data refer to the quality of the studies; as most of them are descriptive and assess symptoms, instead of confirming the disorder symptoms, which may affect the understanding of the link between conditions. The current study used "gold standard" psychiatric diagnostic instruments to assess the presence or absence of Axis I mental disorders. The results showed associations between mood disorders and CPP, but the association between CPP and early trauma tends not to be significant after increased methodological control.

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INTRODUCTION

The chronic pelvic pain (CPP) is a prevalent condition in women, mainly in those who are in reproductive age. The CPP occurrence is estimated in approximately 4%[1] but, in Brazil, it is close to 10%[2,3]. According to the International Association for Study of Pain (IASP), CPP is featured as a chronic or persistent pain in pelvis-related structures; it is often associated with negative emotional, sexual, behavioral and cognitive consequences, as well as with symptoms that suggest dysfunctions in such systems. Its symptoms include either cyclic or acyclic pain; however, it is not necessary to show the symptoms for more than six months if the patient presents evident signs of central sensitization. The central sensitization is an important event in patients with chronic pain. There are no pathognomonic clinically signals or symptoms. Nevertheless, primary or secondary hyperalgesia, dynamic tactile allodynia, the temporal summation of pain are some of them. When these conditions were presented, the chronicity can be considered before six months[4].

Factors related to the etiology and maintenance of CPP remain unclear. So far, it is known that CPP is a complex condition influenced by, or resulting from, the interaction between many systems, for instance: the gastrointestinal, urinary and genital ones; it is also associated with neurological and psychological aspects[5,6]. There are many studies pointing towards the role played by the emotional factors, mainly towards the presence of Early Emotional Traumas (EET)[7] and mental disorders[1,8-10] in the psychological aspects associated with CPP.

A meta-analysis conducted by Latthe *et al*[1] pinpointed that sexual and physical EETs increase in approximately 1.5-2.1 times the chances of developing CPP. However, these authors state that the associations between sexual abuse and CPP are more prevalent in low methodological quality studies; thus, it is worth being careful at the time to interpret the results. There are also evidences about the association between depression and anxiety symptoms, and CPP[11]. Nevertheless, one of the weakest points to these evidences is the quality of the studies, most of them are descriptive and just assess the symptoms rather than confirming the disorder. Thus, it may compromise the understanding about the link between different conditions.

The current study was based on the aforementioned panorama, which evidenced the lack of cross sectional case-control studies that use psychiatric "gold standard" diagnostic instruments to assess the presence or absence of axis I mental disorders, as well as the lack of studies focused on etiological factors associated with CPP.

Thus, the main aims of the current study are: (1) to assess the prevalence of psychiatric disorders and EETs in women with CPP; and (2) to verify the hypothesis that these disorders and traumas had greater occurrence likelihood in the group of women with CPP.

MATERIALS AND METHODS

The present research is a cross sectional study and its convenience sample was composed of 100 women in reproductive age, 50 of them had CPP (according to the criteria set by IASP), and 50 were considered healthy after the gynecological evaluation. The eligibility criteria were defined as follows: Chronic or persistent pain perceived in the pelvis-related structures (digestive, urinary, genital, myofascial or neurological systems). Only women in reproductive age with acyclic pain for six months, or more, were included in the present study. Menopause was the exclusion criterion. Women with CPP were recruited in the Chronic Pelvic Pain Center of a university hospital and the healthy women were

Table 1 Sociodemographic features of the samples according to the chronic pelvic pain and control groups

Variable		CPP (n = 50)		C (n = 50)		Statistics
		n	%	n	%	
Age	Mean (SD)	37.44 (8.12)		37.9 (8.72)		U = 1218.00
						P = 0.82
School level	Up to 8 yr	19	38	19	38	χ^2 = 0.45
	From 9 to 11 yr	26	52	26	52	P = 0.98
	Over 12 yr	5	10	5	10	
Marital status	Single/widow/divorced	15	30	24	48	χ^2 = 3.40
	Married/law marriage	35	70	26	52	P = 0.07
Number of kids	Mean (SD)	1.72 (1.67)		2.08 (1.61)		U = 1055.50
						P = 0.17
Professional status	Non-active	24	48	4	8	χ^2 = 19.84
	Active	26	52	46	92	P < 0.001[1]

[1]Statistically significant difference; CPP: Chronic pelvic pain group; C: Control group; U: Mann-Whitney test.

recruited among the employees and outpatients of the primary care center in the same institution. The participants were grouped according to age, school level and socio-economic status. The recruiting process took place in 2014.

The following instruments were used for data collection: (1) Structured Clinical Interview for DSM-IV - clinical version (SCID-I/CV): Which is used to diagnose different axis Ⅰ mental disorders, it was translated into Portuguese and validated by Del-Ben *et al*[12], its inter-appraiser reliability score was 0.83; (2) Early Trauma Inventory Self-report - short form (ETISR-SF): Which is a self-report instrument used to investigate traumatic experience history before the age of 18. It is composed of 27 items, divided in four dimensions (general trauma, physical abuse, emotional abuse and sexual abuse) and scored in dichotomous scale (Yes/No). The total score and the score of each sub-scale are given by summing the items. The larger the sum is, the larger the number of experienced traumatic events. The version translated into Portuguese and validated by Osório *et al*[13] was used. It presented internal consistency 0.83 and test-retest reliability 0.78-0.90; (3) Socio-demographic Questionnaire: which is composed of items linked to the socio-demographic features of the sample; and (4) Medical records: Were used to get clinical information associated with CPP.

The SCID-I-CV was applied in person, during individual sections, by an appraiser trained and experienced in using this instrument. Subsequently, the participants filled out the self-report instruments. The study was approved by the Local Ethics Committee (Process No. 11798/2012) and conducted according to the ethical principles of research involving human beings. We got the written consent from the participants.

Data were analyzed in the SSPS statistical software. The descriptive statistics (mean and standard deviation), and the χ^2 and Mann-Whitney tests were used to compare the groups. Cohen statistic was used to estimate the magnitude of the differences between groups. The parameters adopted for the interpretation of this parameter will be: < 0.20 = small, 0.2-0.8 = medium; > 0.80 = large[14].

The prediction analysis was performed through multivariate logistics regression (the backward method). The presence or absence of CPP was the endpoint. The independent variables (psychiatric disorders), whose P values were lower than 0.20 in the group comparison analysis, were included in the initial regression model and tested as possible predictors[15,16]. The $P < 0.05$ was adopted as significance value in all the analyses.

RESULTS

The socio-demographic feature is shown in Table 1, which shows differences in the professional status and higher percentage of inactive women in the CPP group. The list of diagnoses comprised endometriosis (n = 24), myofascial and neuralgia (n = 6), irritable bowel syndrome (n = 5); other diagnosis (adhesions, pelvic inflammatory disease, pelvic congestion syndrome, interstitial cystitis, n = 13); undetermined symptom (n = 2).

The prevalence of EETs is high (Table 2), but it did not differ between groups.

The specific analysis of each traumatic situation assessed through ETIS-SR also did not show statistic differences between the groups ($P > 0.11$).

There was significantly higher prevalence of current Major Depressive Disorder in women with CPP than in the healthy controls, in cases of Axis Ⅰ psychiatric disorders (Table 3).

There was the general trend of Mood Disorder prevalence in the CPP group. There was no statistical difference in the prevalence of different disorders when the clinical group and the causes were taken into account (endometriosis *vs* other diseases: $P > 0.29$).

The variables tested in the initial model ($P > 0.20$) of the multivariate regression analysis were: Major Depressive Disorder, Bipolar Disorder, Panic Disorder, Hypochondria and Anorexia. However, the model appeared to be inappropriate. New models were tested, and

Table 2 Scores of the early trauma inventory - short form - and their sub-scales according to the chronic pelvic pain and control groups

Type of early trauma		CPP (n = 50)	C (n = 50)	Statistics	Effect Size
General traumas	Mean[1]	2.56	2.16	U = 1159.00	0.20
	(SD)	(2.26)	(1.81)	P = 0.52	
	% Yes[2]	84	82		
Physical punishment	Mean	2.04	1.51	U = 1011.00	0.36
	(SD)	(1.66)	(1.28)	P = 0.12	
	% Yes	72	70		
Emotional abuse	Mean	2	1.92	U = 1204.00	0.04
	(SD)	(1.93)	(1.87)	P = 0.88	
	% Yes	64	68		
Sexual events	Mean	1.14	0.98	U = 1169.00	0.11
	(SD)	(1.5)	(1.36)	P = 0.54	
	% Yes	50	42		
Total	Mean	7.8	6.54	U = 1091.50	0.24
	(SD)	(5.84)	(4.5)	P = 0.44	
	% Sim	94	98		

[1]Mean of traumatic situation sexperienced in each category; [2]Percentage of subjects with at least one type of trauma within the category. CPP: Chronic pelvic pain group; C: Control group; U: Mann-Whitney test.

Table 3 The prevalence of different Axis I Psychiatric disorders according to the chronic pelvic pain and control groups

Psychiatric disorders[1]		CPP (n = 50)		C (n = 50)		Statistics
		n	%	n	%	
Mood	Current major depressive	14	28	4	8	P < 0.011
	Bipolar disorder	6	12	1	2	P = 0.11
	Dysthymia	1	2	--	--	P = 1.00
	Any mood disorder	24	48	15	30	P = 0.06
Use substances	Abuse/dependence Substance	10	20	12	24	P = 0.63
anxiety	Panic	8	16	3	6	P = 0.11
	Obsessive-compulsive	12	24	9	18	P = 0.46
	Post-traumatic stress	3	6	2	4	P = 0.65
	Social anxiety	10	20	6	12	P = 0.28
	Specific phobies	12	24	11	22	P = 0.81
	Any anxiety disorder	27	34	26	52	P = 0.84
Somatoforms	Somatization	7	14	5	10	P = 0.54
	Hypochondria	4	8	1	2	P = 0.17
Eating disorders	Anorexia	4	8	--	--	P = 0.12
	Bulimia	5	10	5	10	P = 1.00

[1]According to the DSM-IV criteria. CPP: Chronic pelvic pain group; C: Control group.

the variables with lower statistical significance level were individually suppressed, until the final model presented in Table 4 was reached.

This table shows that the current Major Depressive Disorder and the Bipolar Disorder emerged with higher occurrence likelihood in women with CPP. Thus, women with current Major Depressive Disorder and Bipolar Disorder have 5.25 and 9.0 more chances of having CPP than women without the referred disorders, respectively.

DISCUSSION

The main results in the current study pointed out significant differences in the prevalence of current Major Depressive Episodes between women with and without CPP. The recent review conducted by Carvalho *et al*[11] highlighted the link between depressive symptomatology and CPP. However, the present study advanced in the knowledge about this association since it used the gold standard diagnostic interview and a control group paired by age, school level and economic status to assess the presence of depressive disorders. Thus, based on the current results, it is possible stating that the depressive disorder is more prevalent in women with CPP, as well as that the occurrence rate in this group is about five times higher than that in the group of women without CPP (OR = 5.25).

Such finding may be associated with the presence of comorbid conditions often found in depressive states such as pain experience and somatization[17]. On the other hand, it is worth highlighting that most of the studies related to such association point towards a two-way relation between these two conditions. The pain and the limitations linked to these conditions may favor

Table 4 Final logistics regression model showing chronic pelvic pain as endpoint variable

Disorder		OR	95%CI	*P* value
Current depressive episode	No	1[1]	(1.57-17.49)	0.007
	Yes	5.25		
Bipolar disorder	No	1[1]	(1.03-18.57)	0.047
	Yes	9		

[1]The reference variable. OR: Odds ratio; *P* value: Significance level.

the depressive symptoms and disorders[18-20]. Hence, by taking the current findings into consideration, as well as the design of the present study, it is more reasonable to state that the presence of current Major Depressive Episodes is an independent factor associated with CPP.

However, when it comes to the association with Bipolar Disorder, it was observed that such disorder also are more likely to occur in the group of women with CPP, although the analysis between groups did not show statistical significance. Prevalence differences were also not observed in the analyses that have considered the presence or absence of endometriosis. Such finding is interesting because the previously conducted studies disagree on the presence of such association, mainly when the presence of endometriosis, as etiologic risk factor, is taken into account. Kumar *et al*[21] compared 27 women who had endometriosis and other 12 endometriosis-free women with CPP, and found that 45% of the women in the first group presented Bipolar Disorder, whereas no woman in the CPP group presented such condition. Before that, Lewis *et al*[22] had assessed 16 women with endometriosis in an observational study and found that 75% of them presented mood disorder, mainly the affective Bipolar disorder (n = 10). On the other hand, just as in the current study, Walker *et al*[23] assessed women with and without endometriosis and found different prevalence of Bipolar disorder.

According to the aforementioned authors, the reason for such association among CPP, endometriosis and Bipolar Disorder remains unknown due to lack of studies on the topic. However, they stand for the hypothesis that the gonadotropin-releasing hormone agonist (GnRH) used to treat endometriosis may also favor emotional instability and other affective disorder conditions in the group of women with CPP and endometriosis; thus it may favor the development of such disorder[22]. Due to such contradictory findings, the methodologically refined studies and those that consider the possible association between medication and affective symptoms, mainly regarding the Bipolar disorder, are timely. These studies may help minimizing the impacts of these disorders and favor the correct approach and treatment applied to different conditions in order to diminish comorbidity risks.

Hence, we may conclude that the current study helped overcoming some of the methodological gaps found in previous studies on this topic and was an attempt to better elucidate the link between CPP and psychosocial conditions. The present study evidenced the association between CPP and mood disorders that need deeper investigation, mainly with regard to their specificities. On the other hand, it reinforced the items highlighted in the meta-analysis conducted by Latthe *et al*[1], who found that the association between CPP and EET tend to be insignificant if strict methodological control is taken.

COMMENTS

Background

The chronic pelvic pain (CPP) is a prevalent condition in women, mainly in those who are in reproductive age. CPP is featured as a chronic or persistent pain in pelvis-related structures; it is often associated with negative emotional, sexual, behavioral and cognitive consequences, as well as with symptoms that suggest dysfunctions in such systems. Factors related to the etiology and maintenance of CPP remain unclear. There are many studies pointing towards the role played by the emotional factors, mainly towards the presence of early emotional traumas and mental disorders in the psychological aspects associated with CPP. There is evidence about the association between depressive and anxious symptoms and the presence of CPP.

Research frontiers

The weakest points in these data refer to the quality of the studies; as most of them are descriptive and assess symptoms, instead of confirming the disorder symptoms, which may affect the understanding of the link between conditions.

Innovations and breakthroughs

The data reinforce the link between mood disorders and CPP. The knowledge about this link is improved by the use of the "gold standard" diagnostic interview and of the group control paired according to the socio-demographic variables.

Applications

Hence, they may conclude that the current study helped overcoming some of the methodological gaps found in previous studies on this topic and was an attempt to better elucidate the link between CPP and psychosocial conditions.

Peer-review

The authors did a very well designed and analyzed study about the presence of chronic pelvic pain and affective disorders. It could be better if the authors take one position or other and explain their reasons clearly in the conclusion section.

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