ISSN: 2684-1320
Journal of Pain Management & Medicine

OPEN ACCESS Freely available online

Research Article

Chronic Pelvic Pain Interventions in Women of Reproductive Age: A Systematic Review

Jose Gerardo Garza-Leal[1*], Francisco J. Sosa-Bravo[1], José G. Garza-Marichalar[2], Lorena Castillo-Sáenz[1], Carolina Quintanilla Sánchez[3], Linda I. Gonzalez Sariñana[3], César A. Ramos-Delgado[3]

[1]Department of Gynecology and Obstetrics, University Dr. José E. González, Autonomous University of Nuevo Leon, Monterrey, Nuevo Leon, Mexico; [2]Department of Psychiatry, University Hospital Dr. José E. González, Autonomous University of Nuevo Leon Monterrey, Nuevo Leon, Mexico;[3]INVEST Medicine Platform, UANL-KER Unit Mayo Clinic (KER Unit Mexico), Autonomous University of Nuevo Leon, Regional Center for Health Information and Documentation Dr. Alfredo Piñeyro López, Monterrey, Nuevo Leon, Mexico

ABSTRACT

Objective: This systematic review and meta-analysis were conducted to summarize and synthesize available evidence on the management and interventions for chronic pelvic pain in women.

Data sources: Systematic reviews that included Randomized Controlled Trials (RCT) or Non-Randomized Studies of Intervention (NRSI) were selected from the Cochrane Database of Systematic Reviews, MEDLINE, Embase, Scopus, and Web of Science from inception to March 2020.

Study eligibility criteria: Systematic reviews of RCT and NRSI were selected to assess the efficacy and quality of evidence of all possible treatments improving pain and quality of pain in women of reproductive age with chronic pelvic pain lasting six months. The studies measured pain by any scale. We focused on publications that included women of reproductive age with chronic pelvic pain lasting 6 or more months.

Study appraisal and synthesis methods: Treatments were divided into four categories: pharmacological, psychological, surgical, and other treatments that included acupuncture and magnet therapy. All interventions and comparators were assessed.

Results: Twelve studies were included. Progestogen was the pharmacological treatment that yielded the best results. Psychological interventions showed improvement with patients who received ultrasound and reassurance compared with other interventions. Surgical interventions needed to focus on nerve-sparing techniques since other interventions (particularly endometriosis) could benefit but had many adverse effects. Finally, acupuncture and magnet therapy did not have a broad evidence base.

Conclusion: This paper is an overview of treatment evidence. Chronic pelvic pain can be managed with surgical, pharmacological, psychological, and other (acupuncture and magnet therapy) interventions. However, efficacy is limited due to the lack of evidence and homogenous studies. Treatment should always be multidisciplinary and individualized, depending on the specific chronic pelvic pain phenotype. Primary and secondary studies should be conducted to find better options and broaden the scope of multidisciplinary treatment.

Keywords: Chronic pelvic pain; Treatment; Pain management; Progestogen; Acupuncture

INTRODUCTION

Chronic Pelvic Pain (CPP) is a non-malignant constant or recurrent pain in pelvic structures for at least six months [1]. It is a common problem in women of all ages. Recent studies have reported a prevalence of 2.1%-24% worldwide [2]. In the absence of an etiology, expert opinion considers CPP a complex neuromuscular-psychosocial disorder involving the reproductive, urologic, and gastrointestinal systems. It is a disabling condition in women with a major impact on health-related quality of life, work productivity,

Correspondence to: Jose Gerardo Garza-Leal, Department of Gynecology and Obstetrics, University Dr. José E. González, Autonomous University of Nuevo Leon, Monterrey, Nuevo Leon, Mexico, Tel: +52 8182873829; E-mail: drjoseggarza@prodigy.net.mx.

Received: 03-May-2022, Manuscript No. JPMME-22-16461; **Editor assigned:** 09-May-2022, PreQC No JPMME-22-16461 (PQ); **Reviewed:** 23-May-2022, QC No JPMME-22-16461; **Revised:** 30-May-2022, Manuscript No. JPMME-22-16461 (R); **Published:** 06-Jun-2022, DOI: 10.35248/2684-1320.22.8.171.

Citation: Garza-Leal JG, Sosa-Bravo FJ, Garza-Marichalar JG, Castillo-Saenz L, Quintanilla Sánchez C, Gonzalez Sariñana LI et al. (2022) Chronic Pelvic Pain Interventions in Women of Reproductive Age: A Systematic Review. J Pain Manage Med. 8:171.

and health care. CPP is a global public health crisis with an exponential economic burden [2,3].

CPP is commonly associated with several gynecological and non-gynecological comorbidities such as endometriosis, previous miscarriages, and a history of sexual abuse [4]. Women of reproductive age have a greater risk of these conditions; therefore, they experience CPP. CPP may translate into reproductive problems, deprived working availability, and social withdrawal, translating into poor quality of life [5].

Empirical treatment or treatment based on experience and observation is the basis of decision-making for CPP. Evidence-based therapy remains limited. The multiple causes or etiologies of the disease require a holistic approach, addressing physical, behavioral, psychological, and sexual components [6]. CPP is the most common reason for referral to gynecology clinics, accounting for 20% of outpatient appointments. There is a wide variation in the clinical evaluation of women with CPP. Most women receive a diagnostic laparoscopy at the start, leaving psychosocial factors related to pain aside, magnifying the cost of care, and increasing the risk of harm [4].

The treatment goal is to reduce symptoms and improve quality of life. Treatment should be individualized, and patient centered. Basic data and knowledge regarding CPP, and its treatment remain incomplete. Multiple systematic reviews exist regarding different interventions such as pharmacological treatments, neuromodulation, acupuncture, psychotherapy, dietary interventions and physiotherapy [7-12]. There is no comprehensive review that examines and analyzes all available treatments.

We conducted an overview of systematic reviews and meta-analyses to summarize and synthesize the available evidence to assess the management and intervention of this prevalent disease in women.

MATERIALS AND METHODS

A protocol was drafted before the study search or selection. This review was recorded in the International Prospective Register of Systematic Reviews (PROSPERO) [13] with registration number CRD42020168691. It was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) [14].

Inclusion and exclusion criteria

Systematic reviews that included Randomized Controlled Trials (RCT) or Non-Randomized Studies of Intervention (NRSI) with 10 or more participants, comparing the efficacy of treatments in improving pain and quality of pain, were selected to assess the efficacy and quality of evidence of all treatments. We focused on publications that included reproductive-age women with chronic pelvic pain lasting six months or more. Duplicated studies and those with a different design, without efficacy measures, with male population, did not evaluate chronic pelvic pain, or were not available were excluded. All interventions and comparators were assessed, and the study had to measure pain by any scale.

All CPP studies were included, regardless of any phenotype or cause. A study that included men and women was also eligible for inclusion, but a study that failed to specify its type of population was not.

Search strategy

The search strategy was designed by an expert based on input from the main author. No study design, date, or language limits were imposed. However, only studies in languages different from English or Spanish that could be correctly translated with Google translator were included due to resource limits. This strategy was adapted to several databases to comprehensively search for relevant articles from inception to March 2020. The databases were Cochrane Database of Systematic Reviews, MEDLINE, Embase, Scopus, and Web of Science. Controlled vocabulary and keywords were used to identify eligible studies. We also searched the PROSPERO registry for ongoing or completed systematic reviews.

Study selection

The study selection process was divided into two screening levels. The chance-adjusted interrater reliability (Kappa index) was assessed at each screening level. In level 1 screening, the authors screened, independently and in duplicate, the titles and abstracts of the studies and selected those eligible based on the inclusion criteria to assure sensitivity. The studies with discordant decisions from the reviewers passed to level 2. In level 2 screening, the authors performed a similar strategy comparing full-text articles from the prior screening with the inclusion and exclusion criteria. Disagreements at this level were resolved by consensus. If an agreement was not reached, a third reviewer decided to include or exclude the article; finally, the reasons for exclusion of each study at this stage were duplicated studies, those with a different design, without efficacy measures, with male population, did not evaluate chronic pelvic pain, or not available (Figure 1).

Outcomes and data extraction

Data extraction was performed in duplicate. Disagreements were resolved by a third reviewer who confirmed the information with the full text. The data extracted from the studies were the definition of chronic pelvic pain, the CPP phenotype, pain scores, quality of life scores, activity scores, adverse events, scales used to assess pain and quality of life, interventions, and comorbidities.

The primary outcome extracted from the studies was pain measured by any instrument (the McGill Present Pain Index, the Visual Analog Scale, and the Visual Analog Scale Modified). Secondary outcomes, such as quality of life and activity, were considered for extraction, as these endpoints may reflect the severity of this condition in the daily life of women.

Quality of evidence assessment

Two researchers working independently and in duplicate used the AMSTAR-2 [15] tool to assess systematic review and meta-analysis quality. The reviewers also evaluated the overall quality of evidence for each outcome using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE). Disagreements were resolved by consensus, if not possible, by a third reviewer.

RESULTS

Total included results

A total of 826 records were retrieved after removing duplicates. Title and abstract screening identified 109 articles. Full-text article

analysis 12 trials from which 44 studies enrolling about 5515 participants met the inclusion criteria (Figure 1). The summary of the included studies is presented in Table 1 [10,16-25]. Full-text screening interobserver agreements were substantial (k=for each pair of reviewers). Overall, 3 (25%) studies had a low risk of bias, 2 (16.7%) had a critically low risk, and 7 (58.3%) had moderate risk. Altogether, the confidence in the body of evidence was graded as low. We did not assess the risk of publication bias through the funnel plot because of the high study heterogeneity.

Study characteristics

Six systematic reviews and 6 meta-analyses were identified; 5 were randomized clinical trials, 2 non-randomized clinical trials, and 5 were both. The included study population comprised women diagnosed with CPP of different etiologies such as pelvic congestion syndrome, endometriosis, and adenomyosis, treated with various procedures. Treatment interventions comprised surgical 3 (25%) (pelvic nerve ablation through laparoscopy and open surgery), pharmacological 3 (25%) (aromatase inhibitor, gonadotropin release hormone agonist and combined oral contraceptives), acupuncture 3 (25%), psychological 2 (16.7%) (Mesendieck somatocognitive therapy, writing therapy, and psychotherapy), coil embolization 2 (16.7%), and intravaginal electrical stimulation (IVES) 1 (8.3%).

Narrative synthesis

Pharmacological intervention: Cheong et al. reported that progestogen (MPA) was effective at the end of treatment, as denoted by the rate of women achieving a >50% reduction in the VAS pain score (Peto OR 3.00, 95% CI 1.70 to 5.31, two studies, n=204, I2=22%) [16]. The evidence of benefit was maintained up to nine months after treatment (Peto OR 2.09, 95% CI 1.18 to 3.71, two studies, n=204, I2=0%). Farquhar et al. reported a higher risk of weight gain and bloating in the medroxyprogesterone acetate (MPA) group than in the placebo group (weight gain 7.82, 95% CI 3.28 to 18.65, n=85) [26].

Psychological intervention: At four to nine months of follow-up, women with ultrasound reassurance and counseling were more likely to improve in pain than those given a 'wait and see' policy (Peto OR 6.77, 95% CI 2.83 to 16.19, n=90). Improvement in pain (≥ 50% reduction in VAS score) did not significantly differ between women who underwent somatocognitive therapy and those who underwent standard gynecological treatment (Peto OR 3.38, 95% CI 0.97 to 11.80, n=40) [27]. Mood at the end of two months (measured on the negative affect scale of the Positive and Negative Affect Scale (PANAS)) did not differ significantly between women undergoing writing therapy (disclosure of pain) and controls (non-disclosure) (MD -0.02, 95% CI -0.43 to 0.39, n=48) [28].

Surgical intervention: For Lichten et al. (Table 2), Laparoscopic Uterine Nerve Ablation (LUNA) produced a significant difference in pain relief by VAS for up to 6 months of follow-up (odds ratio, OR=15.5; 95% CI, 2.9-82.7) [29]. Pain relief assessed at 12 months also showed a significant difference between the groups (OR=10.9; 95% CI, 1.5-77.4). LUNA is effective for pain relief in primary dysmenorrhea in the short term, but its effectiveness may decline over time [30-65]. Candiani et al. clarified that a Presacral Neurectomy (PSN) might be more effective than LUNA (OR=0.13; 95% CI, 0.05-0.35) since transection of the superior hypogastric nerve plexus would ablate a higher proportion of relevant afferent nerves [31]. Nevertheless, there is a high incidence of adverse effects (OR=0.02; 95% CI, 0.01-1.06), mainly constipation.

Johnson et al. agreed there is insufficient evidence to recommend using PSN in CPP management, regardless of cause. On the other hand, LUNA has been replaced with new surgical techniques [17].

Other interventions (acupuncture, magnets, etc.): No benefit was found in women receiving active magnets who completed four weeks of double-blind treatment compared with those having placebo magnets in terms of the Pelvic Pain Index (MD 0.50, 95% CI -1.92 to 0.92, one study, n=19) [51].

Ultimately, we concluded that despite many interventions for treating chronic pelvic pain, there is insufficient data to explain the most effective. Nevertheless, the possibility of combining treatments in one patient through shared decision-making might provide the desired effect.

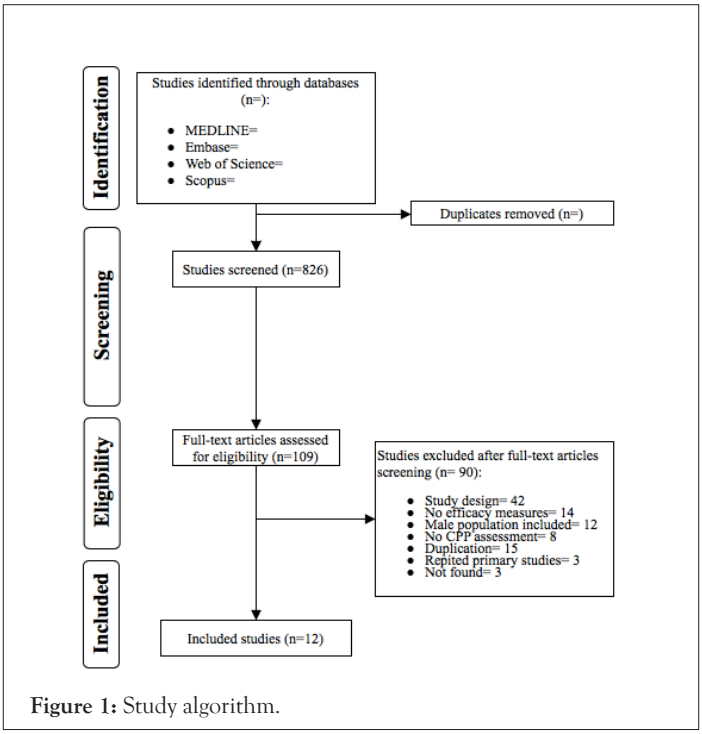

Figure 1: Study algorithm.

Table 1: Characteristics of studies included in the overview.

Authors	Study Design	Population, n	Sample characteristics	Treatment		Outcome instruments
				Intervention	Comparator	
Johnson, et al. [17]	RCT	328	Women with primary dysmenorrhea, endometriosis, and pelvic pain	Surgical: pelvic nerve ablation through laparoscopy and open surgery	None	VAS
Loving et al. [18]	RCT and NRSI (60)	53	Females with CPP diagnosed	Physiotherapeutic interventions	Surgery, Placebo intervention, physiotherapeutic intervention, manual trigger point therapy or global therapeutic massage, or standard gynecological treatment	VAS, PDI, McGill
Cheong et al. [16]	RCT	750	Women with CPP and pelvic congestion syndrome or adhesions	Medical interventions; psychological interventions; physical treatments; alternative treatments.	-	VAS
Hansrani et al. [19]	RCT, quasi-control trials, cohort studies, and case–control studies	866	Women with CPP and pelvic congestion syndrome	Bilateral ovarian vein glue/coil embolization	No treatment; placebo; sham treatments	VAS
Champaneria, et al. [10]	RCT and NRSI (4.5)	1307	Women with a clinical diagnosis of PCS or radiological diagnosis of PVI	coil embolization or sclerotherapy of pelvic veins	Not specified	VAS, 5-point ordinal scale, and clinical examination
Pundir et al. [20]	RCT	335	Women with endometriosis and CPP	Laparoscopic surgery	Ablation	VAS
Indraccolo, et al. [21]	RCT and NRSI (50)	82	Women with endometriosis and endometriosis-related pain	Micronized palmitoylethanolamide/ trans-polydatin	Placebo; celecoxib; leuprorelin; ethinyl-estradiol- drospirenone pill.	VAS
Sung et al. [9]	RCT	272	Unknown	Acupuncture	inferior hypogastric plexus blockade	VAS, NRS TER for chronic pelvic pain
Benetti-Pinto, et al. [22]	RCT and NRSI (80)	267	Women with a diagnosis of adenomyosis	Aromatase inhibitor (letrozole); Gonadotropin-releasing Hormone Agonist (GnRH Analog: Goserelin or Triptorelin Acetate); dienogest; Combined oral contraceptives.	Hysterectomy; GnRH analog; Combined oral contraceptives; triptorelin acetate; placebo.	VAS
Mahran et al. [23]	Non-randomized Clinical Trials	403	Patients who had sacral neuromodulation implantation for any cause of CPP	Sacral neuromodulation	None	VAS
Daniels, et al. [24]	RCT	862	women of reproductive age with CPP, primary or secondary dysmenorrhoea	LUNA	diagnostic laparoscopy	VAS
Yunker et al. [25]	RCT and NRSI (33)	not reported	women (Q18 years) with noncyclic or mixed cyclic/noncyclic CPP undergoing surgical or nonsurgical treatment	Medical therapy, physical therapy psychotherapy	Surgical therapy	VAS

Note: RCT: Randomized Controlled Trial; NRSI: Non-Randomized Studies of Intervention; CPP: Chronic Pelvic Pain; VAS: Visual Analog Scale; McGill: McGill Present Pain Index; PDI: Pain Disability Index; NRS: Numeric Rating Scale; TER: Total Effectiveness Rate.

Table 2: Study interventions included in the overview.

Reference	Study design	Intervention	Comparator	Results		Effect size favors	
				Outcomes, follow-up	Key Results	Intervention	Comparator
				Surgical (17)			
Lichten EM, et al. [29]	RCT	LUNA	Diagnostic laparoscopy	Outcomes post OP, 3 and 12 months;5-point pain scale	OR 15.5 CI (2.9-82.7)	Yes	No
Chen FP, et al. [30]	RCT	LUNA	LPSN	Outcomes post OP, 3 and 12 months, 5-point scale, converted by authors into percentage pain relief, then into success=50-100%, or failure=0-50%	OR 0.67 CI (0.18-2.6)	No	Yes
Candiani GB, et al. [31]	RCT	PSN at laparoscopy+CS	CS at laparotomy	12-month follow-up;10-point VAS	OR 1.59 CI (0.15-4.9)	Yes	No
Dover RW, et al. [41]	RCT	LUNA+laser vaporization of endometriosis	None	6-month follow-up; 10 cm VAS	FM 4.8 IGR (1-9)	No	Yes
Vercellini P, et al. [33]	RCT	LUNA+CS	None	9-month follow-up; 10 mm VAS	FM -37 IQR (5-61); Initial IQR (67-85)	No	Yes
Barton-Smith P [34]	RCT	LS Endosrugery LCS-C5	Ablation	12-month follow-up;10-point VAS	MD 3.67	Yes	No
Healey M, et al. [35]	RCT	LS	Ablation	12-month follow-up;10-point VAS	MD 1.1	Yes	Yes
Maher CF, et al. [36]	Prospective	SNST in S3 unilateral	None	VAS pain score	MD -5.26	No	No
Aboseif S, et al. [37]	Prospective	SNST in S3 unilateral	None	VAS pain score	MD -1.4	No	No
Whitmore KE, et al. [38]	Prospective	SNST in S3 unilateral	None	VAS pain score	MD -0.52	No	No
Ghazwani YQ, et al. [39]	Retrospective	SNST in S3 unilateral	None	VAS pain score	MD -2	No	No
Sokal P, et al. [40]	Prospective	SNST in S3 unilateral	None	VAS pain score	MD -4.66	No	No
Sutton C, et al. [41]	RCT	LUNA with LS or ablation	LS or ablation	6-month follow-up;10-point VAS	LUNA MD: 2.23; No LUNA MD: 3.37	No	Yes
Johnson NP, et al. [17]	RCT	LUNA with LS or ablation	LS	6-month follow-up;10-point VAS	LUNA MD: 2.26; No LUNA MD: 2.46	No	Yes
Daniels JP, et al. [24]	RCT	LUNA with LS or ablation	LS	12-month follow-up;10-point VAS	LUNA MD: 2.63; No LUNA MD: 2.45	Yes	No
Palomba S, et al. [42]	RCT	LUNA	Vaginal uterosacral ligament resection	12-month follow-up;10-point VAS	RR, 0.9; 95% CI=0.78Y-0.33	No	Yes

Pharmacological (8)							
Walton SM, et al. [43]	RCT	IofeYesidine hydrochloride	Placebo	-	OR 2.1 CI (0.9-4.87)	Yes	No
Lamvu G, et al. [44]	Prospective cohort study	Medical Intervention	None	13 weeks; VAS	OR, 0.9; 95% CI, 0.5-1.5	Yes	No
Indraccolo U, et al. [45]	Small series	PEA/PO 400 mg/40 mg	None	-	MD 5.7 CI (2.8-8.4)	No	No
Giugliano E, et al. [46]	Two-arm, prospective, observational study	PEA/PO 400 mg/40 mg	None	Twice a day for three months	MD 3.5 CI (2.5-4.5)	No	No
Cobellis L, et al. [47]	Three-arm, randomized, double-blind, clinical trial	PEA/PO 400 mg/40 mg	celecoxib	Twice a day for three months	MD 5.5 CI (4.5-6)	Yes	No
Di Francesco A, et al. [48]	Three-arm, randomized, open-label, clinical trial	PEA/PO 400 mg/40 mg	GnRH agonist	Twice a day for six months	MD 1.9 CI (-1-4.3)	No	No
Fawzy M, et al. [49]	Prospective non-randomized clinical trial	dienogest 2 mg/day	Triptorelin acetate injection	16 weeks; VAS	MD 8.83	No	Yes
Osuga Y, et al. [50]	RCT phase III	dienogest 2 mg/day	placebo	16 weeks; VAS	MD -26.5	Yes	No
Acupuncture (5)							
Brown CS, et al. [51]	RCT	Magnetic therapy	Placebo magnet	2-4 weeks; Pelvic Pain Index	OR 0.5 CI (1.92-0.92)	Yes	No
Amin MM, et al. [52]	RCT	Electro-acupuncture	Interior hypogastric plexus	6 weeks; VAS	MD 1.53	Yes	No
Xiao HQ [53]	RCT	TET+Auricular acupunture	Cefuroxime axetil	8 weeks; TER for chronic pelvic pain	MD 1.53	No	Yes
Liu R, et al. [54]	RCT	Warn acupuncture including moxibustion+conventional therapy cefuroxime axetil	Cefuroxime axetil	7 days; TER for chronic pelvic pain	MD 1.47	Yes	No
Li ZS [55]	RCT	Warm acupuncture+conventional therapy	CT	10 days NRS	MD 1.47	Yes	No

Psychological (6)							
Haugstad GK, et al. [27]	RCT	STGT and Mesendieck somatocognitive therapy	STGT	11 weeks; >50% reduction in VAS pain score	BM -3.27 SD -4.53 -2.01; OR 3.38 (CI, 0.97-11.8)	Yes	No
Albert H [5]	Case series	Physical psychosomatic, behavioral	None	15 weeks; VAS	BM -2 SD -2.57 -1.43	-	No
Ghaly AF [56]	RCT	Ultrasound scan and counseling session versus	Placebo	>50% reduction in VAS pain score	OR 6.77 CI (2.83-16.19)	Yes	No
Norman SA, et al. [28]	RCT	Writing therapy	Non-Disclosure	>50% reduction in VAS pain score	OR 4.47 CI (1.41- 14.13)	Yes	No
Farquhar CM, et al. [26]	RCT	Psychotherapy	Placebo	>50% reduction in VAS pain score	OR 0.79 CI (0.24-2.59)	No	Yes
Others (9)							
de Oliveira Bernardes N, et al. [57]	Case series	IVES	None	7 m; VAS	BM -6.2 SD-7.31	No	No
de Bernardes NO, et al. [58]	RCT	IVES	Placebo	10 weeks; VAS	RR 1.59 (.89-2.82)	Yes	No
Oyama IA, et al. [59]	Case series	Modified Thiele massage	None	14 weeks; VAS	BM -2.8	No	No
Chung MH, et al. [60]	Quasi-randomized trial	Coil embolization	hysterectomy + unilateral oophorectomy	12 m; VAS	MD -4.6	Yes	No
Richardson GD, et al. [61]	-	Coil embolization of ovarian vein with foam	None	not specified	MD 1.9	No	No
Gandini R, et al. [62]	Described as retrospective but included all patients at three defined	Bilateral ovarian vein foam sclerotherapy (3% STSF)	None	-	MD 1.8	No	No
Tropeano G, et al. [63]	Prospective observational study	Sclerotherapy of the ovarian vein (15% bilateral)	None	12m; VAS	FM 17, IQR 85	No	No
Peters AA, et al. [64]	RCT	Integrated approach	Standard Care	>50% reduction in VAS pain score	OR 1.52 CI (0.71-3.27)	Yes	No
Heyman J, et al. [65]	RCT	Pelvic floor physical therapy	Counseling	2-4 weeks; VAS	OR, 18.37; 95% CI, 3.39-99.64	Yes	No

Note: IVES*: Intravaginal Electrical Stimulation; STGT*: Standard Gynecological Treatment; LUNA: Laparoscopic Uterine Nerve Ablation; PEA: micronized Palmitoylethanolamide-Polydatin; LPSN: Laparoscopic Presacral Neurectomy; CS: Conservative Surgery; LS: laparoscopic Surgery; SNST: Sacral Nerve Stimulation Technique; CT: Conventional Therapy; TET: Thread Embedding Therapy; VAS: Visual Analog Scale; PDI: Pain Disability Index; MPQ: McGill Pain Questionnaire; NRS: Numeric Rating Scale; TER: Total Effectiveness Rate; BM: Baseline Mean; MD: Mean Difference; FM: Final Median.

DISCUSSION

Pharmacological interventions

Over time, various drugs have been administered for the management of chronic pelvic pain. One situation that makes management more difficult is the multiple causes simultaneously present in a single patient. On other occasions, it is not possible to determine a specific etiology [66].

The pharmacological and non-pharmacological management of this pathology is a challenge. In the review study we conducted, we found that existing clinical trials and other studies regarding medical treatments had low or moderate evidence. Thus, it is still a challenge to find the most appropriate treatment for these patients.

Analgesics (opioids and non-opioids), neuromodulators, hormones (in all their variants), and antidepressants were among the therapeutic options. Sometimes a combination of 2 or more drugs from a different group alleviated symptoms; however, a greater benefit was not shown [16].

In recent years, neuromodulators such as gabapentin have been used to manage chronic pelvic pain due to the neural pathophysiology seen [67].

Among hormonal drugs, medroxyprogesterone, GnRh analogs, and progestogens, such as dienogest, have shown the greatest usefulness in managing this pathology without a significant statistical difference. Progestogens have presented a better response with fewer adverse effects in treating pain with significant results. Likewise, studies have been carried out with other types of interventions, from alternative therapies such as magnets, acupuncture, electrostimulation, and special diets to selective embolization in the case of pelvic congestion. However, at present, none have shown a real benefit that applies to all patients [16, 66,67].

Pharmacological and non-pharmacological treatment must be individualized for each patient. The fact that there are so many etiological possibilities of chronic pelvic pain poses a challenge in developing research studies that allow finding the best management of chronic pelvic pain as a disease and not as a symptom.

Psychological interventions

All psychosocial interventions have a potential role in treating any type of chronic pain, including chronic pelvic pain [68] The affective component of pain has been extensively studied and is an essential component of how pain is felt and experienced [69]. Some of the benefits could be the improvement of mood, which sometimes is sustained in follow-up [70]. Some of the psychosocial interventions that have been studied include cognitive behavioral therapy, interpersonal therapy, and mindfulness. The evidence of these interventions is scarce and limited, particularly since no studies are done for psychosocial interventions in low or middle-income countries [68].

This umbrella review identified six primary studies that assessed psychosocial interventions from counseling during routine care to more specific interventions such as somatocognitive therapy.

The evidence of these studies suggests that counseling and ultrasound reassurance were more likely to improve pain. Somatocognitive therapy, a hybrid between physiotherapy and psychotherapy [71], did not yield improved pain compared to standard gynecological care, even though it has been developed as a technique specifically used for chronic pelvic pain. Finally, writing therapy was not associated with mood improvement in CPP patients.

It is noteworthy that even though most contemporary literature suggests a correlation between chronic pelvic pain and sexual abuse [4], psychosocial interventions specific for these patients were not found in these studies. These interventions include but are not limited to trauma-informed care, psychodynamically oriented therapy, or interpersonal therapy, which have been studied for depression associated with chronic pelvic pain [72] but not specifically for chronic pelvic pain and sexual abuse.

There is a need for high-quality research involving psychosocial interventions for CPP. These studies have difficulties being executed, such as finding an adequate control group and using correct eligibility criteria [73].

Evidence-based psychosocial interventions are important to help patients who suffer from psychiatric comorbidities or sexual abuse. These are also cost-effective methods for improving the quality of life of all patients with CPP.

Physicians treating patients with CPP should be aware of the potential implications of psychosocial interventions in creating interdisciplinary treatment programs for CPP [74]. If specialized psychotherapies or specific interventions are not available, clinicians should be aware that counseling during ultrasound scans can improve pain scores at follow-up.

Surgical interventions

Pelvic pain treatment using surgical techniques such as LUNA or PSN has been described in the literature since the late 1980s. However, regarding LUNA, it has been found that although patients improve after one year, its efficacy decreases over time [29]

There are better results with PSN; however, there are more adverse effects, such as urinary retention and neurological pelvic dysfunction.

After observing patients undergoing radical cancer surgery who developed adverse effects related to nerve damage, different nerve-sparing techniques were developed to treat benign conditions, including deep infiltrating endometriosis. These laparoscopic techniques relied on nerve observation and identification that resulted in less urinary retention [75,76]. A meta-analysis from 2005 found that nerve-sparing surgery for deep infiltrating endometriosis had a significant advantage for preventing persistent urinary retention compared with a conventional technique [77].

Pelvic denervation procedures such as PSN or LUNA have short-term but not long-term efficacy. Particularly, PSN has shown long-term adverse effects such as urinary retention, constipation, and sexual dysfunction. Thus, the treatment of choice for severe endometriosis that results in CPP must be performed with the nerve-sparing techniques described since 2004 [75].

Other interventions

One study using active magnets for four weeks for women with CPP found no benefit in these patients [51]. There is insufficient evidence to recommend acupuncture, magnets, or other alternative treatments. These interventions may be used in some settings as complementary treatment, but we did not find evidence suggesting they should be the first option.

Value of this study in clinical practice and for decision-makers

Since CPP is a complex entity that may compromise several systems and affect the overall quality of life, a multidisciplinary approach is necessary. Many treatments may become viable options, depending on availability and the clinician´s expertise.

After an initial assessment and diagnosis, a physician treating a patient with CPP is challenged to decide which evidence-based intervention could be appropriate. Most systematic reviews and meta-analyses focus on particular interventions, such as pharmacological treatment, psychotherapeutic treatment, acupuncture, etc. Thus, it may be a challenge to review all the literature concerning CPP treatment.

To our knowledge, this is the first review compiling evidence for multiple treatments. It is a comprehensive review of different systematic reviews and primary studies and presents qualitative evidence for treatment available in different inpatient or outpatient services. It can be used as a guide for decision-making and may also prove useful for future research.

CONCLUSION

Chronic pelvic pain is a complex and debilitating condition that presents as a public health problem and a diagnostic and treatment challenge. Clinicians must have several options when dealing with these patients to provide the best evidence-based treatment to help their patients.

These interventions can be divided into surgical, pharmacological, psychological, and others (acupuncture and magnet therapy). Treatment should always be multidisciplinary and individualized, depending on the specific CPP phenotype. Other factors such as the history of sexual abuse, past treatments, and comorbidities (obesity, mood disorders, endometriosis) should be considered.

This paper provides an overview of evidence found in systematic reviews for CPP interventions; however, it is limited due to the lack of evidence and homogenous studies in systematic reviews or meta-analyses.

Clinicians working with this type of patient should always be encouraged to work together to find a better combination of interventions. Further research with primary or secondary studies should be encouraged to broaden the scope of multidisciplinary treatment teams.

LIMITATIONS

Due to the heterogeneity of the available studies, it was impossible to assess the evidence statistically. We decided to present it qualitatively, making it difficult to establish any treatment as superior to another and to make a clear-cut analysis of which interventions should become first-line treatment in all patients.

We know that many treatments being used for patients with CPP are not included in this study. This situation does not necessarily mean that they are not effective, but rather that they have not been assessed in a systematic review or meta-analysis or that the evidence was not available for a proper analysis.

Further primary studies and systematic reviews that assess other interventions and provide more information for decision-making should be encouraged.

ACKNOWLEDGMENT

We thank Sergio Lozano-Rodriguez, MD, Scientific Publications Support Coordinator, Hospital Universitario Dr. José E. González, Universidad Autonoma de Nuevo Leon, for his help in editing the manuscript. No financial compensation was provided.

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