

The effects of acupuncture in fibromyalgia: integrative review

Efeitos da acupuntura na fibromialgia: revisão integrativa

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ABSTRACT

BACKGROUND AND OBJECTIVES: Fibromyalgia is a disease that causes constant musculoskeletal pain with an overall increased sensibility, with the possibility of hyperalgesia and/or allodynia, fatigue and sleep perturbation, as well as cognitive issues. Pharmacologic treatments are often not enough to relieve pain, causing patients to opt for alternative therapies such as acupuncture due to its good tolerance and low risk of adverse effects. The objective was to carry out an integrative review of acupuncture uses in the analgesia of patients with fibromyalgia.

CONTENTS: The integrative review surveyed four databases (Scopus, PubMed, CINAHL and Bireme) with the following keywords: “analgesia”, “acupuncture”, and “fibromyalgia” collectively through the AND Boolean operator, including publications from January 2009 to December 2019. From the results of this query, eight articles were chosen.

CONCLUSION: Studies suggest that acupuncture is effective for the treatment of pain in patients with fibromyalgia, with improved quality of life and positive interference in sleep.

Keywords: Acupuncture, Analgesia, Chronic Pain, Fibromyalgia, Pain management.

RESUMO

JUSTIFICATIVA E OBJETIVOS: A fibromialgia causa dor musculoesquelética constante e sensibilidade generalizada, com presença de hiperalgesia e/ou alodínia, fadiga, distúrbios de sono e problemas cognitivos. Muitas vezes o tratamento farmacológico não é suficiente para aliviar a dor e os pacientes optam por

terapias integrativas como a acupuntura em razão da boa tolerância e baixo risco de efeitos adversos. O objetivo foi realizar uma revisão integrativa sobre o uso da acupuntura na analgesia em pacientes com fibromialgia.

CONTEÚDO: Foi realizada revisão integrativa em quatro bases de dados (Scopus, Pubmed, CINAHL e Bireme) com uso dos descritores “analgesia”, “acupuncture” e “fibromyalgia” unidos pelo operador booleano AND, com a inclusão de publicações de janeiro de 2009 a dezembro de 2019. Após a leitura e análise, sete artigos foram selecionados.

CONCLUSÃO: Os estudos sugerem que a acupuntura seja eficaz para o tratamento da dor em pacientes com fibromialgia, com melhora na qualidade de vida e interferência positiva no sono.

Descritores: Acupuntura, Analgesia, Dor Crônica, Fibromialgia, Manejo da dor.

INTRODUCTION

Fibromyalgia (FM) is an idiopathic syndrome characterized by chronic musculoskeletal pain and generalized sensitivity, in addition to fatigue, sleep disorders, morning stiffness, paresthesias of the extremities, subjective sensation of edema and cognitive disorders. Depression, anxiety, chronic fatigue syndrome, myofascial syndrome, digestive problems such as irritable bowel syndrome and gastroesophageal reflux disease, non-specific urethral syndrome, migraine or tension headaches, pelvic pain and temporomandibular dysfunction may also occur^{1,2}.

Pain can be accentuated with cold, humidity and emotional disturbances, contributing to suffering and worsening the patients' quality of life³. In the USA and Europe the prevalence is up to 5% of the population and has reached more than 10% of attendances in rheumatologic clinics. In Brazil, the prevalence reaches up to 2.5%, especially in women between 35 and 44 years old⁴.

Pain in FM can be perceived in different manners and be modified by the emotional state. Hyperalgesia and/or allodynia due to the low threshold in pain perception, possibly by central or neuropathic pain amplification. The lack of consensus on the etiology of FM hinders treatment and pain control of pharmacological and non-pharmacological therapies^{2,5}.

Acupuncture produces a central analgesic effect, particularly on the thalamus, which plays an important role in the processing of sensitive information. Furthermore, it releases endorphins in the brain that belong to the group of opioids that integrate the natural pain suppression mechanism⁶.

The objective was to perform an integrative review of the use of acupuncture for analgesia in patients with FM.

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CONTENTS

An integrative review that sought to answer the following question: what are the evidences on the effectiveness of acupuncture as a non-pharmacological method for pain relief in patients with FM?

The Cooper method was used with the following steps: problem formulation, data collection, data evaluation, analysis and interpretation, and public presentation⁷. Searches were made in Scopus, Pubmed, CINAHL and Bireme databases, using the controlled keywords “analgesia”, “acupuncture” and “fibromyalgia”, with the addition of the Boolean operator AND.

Inclusion criteria were manuscripts published from January 2009 to December 2019, with full text available, in English, Spanish or Portuguese and which investigated the analgesic efficacy of acupuncture in FM patients. Researches involving minors under 18 years old, performed with animal models, case and series studies, editorials, letters to the editor, comments, experience reports and narrative, integrative and systematic reviews were excluded.

A total of 194 articles were found, of which 110 had a full available text, 11 were excluded for duplicity, totaling 99. Initially 22 articles were selected by the titles and then 19 by the abstract. Finally, seven articles were selected by reading the full text (Figure 1).

The articles included in the final analysis were presented in table 1. They were classified according to the levels of evidence of the Oxford Centre for Evidence-Based Medicine (OCEBM) 2011, which evaluates articles at levels one to five, the first level being the most relevant⁸. Next, a critical analysis of the results was performed through the descriptive synthesis of the studies.

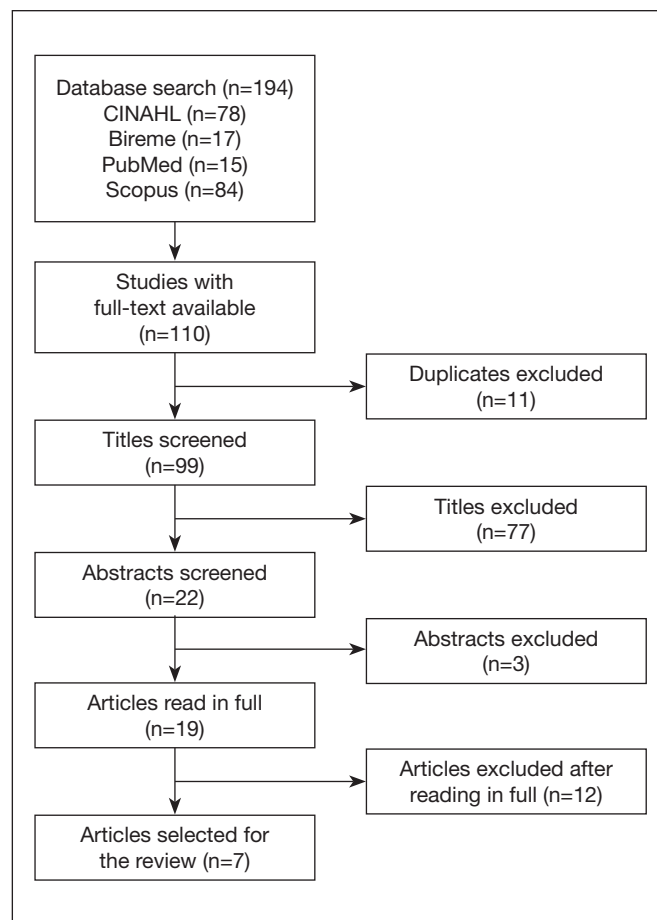


Figure 1. Flowchart of identification and selection of articles

Table 1. Description of included articles

Authors	Evidence level	Research type	Objectives	Sample	Results
Yüksel et al. ⁹	1	RCT	To evaluate the effects of acupuncture and transcutaneous electrical nerve stimulation (TENS) on the quantitative evaluation of alterations in electroencephalography (qEEG) and to evaluate its therapeutic effects in patients with FM.	n=42 patients with FM (n=21 for TENS and n=21 for acupuncture) and n=21 healthy patients	Application of TENS and acupuncture seems to be beneficial for FM patients.
Harris et al. ¹⁰	1	RCT	To compare the short and long term effects of traditional chinese acupuncture (TCA) treatment versus false acupuncture (FA) treatment.	n=20 patients with FM	Acupuncture evoked short-term increases in the binding potential to MOR, in several regions of pain and sensory processing, including the cingulate (dorsal and subgenital), insula, caudate nucleus, thalamus and amygdala. It also evoked in long term the binding potential to MOR in some of the same structures, including the cingulate (dorsal and perigenual), caudate and amygdala. The short and long term effects were absent in the false group, in which small reductions were observed, an effect more consistent with previous studies with placebo PET. Long-term increases in the MOR BP after TCA were also associated with greater reductions in clinical pain.

Continue...

Table 1. Description of included articles – continuation

Authors	Evidence level	Research type	Objectives	Sample	Results
Vas et al. ¹¹	1	RCT	To evaluate the effectiveness of an individualized acupuncture protocol for patients with FM.	n=164 patients with FM	Individualized acupuncture treatment in patients with primary care FM has shown to be effective in relieving pain compared to placebo. The effect persisted for one year, and the adverse effects were mild and infrequent. The use of individualized acupuncture in patients with FM is recommended.
Ugurlu et al. ¹²	1	RCT	To determine and compare the effectiveness of real acupuncture with false acupuncture in the FM treatment.	n=50 female patients with FM	Acupuncture significantly improved the pain and symptoms of FM. Although the simulated effect is important, the actual treatment with acupuncture seems to be effective in treating FM.
Stival et al. ¹³	1	RCT	To evaluate the effectiveness of acupuncture in the treatment of FM, considering the immediate response of the visual analog scale (VAS) for pain assessment as the primary outcome.	n=36 patients with FM	Acupuncture, carried out in the molds of Traditional Chinese Medicine (TCM), results in immediate pain reduction in patients with FM when compared to simulated acupuncture.
Zucker et al. ¹⁴	1	RCT	To verify if sensitivity to pressure pain would result in a different classification of treatment response to verum and simulated acupuncture in FM patients.	n=114 (59 verum and 55 sham/simulated)	The effectiveness of acupuncture in FM may be underestimated and a more personalized treatment for FM may also be possible.
Karatay et al. ¹⁵	1	RCT	To evaluate the effects of acupuncture treatment on the serotonin and P substance (PS) serum levels, as well as on clinical parameters in patients with FM.	n=75 females randomized in three groups: real acupuncture (AcG), simulated acupuncture (ShG) and simulated acupuncture (SiG)	Acupuncture, unlike simulated or placebo acupuncture, can improve long-term clinical outcomes and pain neuromediator values. Changes in serotonin serum and PS levels may explain the mechanisms of acupuncture in the treatment of FM.

RCT = randomized clinical trials.

Seven articles in English were found, all randomized clinical trials (RCTs), and were classified at level one based on the OCEBM.

In this study, seven RCTs compared acupuncture (*verum*) with placebo (sham) and proved that the former presents more positive results for reducing pain in patients with FM¹⁰⁻¹⁵. The sham technique is a placebo control in which some researchers used devices such as a simulated needle, which may be smaller than the true technical needle, which may exert a similar effect to acupuncture or may even simulate needling or use superficial needles in non-acupuncture points or inadequate acupuncture points according to TCM. It's common to blindfold the patients or separate them so that they do not know which therapy is being applied. In the *verum* technique, the needles are applied to the tender points according to what is established by TCM¹⁵.

The number of patients who received the *verum* technique ranged from 20 to 82, while the number of patients who received treatment in tender points ranged from 6 to 18. The sessions were from 1 to 12, lasting between 20 and 30 minutes. Although the sample was small, statistical analyses of the seven studies revealed that acupuncture provided significant decrease in pain scores according to the scales used, both for long and short term, even with few sessions of up to 30 minutes.

Acupuncture showed, in the short term, an increase in the binding potential to endogenous opioid antinociceptive systems and μ -opioid receptors (MORs), in several locations of pain and sensory processing, as well as performed, in the long term, the MOR binding potential in some of the same brain structures¹⁰. It may have an effect on neuromediators, such as serotonin and substance P, which may explain the beneficial effects that exist in patients with FM¹⁶.

Moreover, it was possible to observe that the immediate and long-term effects are not limited to pain reduction, but also reduction of symptoms such as insomnia and depression, as well as improved well-being. One of the studies revealed that acupuncture was more effective and with fewer adverse effects than drugs commonly used for the treatment of FM, such as pregabalin and duloxetine, and that the beneficial effect persisted for up to one year¹¹.

This research is similar to studies pointing out that acupuncture treatment is effective in relieving pain in FM patients in terms of quality of life and FM impact questionnaire, improving other symptoms such as fatigue and anxiety^{22,23}. In that sense, the belief is that acupuncture acts, in addition to the improvement of pain, on the well-being, productivity, mood and other aspects of daily life. In addition, acupuncture has been standing out for offering fast and effective treatment, with mild side effects, such

as discomfort and bruising at the needle insertion spots, being basically painless¹⁰⁻¹⁵.

Non-pharmacological methods for pain relief, such as TENS, physical exercises, cognitive-behavioral therapy, diet, nutritional supplements, and phytotherapy^{9,17} have been recommended for the management of FM. Acupuncture stands out for being less costly and easier to apply when compared to traditional treatment, since the latter involves the participation of several specialists, the application of many exams and the use of drugs that are often expensive and have various adverse effects¹⁸⁻²⁰. New studies with high methodological quality and a larger and more significant sample that compare sham and *verum* acupuncture are needed, since there are some differences regarding its effectiveness²¹.

This study shows that acupuncture can be used in a wide variety of patients, especially in primary care, with effects that go beyond analgesia. It can reduce outpatient clinic and hospital stays caused by pain crises in these patients^{11,18,20}. Acupuncture is inexpensive, effective, and can be used in several health services since it can promote pain relief and, therefore, improve the patients' quality of life and daily activities. The challenge is to expand access to this practice, especially for patients suffering from painful symptoms and to create a protocol for its combined or individualized use in the treatment of FM.

CONCLUSION

The studies suggest that acupuncture is effective for the treatment of pain in FM patients, improving quality of life and sleep.

AUTHORS' CONTRIBUTIONS

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Supervision

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Review

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Writing - Review and Editing

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