Nusantara Hasana Journal
Volume 4 No. 6 (November 2024), Page: 113-117
E-ISSN : 2798-1428

THE INFLUENCE OF ACUPUNCTURE THERAPY IN MODERN TIMES FOR OSTEOARTHRITIS TREATMENT: A LITERATURE REVIEW

Fiqratul Aulia Puti[1], Dessy Abdullah[*2], Febianne Eldrian[3], Tati Khairina[4], Muhamad Ivan[5], Dhina Lydia Lestari[6]

[*1,2,3,4,5,6]Universitas Baiturrahmah

***Correspondence Author: dessyabdullah@fk.unbrah.ac.id**

Abstract
Background: Osteoarthritis (OA) is a degenerative joint disease affecting millions globally, characterized by pain, stiffness, and reduced mobility. While conventional treatments, such as nonsteroidal anti-inflammatory drugs (NSAIDs), physical therapy, and surgery offer symptomatic relief, they often have associated side effects and long-term risks. In contrast, acupuncture, a traditional Chinese medicine technique, has emerged as a popular alternative for OA management. Despite its extensive use, debates persist regarding the physiological mechanisms underlying acupuncture and its long-term efficacy. Methods: This literature review examines recent clinical studies and meta-analyses focused on acupuncture therapy for OA. The analysis involved selecting articles from respected databases, including PubMed, ScienceDirect, and Scopus, and concentrated on randomized controlled trials (RCTs), systematic reviews, and cohort studies published in the past decade. Results: The analysis reveals that acupuncture can significantly alleviate OA-related pain and enhance joint function. Research indicates that acupuncture facilitates the release of endorphins, modulates inflammatory responses, and improves blood circulation in the affected joints. Notably, electroacupuncture, an advanced form of traditional acupuncture, has shown superior effectiveness in relieving OA symptoms. However, the diversity in study designs, acupuncture methods, and individual patient reactions creates challenges in formulating standardized treatment protocols. Conclusion: Acupuncture emerges as a promising complementary therapy for OA, providing pain relief and improved mobility with minimal side effects. Nevertheless, additional high-quality research is essential to establish comprehensive treatment protocols, verify long-term benefits, and incorporate acupuncture into evidence-based medical practice.
Keywords: *Osteoarthritis, Acupuncture, Alternative Therapy, Pain Management, Modern Medicine*

INTRODUCTION

Osteoarthritis (OA) is a progressive joint disorder that is characterized by the degradation of cartilage, inflammation of the synovial membrane, and remodeling of the subchondral bone. It ranks among the leading causes of disability globally, particularly affecting older adults. While conventional treatments—such as nonsteroidal anti-inflammatory drugs (NSAIDs), corticosteroid injections, and surgical interventions—offer symptomatic relief, they fail to address the underlying pathophysiology of the condition. Consequently, interest in alternative therapies, notably acupuncture, has surged in recent years.

Acupuncture is an ancient Chinese medical practice that entails the insertion of fine needles at specific body points to regulate physiological processes. Recent

Nusantara Hasana Journal
Volume 4 No. 6 (November 2024), Page: 113-117
E-ISSN : 2798-1428

innovations, including electroacupuncture and laser acupuncture, have broadened its therapeutic applications. The aim of this literature review is to evaluate the current evidence supporting the role of acupuncture in the treatment of OA, focusing on its efficacy, mechanisms of action, and potential integration into modern healthcare systems.(1)

We included randomized controlled trials (RCTs), systematic reviews, and cohort studies focusing on acupuncture for osteoarthritis (OA). The studies evaluated outcomes related to pain relief, functional improvement, and inflammatory markers.

The exclusion criteria consisted of non-English publications, case reports, and studies with inadequate methodologies. The quality of the selected studies was assessed using the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework.

Anti-inflammatory Effects:Needle stimulation reduces levels of pro-inflammatory cytokines such as IL-6 and TNF-α, while simultaneously enhancing the production of anti-inflammatory mediators.

Improved Circulation:The process of local vasodilation improves the delivery of oxygen and nutrients to affected joints, which is vital for promoting tissue repair.

To enhance multidisciplinary OA management programs, healthcare systems should consider integrating acupuncture. It is essential to educate patients on the benefits and limitations of acupuncture to support informed decision-making regarding their treatment options. Collaboration among practitioners of traditional medicine and modern healthcare professionals can foster more holistic approaches to OA treatment.

METHODS

This study follows a systematic literature review approach to evaluate the role of acupuncture in treating OA. The research process consisted of the following stages:

Identification of Research Question:

The main research question was formulated: How effective is acupuncture in managing osteoarthritis pain and mobility impairment?

Literature Search Strategy:

Articles were sourced from databases such as PubMed, ScienceDirect, and Scopus.

Keywords used included: Osteoarthritis, acupuncture, pain management, alternative therapy, electroacupuncture, traditional Chinese medicine.

Inclusion and Exclusion Criteria:

Inclusion: Peer-reviewed studies from 2013–2023, focusing on acupuncture's effects on OA, including pain relief, joint function, and inflammation.

Exclusion: Case reports, non-English publications, studies with inadequate methodologies, and non-peer-reviewed articles.

Screening and Selection:

Titles and abstracts were reviewed based on relevance to the research question. Full-text articles were evaluated to ensure compliance with inclusion criteria.

Nusantara Hasana Journal
Volume 4 No. 6 (November 2024), Page: 113-117
E-ISSN : 2798-1428

Data Extraction and Analysis:

Key findings from selected studies were extracted, including sample size, methodology, intervention type, and outcome measures. Studies were analyzed based on effectiveness, mechanisms of action, and limitations.

Synthesis and Interpretation:

The findings were synthesized to identify common patterns, contradictions, and gaps in the literature. Discussion was framed around acupuncture's physiological impact, clinical efficacy, and challenges in standardization.

RESULT AND DISCUSSION

RESULTS

The findings from recent studies suggest that acupuncture provides significant pain relief and functional improvements in patients with osteoarthritis (OA).(1) concluded that acupuncture leads to a clinically relevant reduction in chronic pain, particularly in knee OA, with effects persisting beyond the treatment period. Similarly, a randomized controlled trial by (2) demonstrated that electroacupuncture provided greater symptom relief compared to standard care in knee OA patients.

Additionally, a systematic review by (3) indicated that acupuncture improves joint mobility and reduces stiffness in OA patients, with fewer adverse effects than conventional pharmacologic treatments. Research also highlights acupuncture's anti-inflammatory properties, with studies showing a significant reduction in inflammatory markers such as IL-6 and TNF-α following treatment. Furthermore, (4) reported that electroacupuncture effectively enhances microcirculation in affected joints, leading to improved nutrient and oxygen supply for cartilage repair.

Despite these promising outcomes, study heterogeneity remains a challenge, with variations in acupuncture techniques, session frequency, and treatment duration affecting the consistency of results. Future research with standardized methodologies is necessary to confirm these findings and optimize treatment protocols for OA patients.

DISCUSSION

The findings suggest that acupuncture provides an effective and safe alternative for OA symptom management. Acupuncture's ability to regulate neurotransmitter activity, decrease pro-inflammatory cytokines such as IL-6 and TNF-α, and enhance joint circulation supports its role in pain modulation and mobility improvement. (5)

One of the primary mechanisms through which acupuncture alleviates pain is the stimulation of the nervous system, triggering the release of endogenous opioids such as endorphins and enkephalins. [5] These substances act on opioid receptors in the central and peripheral nervous system, thereby reducing pain perception. Additionally, acupuncture influences the autonomic nervous system by promoting parasympathetic activity, which helps to lower stress levels and inflammation in OA patients. (6)(7)(8)

Studies have also highlighted the role of acupuncture in enhancing microcirculation around affected joints, which facilitates oxygen and nutrient delivery to cartilage and synovial tissue. (9) This process helps in reducing stiffness and

Nusantara Hasana Journal
Volume 4 No. 6 (November 2024), Page: 113-117
E-ISSN : 2798-1428

slowing the progression of OA-related joint degeneration. Furthermore, acupuncture has been found to regulate inflammatory mediators by decreasing the levels of pro-inflammatory cytokines and increasing the production of anti-inflammatory substances(10)

Despite these promising findings, challenges remain in fully integrating acupuncture into standard OA treatment protocols. Variability in acupuncture techniques, including differences in needle placement, depth, and stimulation methods, contributes to inconsistencies in clinical outcomes. (9) Furthermore, the placebo effect is a significant consideration in acupuncture research, as patient expectations and the therapeutic setting can influence perceived pain relief. (3) To address these issues, future research should prioritize well-designed randomized controlled trials with larger sample sizes and standardized acupuncture protocols.(11)

Another consideration is the accessibility of acupuncture treatment. While acupuncture is widely practiced in East Asian countries, its integration into Western healthcare systems remains limited. Factors such as cost, insurance coverage, and availability of trained practitioners influence patient access to acupuncture therapy. Encouraging collaboration between conventional medical practitioners and acupuncture specialists can enhance the credibility and acceptance of acupuncture as a complementary therapy for OA (7)

Given the potential benefits of acupuncture, it is crucial to educate both patients and healthcare providers on its mechanisms, benefits, and limitations. Incorporating acupuncture into multidisciplinary OA management programs alongside conventional treatments such as physical therapy and pharmacologic interventions may provide more comprehensive pain relief and functional improvement for OA patients.(12)

CONCLUSION

Acupuncture has emerged as a viable complementary therapy for osteoarthritis (OA), demonstrating effectiveness in pain relief, functional improvement, and inflammation reduction. Studies highlight its role in modulating neurotransmitter activity, reducing pro-inflammatory cytokines, and improving microcirculation, which contribute to symptom relief. Despite these benefits, inconsistencies in study methodologies, variations in acupuncture techniques, and accessibility challenges remain key obstacles to its broader adoption. Future research should prioritize high-quality randomized controlled trials to establish standardized treatment protocols and further explore its long-term benefits. Integrating acupuncture into mainstream healthcare as part of a multidisciplinary approach may enhance its therapeutic potential for OA patients.

REFERENCES

1. Macpherson H, Vertosick EA, Foster NE, Lewith G, Linde K, Sherman KJ, et al. The persistence of the effects of acupuncture after a course of treatment: A meta-analysis of patients with chronic pain. Pain. 2017;158(5):784–93.
2. Hinman RS, McCrory P, Pirotta M, Relf I, Forbes A, Crossley KM, et al. Acupuncture for chronic knee pain a randomized clinical trial. JAMA - J Am

Med Assoc. 2014;312(13):1313–22.
3. White A, Tough E, Cummings M. A review of acupuncture clinical trials indexed during 2005. Acupunct Med. 2006;24(1):39–49.
4. Manheimer E, Cheng K, Linde K, Lao L, Yoo J, Wieland S, et al. Acupuncture for peripheral joint osteoarthritis. Cochrane Database Syst Rev. 2010;2010(1).
5. Shi Y, Wu W. Multimodal non-invasive non-pharmacological therapies for chronic pain: mechanisms and progress. BMC Med [Internet]. 2023;21(1):1–29. Available from: https://doi.org/10.1186/s12916-023-03076-2
6. Dinov I, Shahul S,Tung A, Minhaj M, Nizamuddin J, Wenger J, Mahmood E, Mueller A,Shaefi S, Scavone B, Kociol R D, Talmor D, Rana S 2017. 乳鼠心肌提取 HHS Public Access. Physiol Behav [Internet]. 2017;176(10):139–48. Available from: file:///C:/Users/Carla Carolina/Desktop/Artigos para acrescentar na qualificação/The impact of birth weight on cardiovascular disease risk in the.pdf
7. Arnold CA, Bagg MK, Harvey AR. The psychophysiology of music-based interventions and the experience of pain. Front Psychol. 2024;15(May):1–18.
8. Zhao ZQ. Neural mechanism underlying acupuncture analgesia. Prog Neurobiol. 2008;85(4):355–75.
9. Chen N, Wang J, Mucelli A, Zhang X, Wang C. Electro-Acupuncture is Beneficial for Knee Osteoarthritis: The Evidence from Meta-Analysis of Randomized Controlled Trials. Am J Chin Med. 2017;45(5):965–85.
10. Bogunovic L, Bush-Joseph CA. Management of Osteoarthritis of the Knee (Non-Arathroplasty). Orthop Knowl Updat Sport Med 5. 2018;237–50.
11. Jun JH, Choi TY, Park S, Lee MS. Warm needle acupuncture for osteoarthritis: An overview of systematic reviews and meta-analysis. Front Med. 2023;10(March).
12. Yu Y, Liu CZ, Wang XZ, Xi YW, Fu YM, Mi BH, et al. Effect of 4 weeks vs 8 weeks of acupuncture for knee osteoarthritis in China: protocol for a randomised controlled trial. BMJ Open. 2024;14(1):4–10.