Acupuncture for rheumatoid arthritis

Alexis Ramos[a,b], José Domínguez[a,b], Soledad Gutiérrez[c,d]

[a] Facultad de Medicina, Pontificia Universidad Católica de Chile, Santiago, Chile
[b] Proyecto Epistemonikos, Santiago, Chile
[c] Unidad de Medicina Integrativa, Complejo Asistencial Dr. Sótero del Río, Facultad de Medicina, Pontificia Universidad Católica de Chile, Santiago, Chile

***Corresponding author** solegutier@gmail.com

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Abstract

Introduction

Rheumatoid arthritis is the most common inflammatory arthritis worldwide. Chronic pain leads patients to use complementary therapies, including acupuncture.

Methods

To answer this question we used Epistemonikos, the largest database of systematic reviews in health, which is maintained by screening multiple information sources, including MEDLINE, EMBASE, Cochrane, among others. We extracted data from the systematic reviews, reanalyzed data of primary studies, conducted a meta-analysis and generated a summary of findings table using the GRADE approach.

Results and conclusions

We identified 7 systematic reviews including 20 studies overall, all of them randomized trials. We concluded the use of acupuncture probably has little or no impact in rheumatoid arthritis.

Problem

Rheumatoid arthritis is the most common autoimmune inflammatory arthritis in adults. Among the most frequent clinical manifestations are joint pain, swelling and stiffness. Whether due to toxicity, limited efficacy of current pharmacological alternatives, or other reasons, patients frequently seek complementary therapies in order to improve their symptoms, being acupuncture one of the most frequently used.

Acupuncture is a classic technique of traditional Chinese medicine, which involves the insertion of needles at specific points of the body with multiple therapeutic purposes, including local or generalized analgesia. For this reason, it is suggested that acupuncture could have a benefit in the symptomatic treatment of rheumatoid arthritis.

Key messages

- Acupuncture probably has little or no effect on joint pain or disease activity in rheumatoid arthritis.

About the body of evidence for this question

What is the evidence. See evidence matrix in Epistemonikos later	We found seven systematic reviews [1-7], that included twenty primary studies [8-27], of which all were randomized trials. However, this table and the summary in general are based on only two randomized trials[8,9] that answer the question posed, that is, whether acupuncture is superior to a sham acupuncture procedure. We excluded one trial for not meeting the basic criteria of acupuncture treatment of traditional Chinese medicine[10], one trial for using electroacupuncture[11] and 16 trials for not comparing against sham acupuncture, but against methotrexate[12], nonsteroidal anti-inflammatory drugs [13,14,16,17], topical ointment[18], unspecified western medicine [19-23,25]] or oriental medicine not specified[15,24,26,27].
What types of patients were included*	The patients included in these two trials[8,9] were men and women over 18 years, with diagnosis of rheumatoid arthritis, independent of disease severity or time from diagnosis.
What types of interventions were included*	Both trials[8,9] evaluated traditional Chinese acupuncture and analgesia intervention. One trial[8] performed twenty acupuncture sessions in ten weeks, with thirty-minute needle insertion in six acupuncture points: LI11, TE5, ST36, GB34, GB36, GB39.One trial[9] performed ten sessions of acupuncture in five weeks, with twenty-minute needle insertion in 16 acupuncture points: EX1, EX27, CV6, CV12, LI4, GV4, GV14, LR3, PC6, SP6, ST36, BL11, BL20, BL22, BL23, BL60.Both trials compared against penetrating sham acupuncture and analgesia. Sham acupuncture consists in inserting needles into puncture sites that are not specific to the studied condition, outside the acupuncture points (penetrating) or with a more superficial insertion compared to the acupuncture group (non-penetrating). The two trials used sham acupuncture of the penetrating type[8,9].
What types of outcomes were measured	The trials evaluated multiple outcomes, which were grouped by the systematic reviews as follows: • Pain, using the visual analog scale (VAS) • Disease activity, using the Disease Activity Score 28 (DAS28) • Improvement criteria: ACR20, ACR50 • Functionality: Health Assessment Questionnaire (HAQ) The follow-up of the trials was ten[8] and nine weeks[9]

* The information about primary studies is extracted from the systematic reviews identified, unless otherwise specified.

Methods

To answer the question, we used Epistemonikos, the largest database of systematic reviews in health, which is maintained by screening multiple information sources, including MEDLINE, EMBASE, Cochrane, among others, to identify systematic reviews and their included primary studies. We extracted data from the identified reviews and reanalyzed data from primary studies included in those reviews. With this information, we generated a structured summary denominated FRISBEE (Friendly Summary of Body of Evidence using Epistemonikos) using a pre-established format, which includes key messages, a summary of the body of evidence (presented as an evidence matrix in Epistemonikos), meta-analysis of the total of studies when it is possible, a summary of findings table following the GRADE approach and a table of other considerations for decision-making.

Summary of Findings

The information about the effects of acupuncture in rheumatoid arthritis is based on two randomized trials that included 64 patients.

Both trials[8,9] reported pain, disease activity, functionality and improvement using ACR20 criteria (64 patients). No trial evaluated improvement using ACR50 criteria and only one trial reported adverse effects[9].

No systematic review provided data on HAQ and ACR20 that could be re-analyzed, so the conclusions for these outcomes are presented as reported by the reviews.

The summary of findings is as follows:

- The use of acupuncture probably has minimal or no impact on joint pain in rheumatoid arthritis. The certainty of the evidence is moderate.
- No information on the effect of acupuncture on ACR50 was identified.
- The use of acupuncture might have minimal or no impact on ACR20, but the certainty of the evidence is low.
- The use of acupuncture probably has little or no impact on DAS28 score. The certainty of the evidence is moderate.
- The use of acupuncture might have minimal or no impact on the HAQ score, but the certainty of the evidence is low.

Acupuncture in rheumatoid arthritis

Patients Rheumatoid Arthritis
Intervention Acupuncture
Comparison Sham acupuncture

Outcome	Absolute effect*		Relative effect (95% CI)	Certainty of evidence (GRADE)
	WITH sham acupuncture	WITH acupuncture		
	Difference: patients per 1000			
Pain VAS (cm)	5.19 cm	5.74 cm	--	⨁⨁⨁◯[1] Moderate
	Difference: 0.55 cm more (Margin of error: 0.74 less to 1.84 more)			
Improvement criteria ACR50	No information was identified for this outcome.		--	--
Improvement criteria ACR20	Three reviews concluded there were no differences [3],[4],[5].		--	⨁⨁◯◯[1,2] Low
Disease activity DAS28	4.4 points**	4.27 points	--	⨁⨁⨁◯[1] Moderate
	SD: 0.13 points less (Margin of error: 0.77 less to 0.51 more)			
Functionality HAQ Scale	Four reviews concluded there were no differences [3],[4],[5],[6].		--	⨁⨁◯◯[1,2] Low

Margin of error: 95% confidence interval (CI).
MD: Mean difference.
GRADE: Evidence grades of the GRADE Working Group (see later).

*The risk WITH sham acupuncture is based on the risk in the control group of the trials. The risk WITH acupuncture (and its margin of error) is calculated from relative effect (and its margin of error).

[1] The certainty of the evidence was downgraded in one level for indirectness because inadequate control was used.
[2] The certainty of the evidence was downgraded in two levels for imprecision since the confidence interval does not rule out a small effect, in addition to being based on a low number of patients.

Following the link to access the interactive version of this table (Interactive Summary of Findings – iSoF)

About the certainty of the evidence (GRADE)*

⊕⊕⊕⊕
High: This research provides a very good indication of the likely effect. The likelihood that the effect will be substantially different† is low.

⊕⊕⊕◯
Moderate: This research provides a good indication of the likely effect. The likelihood that the effect will be substantially different† is moderate.

⊕⊕◯◯
Low: This research provides some indication of the likely effect. However, the likelihood that it will be substantially different† is high.

⊕◯◯◯
Very low: This research does not provide a reliable indication of the likely effect. The likelihood that the effect will be substantially different† is very high.

* This concept is also called 'quality of the evidence' or 'confidence in effect estimates'.

† Substantially different = a large enough difference that it might affect a decision

Other considerations for decision-making

To whom this evidence does and does not apply

The evidence presented in this summary applies to men and women with rheumatoid arthritis, over 18 years of age, with no restrictions due to severity or time since diagnosis.

The conclusions of this summary refer to manual acupuncture of traditional Chinese medicine, without adjuvant techniques such as moxibustion, or other types of acupuncture, such as bee stings or electroacupuncture.

About the outcomes included in this summary

Pain assessment and improvement of functionality evaluated through VAS and Health Assessment Questionnaire (HAQ) were chosen as critical outcomes for decision-making, according to the opinion of the authors of this summary.

It was decided to report ACR20, ACR50 and DAS28 which are the most commonly used scales and are composed of various aspects of the disease (ESR, sensitive joints, painful joints, among other parameters).

Balance between benefits and risks, and certainty of the evidence

Considering the effects of acupuncture in the studied population results in little or no relief of joint pain or in ACR20 criteria, it does not seem beneficial to perform the intervention alone.

Only one trial reported tingling sensation, shingles and dyspepsia as adverse effects[7], although the last two were not related to acupuncture. However, there are reports of more severe adverse effects reported for acupuncture, including infections, trauma and other less frequent[28].

We downgraded the certainty of the evidence in one level of for use of inadequate control (indirect evidence), since there is literature suggesting sham acupuncture may not be physiologically inert[32,33], and that insertion of needles in unsuitable places could lead to a physiological response similar or identical to acupuncture and be *ashi* insertion points[35]. To date, no studies have been identified using non-penetrating simulated acupuncture, which is considered an adequate comparison and could elucidate the real effect of the intervention.

There is indirect evidence about the non-specific components of an acupuncture session, such as the expectations and preferences of the patients, the behavior and expectations of the therapist and the healing ritual itself, which may have effects on the outcomes of pain relief and satisfaction of the patient. No systematic review addressed this issues[28-31].

None of the randomized trials evaluated this summary adhered to the standards for reporting interventions in specific controlled trials for acupuncture (STRICTA)[34].

Resource considerations

It is not clear whether the intervention has benefits in the population studied and adverse effects have been reported, so the relationship between benefits and costs is not favorable. However, the limitations of the certainty of the evidence prevent definitive conclusions.

What would patients and their doctors think about this intervention

With the information presented in this summary, most patients and clinicians should lean against the use of acupuncture in rheumatoid arthritis.

However, acupuncture is one of the complementary therapies most used by patients with rheumatoid arthritis, and most people who have received acupuncture believe that it has been effective to some degree in the management of pain[20], keeping a positive perception of the intervention.

Differences between this summary and other sources

The systematic reviews identified reached conclusions similar to those presented here.

Currently, there is no mention regarding acupuncture in the guideline of the American College of Rheumatology.

Could this evidence change in the future?

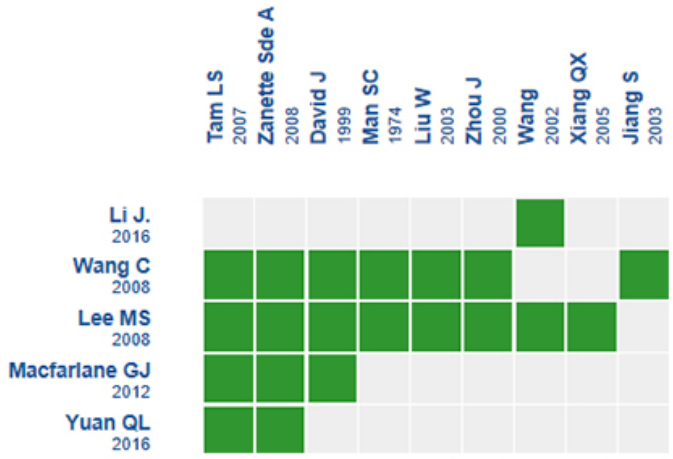
The probability that future research changes the conclusions of this summary is low, due to the certainty of the existing evidence. However, it is important to note the comparison used by the trials did not correspond to an ideal comparison (i.e. non-penetrating acupuncture), so studies fulfilling this could provide relevant information.

We identified one ongoing systematic review[36] in the International Prospective Register of Systematic Reviews (PROSPERO) answering the question of interest.

We identified two[37,38] ongoing trials registered in the International Clinical Trials Registry Platform of the World Health Organization that answer this question.

How we conducted this summary

Using automated and collaborative means, we compiled all the relevant evidence for the question of interest and we present it as a matrix of evidence.



An evidence matrix is a table that compares systematic reviews that answer the same question.
Rows represent systematic reviews, and columns show primary studies.
The boxes in green correspond to studies included in the respective revisions.
The system automatically detects new systematic reviews including any of the primary studies in the matrix, which will be added if they actually answer the same question.

Notes

The upper portion of the matrix of evidence will display a warning of "new evidence" if new systematic reviews are published after the publication of this summary. Even though the project considers the periodical update of these summaries, users are invited to comment in *Medwave* or to contact the authors through email if they find new evidence and the summary should be updated earlier.

After creating an account in Epistemonikos, users will be able to save the matrixes and to receive automated notifications any time new evidence potentially relevant for the question appears.

This article is part of the Epistemonikos Evidence Synthesis project. It is elaborated with a pre-established methodology, following rigorous methodological standards and internal peer review process. Each of these articles corresponds to a summary, denominated FRISBEE (Friendly Summary of Body of Evidence using Epistemonikos), whose main objective is to synthesize the body of evidence for a specific question, with a friendly format to clinical professionals. Its main resources are based on the evidence matrix of Epistemonikos and analysis of results using GRADE methodology. Further details of the methods for developing this FRISBEE are described here (http://dx.doi.org/10.5867/medwave.2014.06.5997)

Epistemonikos foundation is a non-for-profit organization aiming to bring information closer to health decision-makers with technology. Its main development is Epistemonikos database

www.epistemonikos.org.

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References

1. Casimiro L, Barnsley L, Brosseau L, Milne S, Robinson VA, Tugwell P, Wells G. Acupuncture and electroacupuncture for the treatment of rheumatoid arthritis. Cochrane Database Syst Rev. 2005 Oct 19;(4):CD003788. Review. | PubMed |
2. Yuan QL, Wang P, Liu L, Sun F, Cai YS, Wu WT, Ye ML, Ma JT, Xu BB, Zhang YG. Acupuncture for musculoskeletal pain: A meta-analysis and meta-regression of sham-controlled randomized clinical trials. Sci Rep. 2016 Jul 29;6:30675. | CrossRef | PubMed | PMC |
3. Jagua A; Medicina alternativa en el tratamiento de la osteoartrosis y artritis reumatoide. Revisión sistemática de la literatura y meta-análisis Rev. colomb. reumatol; 19(4): 234-244, dic. 2012.
4. Macfarlane GJ, Paudyal P, Doherty M, Ernst E, Lewith G, MacPherson H, Sim J, Jones GT; Arthritis Research UK Working Group on Complementary and Alternative Therapies for the Management of the Rheumatic Diseases. A systematic review of evidence for the effectiveness of practitioner-based complementary and alternative therapies in the management of rheumatic diseases: rheumatoid arthritis. Rheumatology (Oxford). 2012 Sep;51(9):1707-13. Epub 2012 Jun 1. Review. | PubMed |
5. Lee MS, Shin BC, Ernst E. Acupuncture for rheumatoid arthritis: a systematic review. Rheumatology (Oxford). 2008 Dec;47(12):1747-53. | CrossRef | PubMed |
6. Wang C, de Pablo P, Chen X, Schmid C, McAlindon T. Acupuncture for pain relief in patients with rheumatoid arthritis: a systematic review. Arthritis Rheum. 2008 Sep 15;59(9):1249-56. | CrossRef | PubMed |
7. Li J, Yang J, Wu S, Wang M. Effects of acupuncture on rheumatoid arthritis: A systematic review and meta-analysis. Afr J Tradit Complement Altern Med. 2016 13(2):61-71.
8. Tam LS, Leung PC, Li TK, Zhang L, Li EK. Acupuncture in the treatment of rheumatoid arthritis: a double-blind controlled pilot study. BMC Complement Altern Med. 2007 Nov 3;7:35. | PubMed | PMC |

9. Zanette Sde A, Born IG, Brenol JC, Xavier RM. A pilot study of acupuncture as adjunctive treatment of rheumatoid arthritis. Clin Rheumatol. 2008 May;27(5):627-35. Epub 2007 Nov 8. | PubMed |
10. David J, Townsend S, Sathanathan R, Kriss S, Doré CJ. The effect of acupuncture on patients with rheumatoid arthritis: a randomized, placebo-controlled cross-over study. Rheumatology (Oxford). 1999 Sep;38(9):864-9. | PubMed |
11. Man SC, Baragar FD. Preliminary clinical study of acupuncture in rheumatoid arthritis. J Rheumatol. 1974 Mar;1(1):126-9. | PubMed |
12. Liu W, Liu B, Wang Y, Zhang L, Shi XM. Observation on the therapeutic effect of acupuncture and moxibustion in 120 cases of rheumatoid arthritis, Chin Acupunct Moxibustion, 2003, vol. 23 (pg. 577-8).
13. Zhou JL, Zhu Q. Effects of acupuncture on rheumatoid arthritis. Chin J Rheumatol. 2000; 4:169-71.
14. Wang YJ. Combined acupuncture and west medication treating 109 cases of rheumatoid arthritis. Hunan Guiding J TCM P 2002; 8:769-70.
15. Chen, R.L. and Le, X.Y. (2005). Effect observation of acupuncture plus Chinese herbal mdicine for Rheumatoid Arthritis. Journal of Sichuan of Traditional Chinese Medicine. 23: 91-92.
16. Jiang S, Fan FY. Clinical observation on 40 cases of atrophic arthritis treated by acupuncture and moxibustion. Hunan Guiding J TCM 2003; 9: 41–2.
17. Xiang QX. , Study of the early curative effect on rheumatoid arthritis by acupuncture combined with electronic moxibustion. 2005 Heilongjiang, China Heilongjiang Trad Chin Med College Masters thesis.
18. Cui L, Guo RX, Gen W. The effect of acupuncture on reducing the pain of patients with rheumatoid arthritis. Ann Acupunct 2001; 3: 185–6.
19. He, C.G. and Cai, S.C. (2011). Observations on the Efficacy of Acupuncture plus Moxibustion on Du Meridian in Treating Rheumatoid Arthritis. Shanghai Journal of Acupuncture and Moxibustion. 30: 609-611.
20. Wang, S.F. (2010). Clinical observation of acupuncture combined with western medicine in treating 80 cases of rheumatoid arthritis. Hebei Journal of Traditional Chinese Medicine. 32: 1372-1373. In Chinese.
21. Wang, S.F. and Li, W.J. (2008). Effect of acupuncture combined with medicine on treating 68 cases of rheumatoid arthritis. Journal of Shaanxi College of Traditional Chinese Medicine. 31: 51-52.
22. Chen, J.Y. (2012). Effect observation of acupuncture on Du-Channel mainly in Treating Rheumatoid Arthritis. Shanghai Journal of Acupuncture and Moxibustion. 31: 921.
23. Li, Y. and Li, L. (2010). Effect observation of acupuncture combined with Leflunomide for Rheumatoid Arthritis. Hubei Journal of Traditional Chinese Medicine. 32: 18-19.
24. Liu, L. (2006). Clinical observation on treating 52 cases of rheumatoid arthritis with acupuncture plus Chinese herbal medicine. Jiangsu Journal of Traditional Chinese Medicine. 27: 48-49.
25. Ma, Z.Y. and Li, Y. (2008). Effect observation of acupuncture combined with Methotrexate for Rheumatoid Arthritis. Guangming Journal of Chinese Medicine. 23: 170-171.
26. Zuo, F., Liu, W. and Wang, H. (2004). Effect of Xinhuang Tablet combined with acupuncture on treating 62 cases of rheumatoid arthritis. Tianjin Journal of Traditional Chinese Medicine. 21: 295.
27. Tian, S.S., Zhou, G.Y., Chen, A.M., Gao, C.X., Wang, F.S., Li, L.G., Zhao, J.H. and Ma, S.Y. (2005). Clinical observation on rheumatoid arthritis treated with combination of traditional Chinese and western medicines, acupuncture and drugs. Hubei Journal of Traditional Chinese Medicine.
28. Ernst E, Lee MS, Choi TY. Acupuncture: does it alleviate pain and are there serious risks? A review of reviews. Pain. 2011 Apr;152(4):755-64. | CrossRef | PubMed |
29. Linde K, Niemann K, Schneider A, et al. How large are the nonspecific effects of acupuncture? A meta-analysis of randomized controlled trials. BMC Med. 2010;8:75.
30. Suarez-Almazor ME, Looney C, Liu Y, et al. A randomized controlled trial of acupuncture for osteoarthritis of the knee: effects of patient-provider communication. Arthritis Care Res. 2010;62 (9):1229–36.
31. Linde K, Witt C, Streng A, et al. The impact of patient expectations on outcomes in four randomized controlled trials of acupuncture in patients with chronic pain. Pain. 2007;128:264–71.
32. Burke A, Upchurch DM, Dye C, et al. Acupuncture use in the United States: findings from the National Health Interview Survey. J Altern Complement Med. 2006;12(7):639–48.
33. Amezaga Urruela, M. & Suarez-Almazor, M.E. Curr Rheumatol Rep (2012) 14: 589.
34. MacPherson H, Altman DG, Hammerschlag R, Youping L, Taixiang W, White A, Moher D; STRICTA Revision Group. Revised STandards for Reporting Interventions in Clinical Trials of Acupuncture (STRICTA): extending the CONSORT statement. PLoS Med. 2010 Jun 8;7(6):e1000261. | CrossRef | PubMed | PMC |
35. Nungent-head A., Ashi Points in Clinical Practice. Journal of chinese medicine. 2013;101:5-12.
36. Wang Y, Shen W, Yin X, Shen S. Systematic review and meta-analysis of acupuncture for rheumatoid arthritis pain. PROSPERO 2015 CRD42015027074. | Link |
37. ClinicalTrials.gov [Internet]. Bethesda (MD): National Library of Medicine (US). 2000 Feb 29 - . Identifier NCT01619176, Acupuncture Study on Rheumatoid Arthritis, Monitoring Microbiome and Blood; 2012 Jun 05 [cited 2018 Aug 06]. | Link |
38. Nederlands Trial Register [Internet]. Amsterdam: Academic Medical Center (The Netherlands). 2004 Oct 26 - . Identifier NTR4059, Proeftuin Integrative Medicine, 2013 Jul 03 [Cited 2018 Aug 06]. | Link |

Correspondencia a
Centro Evidencia UC
Pontificia Universidad Católica de Chile
Diagonal Paraguay 476
Santiago
Chile