Table des matières

Central poststroke pain

Douleur centrale post-AVC : évaluation de l'acupuncture

1. Systematic Reviews and Meta-Analysis

1.1. Saragih 2025

Saragih ID, Suarilah I, Mulyadi M, Saragih IS, Lee BO. Beneficial effects of non-pharmacological interventions for post-stroke pain: A meta-analysis. J Nurs Scholarsh. 2025 Mar;57(2):239-252. https://doi.org/10.1111/jnu.13032

Background	Purpose: Pain is a frequent post-stroke health concern, and several non-pharmacological interventions are commonly employed to manage it. However, few reviews have examined the effectiveness of such interventions, making it difficult to draw conclusions about their usefulness. Furthermore, subgroup analysis based on post-stroke pain level or intervention characteristics is rarely performed. This study aimed to investigate the effectiveness of non-pharmacological interventions and evaluate the significant factors associated with post-stroke pain through subgroup analysis. Design: Systematic review and meta-analysis.
Methods	Relevant studies were obtained from seven databases, from their commencement up to March 2024, as well as from the gray literature. The PICOS approach was used to evaluate the eligibility criteria of the studies. The RoB-2 tool was used to determine the risk of bias in each randomized trial. Pooled estimations of standardized mean difference and heterogeneity (quantified with I2) were obtained using a random-effects model. The stability of the pooled result was then assessed using the leave-one-out approach. STATA 17.0 was used to run the meta-analysis.
Results	Findings: Non-pharmacological interventions were effective in reducing pain immediately after intervention (pooled SMDs: -0.79; 95% confidence interval [CI]: -1.06 to -0.53; $p < 0.001$). The approach involving **acupuncture**, aquatic therapy, or laser therapy and rehabilitation training was effective for post-stroke hemiplegic shoulder pain. A pooled analysis of non-pharmacological interventions showed that both less than 4 weeks and more than 4 weeks of interventions were effective in alleviating pain in stroke patients.
Conclusion	Non-pharmacological approaches appear to be beneficial for reducing post-stroke pain. The outcomes based on the modalities merit further research. Clinical relevance: Further studies are needed to determine the effects of different modalities on pain intensity following a stroke. Furthermore, to avoid overestimation of intervention efficacy, future randomized trials should consider blinding approaches to the interventions delivered.

1.2. Tamasauskas 2025

Tamasauskas A, Silva-Passadouro B, Fallon N, Frank B, Laurinaviciute S, Keller S, Marshall A. Management of Central Poststroke Pain: Systematic Review and Meta-analysis. J Pain. 2025

Jan;26:104666. https://doi.org/10.1016/j.jpain.2024.104666

Background	Central poststroke pain (CPSP) is a neuropathic pain condition prevalent in 8 to 35% of stroke patients.
Methods	This systematic review and meta-analysis aimed to provide insight into the effectiveness of available pharmacological, physical, psychological, and neuromodulation interventions in reducing pain in CPSP patients (PROSPERO Registration: CRD42022371835). Secondary outcomes included mood, sleep, global impression of change, and physical responses. Data extraction included participant demographics, stroke etiology, pain characteristics, pain reduction scores, and secondary outcome metrics.
Results	Forty-two original studies were included, with a total of 1,451 participants. No studies providing psychological therapy to CPSP patients were identified. Twelve studies met requirements for a random-effects meta-analyses that found pharmacological therapy to have a small effect on mean pain score (SMD = -.36, 96.0% confidence interval [-.68, -.03]), physical interventions did not show a significant effect (SMD = -.55 [-1.28, .18]), and neuromodulation treatments had a moderate effect (SMD = -.64 [-1.08, -.19]). Fourteen studies were included in proportional meta-analysis with pharmacological studies having a moderate effect (58.3% mean pain reduction [-36.51, -80.15]) and neuromodulation studies a small effect (31.1% mean pain reduction [-43.45, -18.76]). Sixteen studies were included in the narrative review, the findings from which largely supported meta-analysis results. Duloxetine, amitriptyline, and repetitive transcranial magnetic stimulation had the most robust evidence for their effectiveness in alleviating CPSP-induced pain. Further multicenter placebo-controlled research is needed to ascertain the effectiveness of physical therapies, such as **acupuncture** and virtual reality, and invasive and noninvasive neuromodulation treatments.
PERSPECTIVE	This article presents a top-down and bottom-up overview of evidence for the effectiveness of different pharmacological, physical, and neuromodulation treatments of CPSP. This review could provide clinicians with a comprehensive understanding of the effectiveness and tolerability of different treatment types.

1.3. Zhang 2025

Zhang T, Zhai J, Cheng L, Jiang K, Wang D, Shi H, Wang B, Chen X, Dong X, Zhou L. Acupuncture effects of post-stroke thalamic pain: a systematic review and meta-analysis of randomized controlled trials. Front Neurol. 2025 Apr 30;16:1528956. https://doi.org/10.3389/fneur.2025.1528956

Backgound	Post-stroke thalamic pain (PS-TP), a common form of central pain, is characterized by hyperalgesia and abnormal sensations in the contralateral affected area. Acupuncture treatment has shown increasing promise in treating PS-TP in recent years. This systematic review and meta-analysis aimed to evaluate the efficacy and safety of acupuncture treatment for PS-TP.
Methods	According to the established search strategy, randomized controlled trials (RCTs) of acupuncture therapy for PS-TP were retrieved from eight Chinese and English databases as well as two clinical trial registration platforms, up to February 2024. Outcome measures included the total efficacy rate, visual analogue scale (VAS), present pain intensity score (PPI), pain rating index (PRI), β-endorphin (β-EP), substance P (SP) and adverse reactions. Sensitivity analysis and subgroup analysis were conducted to identify the sources of heterogeneity. We evaluated the evidence quality of outcomes via the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) rating system and performed trial sequential analyses using TSA software.

Results	The final inclusion comprised **12 articles, which involved 953 patients**. Meta-analysis results indicated that acupuncture treatment for PS-TP was more effective than conventional medical treatment in reducing VAS scores [MD = -1.11, 95% CI (-1.33, -0.88), p = 0.002], PPI scores [MD = -0.65, 95% CI (-1.13, -0.16), p = 0.009], and PRI scores [MD = -1.02, 95% CI (-1.41, -0.63), p < 0.00001]. Additionally, acupuncture treatment for PS-TP was superior to the conventional medical treatment in increasing plasma β-EP levels [MD = 8.83, 95% CI (5.42, 12.25), p < 0.00001], and reducing SP levels [MD = -4.75, 95% CI (-7.11, -2.40), p < 0.0001]. Regarding the total efficacy rate, acupuncture treatment was superior to the conventional medical treatment in treating PS-TP [RR = 1.24, 95% CI (1.17, 1.31), p < 0.00001]. The incidence of adverse events was lower in acupuncture treatment than in conventional medical treatment [RR = 0.43, 95% CI (0.14, 1.32), p = 0.03]. The GRADE assessment indicated that the quality of evidence for all outcome measures ranged from moderate to very low. Trial sequential analysis (TSA) results provided compelling evidence for the efficacy of acupuncture in treating PS-TP.
Conclusion	Acupuncture treatment emerges as a potentially efficacious and safe treatment option for PS-TP. In the future, more large-sample, high-quality RCTs are needed to provide primarily high-level evidence in evidence-based medicine regarding the safety and sustained effects of acupuncture treatment for PS-TP.

1.4. Cheng 2024

Cheng X, Zhang X, Ji J. Acupuncture treatment for central post-stroke pain: a systematic review and meta-analysis. J Acupunct Tuina Sci. 2024;22:341-52. https://doi.org/10.1007/s11726-024-1453-1

Objective	. To evaluate the efficacy and safety of acupuncture in the treatment of central post-stroke pain (CPSP).
Methods	. Randomized controlled trials of acupuncture treatment for CPSP in PubMed, Excerpta Medica Database (EMBASE), Cochrane Library, China National Knowledge Infrastructure (CNKI), Wanfang Data Knowledge Service Platform (Wanfang), Chongqing VIP Database (VIP), and China Biology Medicine Disc (CBM) were retrieved by computer. The retrieval time was from each database's inception to July 2023. Meta-analysis was performed using RevMan 5.3 software; GRADEprofiler 3.6.1 software was used to evaluate the quality of evidence. Dichotomous variables were analyzed by the risk ratio (RR). Continuous data were analyzed by mean difference (MD) with a confidence interval (CI) of 95%.
Results	A total of **14 studies** were included, comprising a total of **1 045 patients**. The findings of the meta-analysis showed that compared with Western medication in treating CPSP, the acupuncture treatment had a higher clinical effective rate [RR=1.09, 95%CI (1.01, 1.19), Z=2.08, P<0.05], a lower visual analog scale (VAS) score [MD=−0.75, 95%CI (−1.18, −0.32), Z=3.41, P<0.001], a lower pain rating index (PRI) score [MD=−1.72, 95%CI (−2.76, −0.68), Z=3.24, P<0.05], a higher plasma β-endorphin (β-EP) level [MD=5.81, 95%CI (3.00, 8.62), Z=4.05, P<0.001], and a lower adverse reaction rate [RR=0.05, 95%CI (0.01, 0.18), Z=4.35, P<0.001]. There was no statistical difference in the present pain intensity (PPI) score between the two treatments [MD=−0.26, 95%CI (−0.54, 0.02), Z=1.79, P>0.05]. Compared with Western medication in treating CPSP, acupuncture plus Western medication had a higher clinical effective rate [RR=1.18, 95%CI (1.05, 1.34), Z=2.75, P<0.05], a lower VAS score [MD=−1.04, 95%CI (−1.26, −0.82), Z=9.25, P<0.001], and a lower Pittsburgh sleep quality index (PSQI) score [MD=−2.67, 95%CI (−4.80, −0.54), Z=2.46, P<0.05]. The results of the evidence quality grade evaluation showed that there was no moderate- or high-quality evidence for acupuncture or acupuncture plus Western medication compared with Western medication in the treatment of CPSP.

Conclusion	Acupuncture has certain therapeutic advantages over Western medication in the treatment of CPSP. It can effectively relieve pain and improve sleep, with fewer adverse reactions and better safety. However, high-quality randomized controlled trials are still needed for further study and verification.

1.5. Li 2023

Li W, Chen S. Acupuncture for thalamic pain after stroke: A systematic review and meta-analysis. Medicine (Baltimore). 2023 Mar 3;102(9):e33006. https://doi.org/10.1097/MD.0000000000033006.

Objective	To evaluate the efficacy and safety of acupuncture on thalamic pain after stroke.
Methods	The self-established database was searched from 8 Chinese and English databases to June 2022, and the randomized controlled trials articles on the comparative treatment of thalamic pain after stroke with acupuncture were included. That visual analog scale, present pain intensity score, pain rating index, the total efficiency, and adverse reactions were mainly used to evaluate the outcomes.
Results	A total of **11 papers** were included. Meta-analysis showed that acupuncture appeared to be more effective than drugs for treatment of thalamic pain, as assessed by the visual analog scale [mean difference (MD) = -1.06, 95% confidence interval (CI) (-1.20, -0.91), P < .00001], the present pain intensity score [MD = -0.27, 95% CI (-0.43, -0.11), P = .001], the pain rating index [MD = -1.02, 95% CI (-1.41, -0.63), P < .00001], and the total efficiency [risk ratio = 1.31, 95% CI (1.22,1.41), P < .00001]. Meta-analysis results show that there is no significant difference in safety between acupuncture and drug therapy [risk ratio = 0.50, 95% CI (0.30,0.84), P = .009].
Conclusion	Studies have shown that acupuncture in the treatment of thalamic pain is effective, and it does not prove to have a higher safety than drug treatment, therefore a large-scale multicenter randomized controlled trials study is needed to further prove.

1.6. Yang 2023

Yang J, Li X, Li C, He K, Wu Y, Lin H, Xie X, Zhang F, Hao H, Tian G. Comparative efficacy and safety of acupuncture and Western medicine for poststroke thalamic pain. Anat Rec (Hoboken). 2023 Dec;306(12):3050-3059. https://doi.org/10.1002/ar.24902

Background	Poststroke thalamic pain (PSTP) is one of the most common sequelae following stroke. Analgesics, antidepressants, anticonvulsants, and surgical treatment are conventional treatment methods of PSTP, but these methods have limited efficacy, cost more, and cause a likelihood of adverse reactions. Clinical studies have shown that acupuncture has a significant analgesic effect on PSTP without obvious side effects. But, there is a lack of high-quality evidence concerning its effectiveness and safety to support its use.
Methods	Therefore, this study aimed to evaluate the clinical efficacy and safety of acupuncture versus Western medicine for the treatment of PSTP to provide evidence to support clinical PSTP treatment. Searches were conducted to identify randomized controlled trials investigating the use of acupuncture for PSTP across six databases, including PubMed, the Cochrane Library, EMBASE, the China National Knowledge Infrastructure, Wan Fang Database, and the Chinese Scientific Journal Database VIP. RevMan 5.3 software was used for the meta-analysis.

Results	The results showed that compared with Western medicine, acupuncture had a higher total effective rate for the treatment of PSTP, reduced visual analog scale scores, increased beta-endorphin content, and decreased incidence of adverse reactions. However, the sample sizes of the included studies were insufficient, and the quality of the articles was relatively poor. In future studies, the clinical study design should be standardized and the sample size should be expanded to validate these results.

1.7. Xu 2020

Xu XM, Luo H, Rong BB, Zheng XM, Wang FT, Zhang SJ, Li ZX. Nonpharmacological therapies for central poststroke pain: A systematic review. Medicine (Baltimore). 2020;99(42). [212867].doi

Background	Central poststroke pain (CPSP) is a neuropathic pain syndrome that can occur after a cerebrovascular accident. It has negative effects on mood, sleep, rehabilitation, and quality of life in stroke patients. This systematic review assessed the efficacy and safety of nonpharmacological therapies for treating CPSP.
Methods	The Cochrane, PubMed, Embase, and Web of Science databases were systematically searched for studies from inception to August 2020. Two authors worked independently and in duplicate to identify suitable studies.
Results	Eleven studies were identified. Pain related to CPSP was ameliorated by precentral gyrus stimulation (P = .01), caloric vestibular stimulation (P = 0.004), transcranial direct current stimulation (P < .05), and **bee venom acupuncture point injection** (P = .009). Acupuncture (P = .72) and **electroacupuncture** therapies (P > .05) were as effective for thalamic pain as oral carbamazepine treatment. Motor cortex stimulation, but not deep brain stimulation (DBS), was effective for treating refractory CPSP, and appeared to be more effective than thalamic stimulation for controlling bulbar pain secondary to Wallenberg syndrome. However, DBS in the ventral striatum or anterior limb of the internal capsule improved depression (P = .020) and anxiety in patients with refractory CPSP. Some serious adverse events were reported in response to invasive electrical brain stimulation, but most of these effects recovered with treatment.
Conclusions	Nonpharmacological therapies appear to be effective in CPSP, but the evidence is relatively weak. Invasive electrical brain stimulation can be accompanied by serious adverse events, but most patients recover from these effects.

1.8. Mulla 2015 Ø

Mulla SM, Wang L, Khokhar R, Izhar Z, Agarwal A, Couban R, Buckley DN, Moulin DE, Panju A, Makosso-Kallyth S, Turan A, Montori VM, Sessler DI, Thabane L, Guyatt GH, Busse JW. management of central poststroke pain: systematic review of randomized controlled trials. Stroke. 2015. 46(10):2853-60. [183348].

Background and purpose	Central poststroke pain is a chronic neuropathic disorder that follows a stroke. Current research on its management is limited, and no review has evaluated all therapies for central poststroke pain.

Methods	We conducted a systematic review of randomized controlled trials to evaluate therapies for central poststroke pain. We identified eligible trials, in any language, by systematic searches of AMED, CENTRAL, CINAHL, DARE, EMBASE, HealthSTAR, MEDLINE, and PsychINFO. Eligible trials (1) enrolled ≥10 patients with central poststroke pain; (2) randomly assigned them to an active therapy or a control arm; and (3) collected outcome data ≥14 days after treatment. Pairs of reviewers, independently and in duplicate, screened titles and abstracts of identified citations, reviewed full texts of potentially eligible trials, and extracted information from eligible studies. We used a modified Cochrane tool to evaluate risk of bias of eligible studies, and collected patient-important outcomes according to recommendations by the Initiative on Methods, Measurement, and Pain Assessment in Clinical Trials. We conducted, when possible, random effects meta-analyses, and evaluated our certainty in treatment effects using the Grading of Recommendations Assessment, Development, and Evaluation System.
Results	Eight eligible English language randomized controlled trials (459 patients) tested anticonvulsants, an antidepressant, an opioid antagonist, repetitive transcranial magnetic stimulation, and acupuncture. Results suggested that all therapies had little to no effect on pain and other patient-important outcomes. Our certainty in the treatment estimates ranged from very low to low.
Conclusions	Our findings are inconsistent with major clinical practice guidelines; the available evidence suggests no beneficial effects of any therapies that researchers have evaluated in randomized controlled trials.

1.9. Special Acupuncture Techniques

1.9.1. Comparison of Acupuncture techniques

1.9.1.1. Zhang 2025

Zhang C, Wu Z, Fan W, Wei W, Mutallip M, Yang S, Zhao W, Sun Y, Chen X. Comparison of the effects of acupuncture and drug treatment for central post-stroke pain: A systematic review and network meta-analysis of randomized trials. Behav Brain Res. 2025 Nov 13:115936. https://doi.org/10.1016/j.bbr.2025.115936

Background	Central post-stroke pain (CPSP), a chronic neuropathic pain syndrome severely impairing quality of life, has no established optimal therapy, though randomized controlled trials have evaluated the effects of drug therapy, acupuncture, and their combination.
Methods	The primary outcomes were pain scores and the number of adverse reactions. The primary analyses involved network plotting to illustrate the structure of the network with P-scores to encapsulate the ranking of interventions. Results were obtained through direct comparisons within studies and indirect comparisons across studies. The Cochrane tool (ROB 2.0) was utilized to evaluate risk of bias.

Results	Bayesian ranking identified Xingnao Kaiqiao acupuncture combined with pregabalin (82.47%) as the most effective, followed by carbamazepine with gabapentin (80.9%), Xingnao Kaiqiao acupuncture (79.31%), Tiaoshen Zhitong acupuncture (72.69%) and pregabalin (69.2%). Based on direct and indirect evidence from the NMA, Xingnao Kaiqiao acupuncture combined with pregabalin showed the greatest efficacy compared to placebo (-2.68, 95% CI: -5.29 to -0.14). Tiaoshen Zhitong acupuncture outperformed carbamazepine (-1.74, 95% CI: -3.20 to -0.23) and placebo (-2.06, 95% CI: -4.05 to -0.03), while pregabalin demonstrated superior analgesic effects compared to carbamazepine (-1.54, 95% CI: -2.40 to -0.64), gabapentin (-1.49, 95% CI: -2.45 to -0.51), and placebo (-1.86, 95% CI: -3.21 to -0.53).
Conclusion	For CPSP treatment, Xingnao Kaiqiao acupuncture combined with pregabalin was most effective, followed by Xingnao Kaiqiao acupuncture, Tiaoshen Zhitong acupuncture, and pregabalin. Treatment strategies may vary regionally; however, combining Xingnao Kaiqiao acupuncture with pregabalin could represent the most effective approach, providing clinical recommendations.

2. Overviews of Systematic Reviews

2.1. Wang 2026

Wang L, Dou J, Yang Y, Qin D, Yu B, Li X, Ying J, Zhu L, Jiang N, Zhou Y, Zhao L, Zhou X, Gou C. Efficacy and Safety of Acupuncture-Related Therapies for Central Post-Stroke Pain: An Umbrella Review. J Pain Res. 2026;19:595809. https://doi.org/10.2147/JPR.S595809

Purpose	Central post-stroke pain (CPSP) severely impairs survivors' quality of life, and pharmacological therapies are often limited by resistance and safety. Acupuncture-related therapies (AT) shows potential, but evidence is fragmented. This umbrella review synthesizes existing systematic reviews/meta-analyses (SRs/MAs) to evaluate the efficacy and safety of AT for CPSP.
Methods	This umbrella review included SRs/MAs of randomized controlled trials comparing AT with pharmacotherapy, placebo, or conventional therapy for CPSP. AT methods included traditional acupuncture methods such as manual acupuncture (MA) and electroacupuncture, as well as non-pharmacological physical interventions such as repetitive transcranial magnetic stimulation (rTMS). The outcomes included pain, limb function, psychological status, quality of life, and adverse events (AEs). Methodological quality, reporting quality, risk of bias, and evidence certainty of the SRs/MAs were assessed using the AMSTAR 2, PRISMA-A, ROBIS, and GRADE tools.
Results	A total of 9 SRs/MAs were included in this review. The reporting quality was relatively complete overall (median PRISMA-A score: 23.5/27). The methodological quality and certainty of evidence were predominantly low or critically low, with publication bias and risk of bias as the major downgrading factors. In terms of efficacy, AT significantly reduced pain scores versus control therapies (e.g. Visual analogue scale/ Numeric rating scale, mean difference [MD]=-1.11, 95% confidence intervals[CI] [-1.41,-0.81], p<0.00001), improved limb function (e.g. Modified Rankin Scale, MD=-0.62, 95% CI [-0.92,-0.32], p<0.00001), and enhanced quality of life (e.g. MOS 36-Item short-form health survey score, MD=6.77, 95% CI [2.50,11.04], p=0.002). Psychological outcomes did not show consistent improvement (e.g. Hamilton anxiety scale, MD=-0.96, 95% CI [-2.94,1.02], p=0.34). AEs were mostly mild and transient, although rTMS was associated with the highest incidence (61.08%).

Conclusion	AT can alleviate pain and improve limb function and quality of life in CPSP, though its effect on psychological symptoms remains unclear. The treatment is generally safe; however, rTMS carries a high risk of AEs. These findings require confirmation through rigorous, high-quality studies.

3. Clinical Practice Guidelines

⊕ positive recommendation (regardless of the level of evidence reported)
Ø negative recommendation (or lack of evidence)

3.1. Australian and New Zealand College of Anaesthetists (ANZA) 2020 ⊕

Acute Pain Management: Scientific Evidence Australian and New Zealand College of Anaesthetists (ANZA). 2020:1317P. [205268] . URL.

Acupuncture may reduce post-stroke pain (N) (Level I [PRISMA]).