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Coronary artery disease:

Coronaropathies : évaluation de l'acupuncture

Articles connexes: - conduites thérapeutiques - pathologie - acupuncture expérimentale - qigong -

1. Systematic Reviews and Meta-Analysis

1.1. Generic Acupuncture

1.1.1. Pang 2023 (combined with conventional drugs)

Pang S, Lv Y, Zhong W, Qian J, Zhao Y, Zhong J, Huang W. Effectiveness and safety of electroacupuncture combined with conventional drugs in the treatment of stable angina pectoris in coronary artery disease: A systematic evaluation and meta-analysis. Medicine (Baltimore). 2023 Feb 17;102(7):e32960. https://doi.org/10.1097/MD.0000000000032960.

Background	The objective of this study is to systematically evaluate the clinical effectiveness and safety of electroacupuncture combined with conventional drugs in the treatment of stable angina pectoris.
Methods	Computer searches of 3 Chinese literature databases (CNKI, VIP, WangFang) and 4 English literature databases (PubMed, Embase, Cochrane Central Register of Controlled Trials, Web of Science), all searched from the time of database construction to October 2022. Two researchers were selected to independently perform literature screening, data extraction, and risk of bias evaluation, and meta-analysis of the included studies was performed using RevMan 5.3 software.
Results	A total of **7 publications** with a total of **1042 patients** were included, and electroacupuncture combined with conventional drug therapy compared with drug therapy alone was effective in improving clinical symptoms of angina pectoris (relative risk [RR] = 1.19, 95% CI = [1.09, 1.31], P = .0002), clinical treatment efficiency of electrocardiography (RR = 1.34, 95% CI = [1.19, 1.50], P = .00001), visual analog score (VAS) (mean deviation = 0.07, 95% CI = [-0.11, 0.25], P = .44), and Seattle Angina Scale (mean deviation = 4.91, 95% CI = [2.91, 6.91], P < .00001) were better than conventional drug therapy, while the number of adverse events in the intervention group was lower than that in the control group. One of the outcome indicators with greater heterogeneity was tested by sensitivity analysis, and each outcome indicator was found to be more robust. The risk of bias evaluation of each outcome indicator using funnel plots suggested the possibility of publication bias.
Conclusion	The current study results found that electroacupuncture combined with conventional drugs can significantly improve the clinical symptoms of patients with stable angina pectoris compared with conventional drug therapy, with a low incidence of adverse reactions, but the number of high-quality literature with rigorous study design protocols is currently low, which may cause bias in the results of this study, so the above conclusions need to be further verified through clinical trials.

1.1.2. Huang 2019 ☆☆

Huang X, Guo S, Li F, Tan X, Cai Q, Wang H, Chen P, Wang G, Ma X. Acupuncture as an Adjunctive Treatment for Angina Due to Coronary Artery Disease: A Meta-Analysis. Med Sci Monit. 2019;:1263-1274. [193269].

Background	In traditional Chinese medicine, acupuncture has been used to treat angina due to coronary artery disease (CAD). The aim of this systematic review of the literature and meta-analysis was to identify published randomized controlled trials (RCTs) that quantified the effectiveness of adjunctive acupuncture treatment in patients with angina due to CAD who were also treated with Western or Chinese medicine.
Material and methods	A systematic review of the literature included a search of the PubMed, Embase, Cochrane library, and China National Knowledge Infrastructure (CNKI) databases, from their inception to September 2018. Published findings from RCTs were included that investigated the effectiveness of acupuncture as an adjunctive treatment for angina due to CAD in combination with Western or traditional Chinese medicine. The odds ratio (OR) and 95% confidence interval (CI) were calculated using the random-effects model to determine the outcomes of markedly and moderately effective rates for the use of acupuncture.
Results	**Twenty-four published RCTs** were identified that included **1,916 patients** with CAD. Patients who received adjunctive acupuncture treatment had a significantly increased markedly effective rate. However, the moderately effective rate between adjunctive acupuncture combined with standard treatment for angina and standard treatment alone was not statistically significant. Sensitivity analysis showed that the pooled results for the markedly and moderately effective rates were robust. Subgroup analysis in most subsets supported the main findings.
Conclusions	Meta-analysis supported a positive treatment effect for the use of acupuncture when used as adjunctive therapy in patients with angina due to CAD.

1.1.3. Liu 2019 ☆

Liu Y , Meng HY , Khurwolah MR , Liu JB , Tang H , Aa N , Yang ZJ. Acupuncture therapy for the treatment of stable angina pectoris: An updated meta-analysis of randomized controlled trials. Complement Ther Clin Pract. 2019;:247-253. [192638].

Background and purpose	Stable angina pectoris is a common symptom imperiling patients' life quality. The purpose of this meta-analysis is to assess the effectiveness of acupuncture alone or acupuncture plus medicine for the treatment of stable angina pectoris.
Methods	Seven databases were searched ranging from 1959 to February 2018. Quantitative analysis of randomized controlled trials (RCTs) was performed by RevMan 5.3 software and STATA 12.0 program, and Cochrane criteria for risk-of-bias was used to assess the methodological quality of the trials.
Results	A total of **12 RCTs involving 974 patients** were enrolled in this study. The pooled results showed that both acupuncture group (RR: 0.35, $P < 0.00001$; RR: 0.49, $P < 0.00001$) and acupuncture plus medicine group (RR: 0.26, $P < 0.00001$; RR: 0.52, $P = 0.03$) were associated with a higher percentage of improved anginal symptoms as well as electrocardiographic (ECG) results compared to medicine group. The acupuncture plus medicine group also had a lower intake rate of nitroglycerin than medicine group (Non-event RR: 0.79, $P = 0.03$). However, there was no significant difference in the reduction or discontinuation of nitroglycerin intake between acupuncture group and medicine group. No acupuncture-related adverse effects were observed or reported in the included trials.

Conclusion	Acupuncture therapy may improve anginal symptoms and ECG results in patients with stable angina pectoris, and can serve as an adjunctive treatment for this condition.

1.1.4. Yang 2019 ☆

Yang M, Sun M, Du T, Long H, Chen J, Liang F, Lao L. The efficacy of acupuncture for stable angina pectoris: A systematic review and meta-analysis. Eur J Prev Cardiol. 2019. [212063]. doi

Objective	The aim of this study was to assess the efficacy and safety of acupuncture in the treatment of patients with stable angina pectoris.
Methods	A literature search was performed in nine databases, including PubMed and the Cochrane Library, from their inception to 30 August 2018. Randomized controlled trials that compared acupuncture therapy with sham acupuncture or no treatment were included. Two reviewers under the guidance of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines assessed the eligibility of each record and extracted essential information independently. The data were merged using a fixed-effect model.
Results	Pooled analysis of **17 eligible trials** with **1516 participants** showed that acupuncture was associated with reduced angina attack frequency (–4.91; 95% confidence interval, –6.01– –3.82; $p < 0.00001$) and improved depression (–1.23; 95% confidence interval, –1.47– –1.00; $p < 0.00001$) and anxiety level (–0.96; 95% confidence interval, –1.16– –0.75; $p < 0.00001$) relative to sham treatment or standard care alone. No increased risk of adverse events was observed during treatment (relative risk, 0.70; 95% confidence interval, 0.33–1.48; $p = 0.35$). No significant improvement was shown in nitroglycerin use or angina intensity. The included studies were associated with unclear to high risk of selection or performance bias, and the quality of evidence was low to moderate.
Conclusions	Acupuncture may safely and effectively improve physical restrictions, emotional distress, and attack frequency in patients with stable angina pectoris. However, angina intensity and medication use were not reduced. Studies with adequate blinding and a valid sham control group are still warranted due to the current low quality of evidence.

1.1.5. Zhou 2018

Zhou Jianhua, Huang Wei, Deng Jie, Tang Yihan. [Meta Analysis of the Therapeutic Effect of Acupuncture on Stable Angina Pectoris]. Journal of Hubei University of Chinese Medicine. 2018;6:38-41. [201761].

Objective	To provide a reference for the clinical treatment of stable angina pectoris through the clinical study of acupuncture treatment of stable angina pectoris.
Methods	All the related literature published from the establishment of the database till August 20, 2017 in Cochrane Library, Pubmed, CNKI, VIP, WanFang Data, CBM were searched, a total of **4 articles, including 245 patients** were screened out and included.
Results	Compared with the conventional western medicine treatment, the therapy combined with acupuncture can improve the treatment efficiency, the ECG, the quality of life(including health pleasure, physical symptoms, performance, emotional status, life satisfaction, etc.), can reduce the frequency of angina and nitroglycerin consumption, the visual analog scale and improve the Seattle angina score. However, there were no significant changes in some indexes after acupuncture treatment on the basis of routine western medicine, such as the six-minute walk test score, the self-rating Anxiety Scale score, and the self-rating depression scale score.

Conclusion	The curative effect of acupuncture on the basis of routine western medicine is better than that of conventional western medicine, providing a high-quality evidence based medical evidence for acupuncture treatment of stable angina pectoris. However, there are still shortcomings in this study and higher quality systematic reviews are expected to improve the level of evidence.

1.1.6. Yu 2015 Ø

Yu C, Ji K, Cao H, Wang Y, Jin H, Zhang Z, Yang G. Effectiveness of acupuncture for angina pectoris: a systematic review of randomized controlled trials. BMC Complement Altern Med. 2015. [185264].

Background	The purpose of this systematic review is to assess the effectiveness of acupuncture for angina pectoris.
Methods	Eleven electronic databases were searched until January 2013. The study included randomized controlled trials that the effectiveness of acupuncture alone was compared to anti-angina medicines (in addition to conventional treatment) and the effectiveness of a combination of acupuncture plus anti-angina medicines was compared to anti-angina medicines alone. The trial selection, data extraction, quality assessment and data analytic procedures outlined in the 2011 Cochrane Handbook were involved.
Results	The study included **25 randomized controlled trials (involving 2,058 patients)** that met our inclusion criteria. The pooled results showed that the number of patients with ineffectiveness of angina relief was less in the combined acupuncture-anti-angina treatment group than in the anti-angina medicines alone group (RR 0.33, 95% CI 0.23-0.47, $p < 0.00001$, $I2 = 0\%$). Similarly, compared to the anti-angina medicines alone group, fewer patients in the combined treatment group showed no ECG improvement (RR 0.50, 95% CI 0.40-0.62, $p < 0.00001$, $I2 = 0\%$). However, no differences were observed between acupuncture treatment alone and anti-angina medicines alone for both outcome measures. Only four trials mentioned adverse effects. One trial found no significant difference between acupuncture and Chinese medicine, and three reported no adverse events. The quality of the trials was found to be low.
Conclusions	The findings showed very low evidence to support the use of acupuncture for improving angina symptoms and ECG of angina patients. However, the quality of the trials included in this study was low. Large and rigorously designed trials are needed to confirm the potential benefit and adverse events of acupuncture.

1.1.7. Zhang 2015 ☆

Zhang Z, Chen M, Zhang L, Zhang Z, Wu W, Liu J, Yan J, Yang G.. Meta-analysis of acupuncture therapy for the treatment of stable angina pectoris. Int J Clin Exp Med. 2015;8(4):5112-20. [165253].

Objective	Angina pectoris is a common symptom imperiling patients' life quality. The aim of this study is to evaluate the efficacy and safety of acupuncture for stable angina pectoris.
Methods	Clinical randomized-controlled trials (RCTs) comparing the efficacy of acupuncture to conventional drugs in patients with stable angina pectoris were searched using the following database of PubMed, Medline, Wanfang and CNKI. Overall odds ratio (Ors) and weighted mean difference (MD) with their 95% confidence intervals (CI) were calculated by using fixed- or random-effect models depending on the heterogeneity of the included trials.

Results	Total **8 RCTs, including 640 angina pectoris cases** with 372 patients received acupuncture therapy and 268 patients received conventional drugs, were included. Overall, our result showed that acupuncture significantly increased the clinical curative effects in the relief of angina symptoms (OR=2.89, 95% CI=1.87-4.47, P<0.00001) and improved the electrocardiography (OR=1.83, 95% CI=1.23-2.71, P=0.003), indicating that acupuncture therapy was superior to conventional drugs. Although there was no significant difference in overall effective rate relating reduction of nitroglycerin between two groups (OR=2.13, 95% CI=0.90-5.07, P=0.09), a significant reduction on nitroglycerin consumption in acupuncture group was found (MD=-0.44, 95% CI=-0.64, -0.24, P<0.0001). Furthermore, the time to onset of angina relief was longer for acupuncture therapy than for traditional medicines (MD=2.44, 95% CI=1.64-3.24, P<0.00001, min). No adverse effects associated with acupuncture therapy were found.
Conclusions	Acupuncture may be an effective therapy for stable angina pectoris. More clinical trials are needed to systematically assess the role of acupuncture in angina pectoris.

1.1.8. Zhang 2015 ☆

Zhang Z, Bai R, Zhang L, Qi W, Wang Y, Li B, Yang G. [Acupuncture combined with western medicine for angina of coronary artery disease: a systematic review]. Chinese Acupuncture and Moxibustion. 2015;35(4):407-11. (chi). [182649]. Traduction anglaise [52038].

Objective / Methods	The effectiveness and safety of acupuncture combined with western medicine for angina of coronary artery disease are evaluated. Databases including Pubmed, Embase, Cochrane Library, CBMDisk,. CNKI, Wanfang, Chinese Clinical Trial Registry, etc. are searched with search time from beginning of the database establishment to January of 2014.
Results	As a result, totally 15 articles of acupuncture for angina of coronary artery disease that met the inclusive criteria were collected, involving 11 researches and 1 232 patients. The results of Meta-analysis indicate that based on regular western medicine, additional use of acupuncture could further improve symptoms of angina, increase efficacy of electrocardiogram (ECG) and reduce the dosage of nitroglycerin, in the meanwhile the hemorheology could be ameliorated, and the contents of C reactive protein (CRP), malondialdehyde (MDA), lipid peroxide (LPO), endothelin (ET) could be reduced, while the contents of superoxide dismutase (SOD) and nitric oxide (NO) could be increased; besides, the occurrence rate of cardiovascular event could be reduced without causing obvious adverse events. Except for certain outcomes (including dynamic ECG and blood viscosity) those have no statistical significance between treatment group and control group, the differences of remaining outcomes are: statistically significant.
Conclusions	It is believed that acupuncture combined with regular treatment of western medicine are effective treatment plan for angina of coronary artery disease, which are superior to regular treatment of western medicine, but the results of this systematic review be taken with caution, and more clinical trials with high quality are looking forward to be included into Meta-analysis to increase the level of evidence.

1.1.9. Chen 2012 Ø

Chen J, Ren Y, Tang Y, Li Z, Liang F. Acupuncture therapy for angina pectoris: a systematic review. Journal of Tcm. 2012;32(4):494-501. 169463

Background	To assess the effectiveness and safety of acupuncture therapy for angina pectoris.

Methods	Randomized controlled trials (RCTs)concerned with acupuncture treatment of angina pectoris were identified by searching Academic Source Premier, MEDLINE, Science Citation Index Expanded, and three Chinese databases (China biology medicine database, China national knowledge infrastructure, and VIP database for Chinese technical periodicals). The valid data were extracted in accordance with our inclusion and exclusion criteria. The main outcomes of the included studies were synthesized using Revman 5.1.
Results	**Twenty-one articles on 16 individual studies** were included and evaluated as having high or moderate risk of bias according to the standards of the Cochrane Collaboration. Meta-analysis indicated that acupuncture combined with conventional drugs (ACCD) was superior to conventional drugs alone in reducing the incidence of acute myocardial infarction (AMI) [OR=0.18, 95% CI (0.04,0.84), P=0.03]. Moreover, ACCD was superior to conventional drugs in the relief of angina symptoms [OR=4.23, 95% CI (2.73, 6.56), P<0.00001], and improvement of electrocardiography (ECG) [OR=2.61,95% CI (1.83, 3.73), P<0.00001]. Acupuncture by itself was also superior to conventional drugs for angina symptoms [OR=3.59, 95%CI (1.76, 7.92), P=0.0004]and ECG improvement [OR=3.07, 95%CI (1.54, 6.10), P=0.001]. ACCD was superior to conventional drugs in shortening the time to onset of angina relief [WMD=-1.40, 95% CI (-1.65, -1.15), P<0.00001]. However, the time to onset was significantly longer for acupuncture treatment than for conventional treatment alone [WMD=2.43, 95% CI (1.63, 3.23), P<0.00001].
Conclusions	**ACCD reduced the occurrence of AMI, and both acupuncture and ACCD relieved angina symptoms and improved ECG**. However, compared with conventional treatment, acupuncture showed a longer delay before its onset of action. This indicates that acupuncture is not suitable for emergency treatment of heart attack. Owing to the poor quality of the current evidence, the findings of this systematic review need to be verified by more RCTs to enhance statistical power.

1.2. Special outcome

1.2.1. Dosage

1.2.1.1. Huang 2025

Huang D, Li Y, Zheng X, Hu J, Tang H, Yin Y, Wu Z, Kong L. Acupuncture Dosage and Its Correlation with Effectiveness in Patients with Chronic Stable Angina: A Systematic Review and Meta-Analysis of Randomized Controlled Trial. J Pain Res. 2025 Jan 10;18:105-125. https://doi.org/10.2147/JPR.S489880

Objective	This systematic review aimed to compare the efficacy of various acupuncture dosages for Chronic Stable Angina (CSA) using randomized controlled trials (RCTs), addressing the unclear relationship between dosage and effectiveness despite acupuncture's potential.
Methods	We searched eight bibliographic databases from inception to October 31, 2024, evaluating RCTs comparing acupuncture to placebo or standard care for CSA patients, focusing on angina attack frequency as the primary outcome. Studies were categorized into high (HDG), moderate (MDG), and low (LDG) dosage groups based on acupuncture characteristics: the number of acupoints, total sessions, frequency per week, and the need for “Deqi”.

Results	Of the 807 citations screened, **16 studies (1240 patients)** were included: 3 studies in LDG, 10 in MDG, and 3 in HDG. Acupuncture significantly reduced angina attacks compared to placebo (SMD, -0.51; 95% CI [-0.77, -0.25], P = 0.0001, I 2=62%), and standard care (SMD, -1.25, 95% CI [-1.89, -0.61], P = 0.00001, I2 =92%) without increasing adverse events. MDG showed a notable difference in reducing angina attacks (SMD, -0.60, 95% CI [-0.91, -0.29], P = 0.001, I2 =60%) while LDG and HDG did not. There is no difference in adverse events between groups. The evidence quality ranged from very low to moderate, and the results should be cautiously applied.
Conclusion	Acupuncture therapy effectively and safely alleviates CSA symptoms. Moderate dosage demonstrated the potential for better effects in reducing symptoms, suggesting optimal dosage considerations for future treatments.

1.2.2. Inflammatory biomarkers

1.2.2.1. Meng 2026

Meng L, Sun D, Ma H, Zhao S, Bai S, Zhu W, et al. Effects and safety of acupuncture on inflammatory biomarkers in patients with coronary heart disease: a systematic review and meta-analysis. Front Cardiovasc Med. 2026;13:1891405. https://doi.org/10.3389/fcvm.2026.1891405

Background	Inflammation contributes to the development and progression of coronary heart disease (CHD), and residual inflammatory risk remains clinically relevant despite standard cardiovascular treatment. This systematic review and meta-analysis evaluated the effects of acupuncture interventions on inflammatory biomarkers and safety in patients with CHD.
Methods	PubMed, Embase, the Cochrane Library, Web of Science, CNKI, Wanfang, VIP, and SinoMed were searched from inception to March 12, 2026, for randomized controlled trials evaluating acupuncture interventions in CHD. Co-primary outcomes were high-sensitivity C-reactive protein (hs-CRP) and C-reactive protein (CRP); secondary inflammatory outcomes included interleukin-6 (IL-6) and tumor necrosis factor-alpha (TNF-α). Meta-analyses were performed using Review Manager 5.4 and Stata 18.0. Random-effects 95% prediction intervals were calculated for heterogeneous outcomes with at least three studies. Subgroup and exploratory comparator analyses were conducted, and certainty of evidence was assessed using GRADE.
Results	**Thirteen randomized controlled trials involving 927 patients** were included. Acupuncture was associated with lower pooled CRP (SMD = -0.87, 95% CI -1.43 to -0.30; 95% PI -2.15 to 0.42; low-certainty evidence) and IL-6 (SMD = -0.74, 95% CI -1.31 to -0.17; 95% PI -1.93 to 0.45; low-certainty evidence), but heterogeneity was substantial and both prediction intervals included no effect. For hs-CRP, the pooled estimate was not statistically significant (SMD = -0.79, 95% CI -1.65 to 0.07; 95% PI -2.99 to 1.42). TNF-α also favored acupuncture, but results were limited by substantial heterogeneity and imprecision. Total cholesterol and triglycerides decreased, whereas LDL-C and HDL-C did not differ significantly. Adverse events did not differ significantly between groups, but safety reporting was sparse.
Conclusion	Although pooled CRP and IL-6 estimates favored acupuncture, low-certainty evidence, substantial heterogeneity, and prediction intervals crossing the null preclude concluding that there is a consistent anti-inflammatory effect. Evidence for hs-CRP and TNF-α remains inconclusive. Current studies also cannot distinguish acupuncture-specific effects from non-specific or contextual effects, and evidence on cardiovascular events and safety remains limited.

1.2.3. Glycolipid metabolism

1.2.3.1. Cui 2024

Cui Y, Li Z, Gao P, Xu W, Hu J. Effects of acupuncture-related treatments on blood lipid levels in patients with coronary heart disease: A comprehensive review and network meta-analysis. Complement Ther Med. 2024 Dec;87:103096. https://doi.org/10.1016/j.ctim.2024.103096

Backgound	Dyslipidemia is considered a substantial risk factor for coronary heart disease (CHD). Blood lipid levels in patients with CHD influence cardiovascular events. Therefore, it is critical to monitor and control these levels. As a traditional, complementary alternative therapy, acupuncture regulates blood lipid levels in patients with CHD. More acupuncture-related treatments are currently available. However, systematic reviews or evidence-based summaries have yet to be conducted.
Methods	This study included a randomized controlled trial of the effects of acupuncture-related therapies on blood lipid levels in CHD patients. The outcome indicators were changes in the TC, TG, LDL-C, and HDL-C levels. Two independent reviewers extracted data from PubMed, Web of Science, EMBASE, Cochrane Library, Medline (Ovid), China Knowledge Network, Wanfang, Vipshop, and SinoMed databases until January 7 2024. The literature quality was assessed using RevMan 5.4.1. The data were analyzed using the Frequentist network meta-analysis with STATA 15.1 software. Network meta-analysis was used to compare direct and indirect evidence, and a cumulative ranking curve (SUCRA) was used to evaluate the curative effect. For consistency, global inconsistency and ring-inconsistency test evaluations were used. The Cochrane bias risk assessment tool was used to assess quality.
Results	**Fourteen studies with 1416 patients** were included in the study. The evidence network shows that there are many studies on acupuncture and warm acupuncture. According to the direct comparison and SUCRA ranking, acupuncture reduced TC [- 1.82 (- 3.36, - 0.28)], heat-sensitized moxibustion lowered TG [- 2.12 (- 3.55, - 0.69)], LDL-C [- 1.37 (- 2.09, - 0.66)], and increased HDL-C [0.87 (0.52, 1.22)]. These two interventions were the first in the SUCRA ranking. The inconsistency analysis revealed that direct evidence corresponded with indirect evidence. There were some methodological defects in the included studies, and some studies did not implement blinding methods, had small sample sizes or other problems.
Conclusions	Heat-sensitized moxibustion significantly lowered TG and LDL-C levels and elevated HDL-C levels. Acupuncture significantly reduced TC levels. Heat-sensitized moxibustion is a more effective intervention than other acupuncture-related treatments for regulating blood lipid levels in patients with CHD. However, this study has several limitations, and clinical practice should be performed as needed.

1.2.3.2. Sun 2024

Sun Y, Liu Y, Xiong J, Li X, Wei Y, Zheng Q, Li X, Qi W, Liang F. Effectiveness of acupuncture on glycolipid metabolism in patients with coronary heart disease: A systematic review and meta-analysis. Complement Ther Med. 2025 Mar;88:103115. https://doi.org/10.1016/j.ctim.2024.103115

Objective	Disorders of glycolipid metabolism are important pathogenic factors leading to coronary artery disease, and there is no safe and effective comprehensive treatment, while acupuncture has a certain efficacy in heart disease and disorders of glycolipid metabolism. To assess the effects of acupuncture on glycolipid metabolism in patients with coronary heart disease, we conducted a systematic review and meta-analysis.

Methods	From the time of library construction to August 18, 2023, Searches were conducted in eight databases, with no language restriction. Only RCTs that included acupuncture as a sole or secondary effect on glucose-lipid metabolism in coronary heart disease were included.Our primary outcome indicators were Low-density lipoprotein cholesterol(LDL-C), Hemoglobin A1c(HbA1c). Our analyses were conducted in strict accordance with the PRISMA statement, and the researchers used the Cochrane Handbook for literature screening and data extraction, the “Risk of Bias” tool (ROB.2) for assessing risk of bias, and RevMan (version 5.3) for meta-analysis of outcome metrics, and the GRADE criteria for assessing quality of evidence. Assessing the quality of acupuncture literature using the Standards for reporting interventions in clinical trials of acupuncture.
Results	Our analysis included **18 eligible RCTs (N = 1346 participants)**. For the primary outcome metrics, acupuncture combined with standard treatment was effective in reducing LDL-C (SMD =-0.56; 95 % CI, -0.75 to -0.38; P < 0.00001), and HbA1c (MD = -1.15; 95 % CI, -1.73 to -0.58; P < 0.0001). For secondary outcome measures, combination therapy improved TC (SMD = -0.97; 95 % CI, -1.44 to -0.51; P < 0.0001), TG (MD = -0.39; 95 % CI, -0.58 to -0.20; P < 0.0001), hs-CRP (MD = -0.98; 95 % CI, -1.43 to -0.52; P <0.0001), 2hPG (MD = -1.45; 95 % CI, -1.74 to -1.16; P < 0.00001), and ORR (RR, 1.27; 95 % CI, 1.19-1.36; P < 0.00001) levels more than standard therapy alone.However, the combination therapy did not prevail in lowering HDL-C (MD = 0.11; 95 % CI, 0.07-0.14; P < 0.00001) compared with standard therapy alone. Meanwhile heterogeneity analysis showed that After coronary heart disease intervention, acupuncture was able to reduce TC (SMD = -0.85; 95 % CI, -1.37 to -0.33; P = 0.001), TG (MD = -0.14; 95 % CI, -0.24 to -0.04; P = 0.004) levels, but did not dominate in lowering LDL-C.
Conclusions	Acupuncture effectively regulates glycolipid metabolism in coronary artery disease, serving as an adjuvant treatment. It may aid post-PCI healing via lipid metabolism regulation, but rigorous, large-scale, long-term RCTs are needed for validation.

1.3. Special Acupuncture Techniques

1.3.1. Comparison of Acupuncture techniques

Li 2022 Li RQ, Wan L, Zi MJ, Duan WH, He LY, Gao RR. [Stable angina pectoris of coronary heart disease treated with different acupuncture and moxibustion therapies: a network Meta-analysis]. Zhongguo Zhen Jiu. 2022 Dec 12;42(12):1431-8.
https://doi.org/10.13703/j.0255-2930.20220513-0002

Objective	To compare the clinical efficacy among different acupuncture and moxibustion therapies on stable angina pectoris (SAP) of coronary heart disease by means of network Meta-analysis.
Methods	The articles of randomized controlled trial (RCT) for SAP of coronary heart disease treated with acupuncture and moxibustion therapies were searched from PubMed, Web of Science, Cochrane Library, CNKI, Wanfang database and VIP database from May 1, 2002 to May 1, 2022. The quality of them was assessed with the risk of bias assessment tool of Cochrane 5.3, and the network Meta-analysis was undertaken with Stata 13.1 software.

Results	A total of **29 articles** were included with the acupuncture and moxibustion therapies involved, e.g. acupuncture, acupoint application and moxibustion. In comparison with the simple routine western medication, the effective rate was better on SAP treated with the combined treatments, in which, acupoint application, moxibustion, acupuncture and intradermal needling were combined with routine western medication (P<0.05). Of those combined treatments, the combination of the acupoint application with routine western medication had high probability, suggesting the optimal regimen (area under the curve [SUCRA]=0.711, P<0.05). The effective rate of acupuncture combined with routine western medication for ECG improvement was better than that of routine western medication (P<0.05), and such combined treatment was high in probability, underlying its optimal treatment (SUCRA=0.800, P<0.05).
Conclusions	Combined with routine western medication, acupuncture, acupoint application, moxibustion and intradermal needling all improve the clinical efficacy on SAP of coronary heart disease. But, with different outcomes considered, the optimal treatments may be different. It needs more multi-central and large-sample randomized controlled trials to validate these results.

1.3.2. Acupuncture at neiguan

1.3.2.1. Ma 2020

Ma Chuang. [Meta-analysis on the Effect of Acupuncture at Neiguan Point on the Outcomes of Patients with Stable Angina]. Shanghai Nursing. 2020. [212896].

Objective	To systematically evaluate the effect of acupuncture at Neiguan point on the outcomes of patients with stable angina. Methods Pub Med, MEDLINE, Cochrane Library, Web of Science, CNKI, VIP Chinese Journal Database, Wanfang Data and China Biology Medicine disc were retrieved by computer for randomized controlled trials on acupuncture at Neiguan point in the treatment of stable angina. Then, Meta-analysis was performed by using Rev Man 5. 3 software.
Results	A total of 1 392 literatures were retrieved, and **7 of them were finally included** after duplicate checking and reading abstracts or full texts. With 30□186 samples in each literature, a total of **846 cases were included**, including 419 in the observation group and 427 in the control group. The number of attacks in patients with stable angina (P<0. 05) and the degree of pain (P<0. 05) in Neiguan point acupuncture group were reduced more than that in the control group. According to Seattle Angina Questionnaire scores, Neiguan point acupuncture group was superior to the control group in terms of stable state of angina, frequency of angina attack, limitation of physical activity, treatment satisfaction and cognition to disease (P <0. 05).
Conclusion	Acupuncture at Neiguan point along meridians can better reduce the frequency of angina attack and the degree of pain, and improve patients' cognition to disease and treatment satisfaction.

1.3.3. Moxibustion

1.3.3.1. Zhang 2015 ☆

Zhang Z, Chen M, Wu WS, Zhang L, Hua Z, Yang GL. [Efficacy evaluation of moxibustion therapy for angina patients with coronary artery disease]. Journal of Nanjing University of Traditional Chinese Medicine (Natural Science). 2015 ;2 :183-186. [187013]

Objectives	To evaluate the benefits and side effects of moxibustion therapy for coronary artery disease.
Methods	Relevant studies of moxibustion therapy for angina were collected from databases including Pubmed, Embase, Co-chrane library, CNKI, Wanfang Database and CBMDisk. The inclusion and exclusion criteria was applied when the literature was screened, data was extracted and the quality of the included studies were assessed independently. Then, meta-analysis was performed by using RevMan 5 . 2 software.
Results	**1318 patients and 13 researches** about moxibustion therapy for coronary artery disease were collected. The Meta-analysis showed that compared with the control group, the western medicine group [RR=1. 22, 95%CI (1. 11, 1. 33) and the acupuncture group [RR=1. 5, 95%CI (1. 23, 1. 83), the moxibustion group showed great improvement in relieving angina pectorisis and good effects were shown in the ECG [RR=1. 23, 95%CI (1. 14, 1. 33). In terms of blood liquids, the moxibustion group showed good effects in regulating triglyceride [SMD=-0. 81, 95%CI (-1. 57, -0. 06), low density lipoprotein cholesterin [SMD =-0. 55, 95%CI (-1. 04, -0. 06), and high density lipoprotein choles-terol [SMD=0. 43, 95%CI (0. 2, 0. 65) and the changes were of statistical significance. Compared with the Chinese medicine group, the improvement in angina pectorisis of the moxibustion group showed no statistical significance [RR=1. 15, 95%CI (0. 99, 1. 35). The difference between the changes of total cholesterol in the treatment group and the control group had no statis-tical significance [SMD=-0. 74, 95%CI (-1. 75, 0. 27).
Conclusions	Moxibustion is a unique TCM therapy in treating angina pectorisis and can be applied in clinical practices. Meanwhile, the outcome of this system was not perfect. And more high quality of randomized controlled trials are needed to verify the effect of the therapy.

1.4. Special Clinical Forms

1.4.1. Percutaneous coronary intervention

1.4.1.1. Chen 2026

Chen Z, Nie J, Tian J. Can acupuncture improve cardiac function in patients after percutaneous coronary intervention? A systematic review and meta-analysis. Front Med (Lausanne). 2026;13:1926216. https://doi.org/10.3389/fmed.2026.1926216

Background	This study systematically evaluated the effects of acupuncture on cardiac function and reported adverse events in patients after percutaneous coronary intervention (PCI).
Methods	PubMed, China National Knowledge Infrastructure, Wanfang Medical, China Biomedical Literature Database, VIP Database, Embase, Ovid Medline, SinoMed, and the Cochrane Library were searched from inception to May 2026. Two reviewers independently screened studies and extracted data. Methodological quality was assessed according to the Cochrane Handbook for Systematic Reviews of Interventions (version 5.1), meta-analysis was performed using Review Manager 5.3, and certainty of evidence was assessed with GRADE.

Results	**Eight RCTs involving 759 patients** were included: 379 in acupuncture groups and 380 in control groups receiving conventional treatment or sham acupuncture. Acupuncture was associated with higher left ventricular ejection fraction (LVEF; MD = 4.26 percentage points, 95% CI 1.21 to 7.31, p = 0.006) and greater 6-minute walking distance (MD = 43.88 m, 95% CI 10.40 to 77.36, p = 0.01). Serum creatine kinase-MB was reduced (SMD = -1.99, 95% CI -3.46 to -0.52, p = 0.008). Acupuncture was also associated with lower left ventricular end-systolic diameter (LVESD; MD = -2.56 mm, 95% CI -4.65 to -0.46, p = 0.02) and end-diastolic diameter (LVEDD; MD = -1.36 mm, 95% CI -2.34 to -0.37, p = 0.007). Major adverse cardiovascular events were less frequent with acupuncture (RR = 0.40, 95% CI 0.24 to 0.66, p = 0.0005).
Conclusion	Current evidence suggests that acupuncture may improve cardiac function after PCI. However, the evidence base is limited by the small number of studies and methodological weaknesses. Larger, rigorously designed, high-quality randomized controlled trials are needed to confirm these findings.

1.4.2. Myocardial Ischemia/Reperfusion (I/R) Injury

1.4.2.1. Xiong 2025

Xiong J, Wei Y, Huang X, Hu J, Ling F, Shang Z, Qi W, Zheng Q, Li D, Liang F. A Meta-Analysis of Randomized Controlled Trials (RCTs) Investigating the Efficacy and Safety of Acupuncture in Treating Myocardial Ischemia/Reperfusion (I/R) Injury. Cardiol Res Pract. 2025 Jun 24;2025:9970541. https://doi.org/10.1155/crp/9970541

Objectives	This study systematically reviewed and meta-analyzed randomized controlled trials (RCTs) evaluating the efficacy and safety of acupuncture in myocardial ischemia/reperfusion (I/R) injury.
Methods	A comprehensive literature search was conducted in PubMed, Cochrane Library, Web of Science, Chinese National Knowledge Infrastructure, China Science and Technology Journal Database, and Wanfang from database inception to November 3, 2024. Eligible RCTs assessing acupuncture for myocardial I/R injury were included. Statistical analyses were performed using Review Manager 5.3 and Stata 16.
Results	A total of **26 RCTs** of moderate methodological quality were included. Acupuncture significantly reduced myocardial enzyme levels compared to controls. Inflammatory markers (hs-CRP, TNF-α, IL-6, IL-8, and IL-1) were suppressed, while anti-inflammatory and immunoregulatory factors (IL-10 and IL-2) increased. Oxidative stress parameters showed improvements, with reductions in MDA and SOD levels. Echocardiographic findings demonstrated enhanced cardiac function, reflected by increased LVEF and LVESV, along with reductions in LVFS, LVEDD, LVEDV, and LVESD. Additionally, acupuncture alleviated TCM chest pain symptoms, shortened ICU stays, lowered MACE incidence, and improved 6MWT and SAQ indicators. No adverse reactions were reported.
Conclusion	Acupuncture attenuates myocardial injury, inflammation, and oxidative stress while activating anti-inflammatory and immune responses, enhancing cardiac function, and mitigating ventricular remodeling. Furthermore, it alleviates chest pain, shortens ICU stays, reduces adverse cardiovascular events, and improves 6MWT and SAQ indicators.

2. Overview of systematic review

2.1. Ji 2022

Ji W, Wu L, Pan G, Zou X. Effects and Safety of Non-Pharmacological Therapies of Traditional Chinese Medicine for Coronary Heart Disease: An Overview of Systematic Reviews. Evid Based Complement Alternat Med. 2022 Mar 19;2022:8465269. https://doi.org/10.1155/2022/8465269

Objectives	Coronary heart disease (CHD) is currently the leading cause of human death. Non-pharmacological therapy of traditional Chinese medicine (NPTCM) is an important characteristic therapy of traditional Chinese medicine (TCM). Questions concerning the efficacy and safety of NPTCM-related interventions in patients with CHD led us to conduct this overview of systematic reviews (SRs).
Methods	The Cochrane Library, PubMed, Embase, EBSCO, Epistemonikos, PROSPERO, CNKI, Wanfang Database, and SinoMed were searched without language and publication status restriction from their inception to May 2021, along with grey literature sites and reference lists of included reviews. Systematic reviews comparing NPTCM/a combination of NPTCM and non-TCM interventions with non-TCM interventions/inactive controls for CHD were examined. Two reviewers independently screened titles, abstracts, and full-text articles, and completed data extraction and quality appraisal according to the predefined standards.
Results	In total, 1494 titles and abstracts and 66 full-text articles were screened, and a total of **12 SRs (11 with meta-analysis)** were finally included. According to PRISMA 2020 checklist, more than 50% of reviews conformed to 80% of 54 items. Consistent evidence of effectiveness or harms across multiple outcomes based on more than one moderate quality review with meta-analysis was found for acupuncture and usual care plus acupuncture/Baduanjin/TCM exercise therapies/TCM emotional therapy. These interventions were mostly evaluated less than 6 months.
Conclusion	Acupuncture or acupuncture plus usual care could improve angina symptoms and ECG, and usual care plus Baduanjin/TCM exercise therapies could ameliorate health-related quality of life. Additionally, Baduanjin plus usual care could also improve psychological condition, and it as well as acupuncture could be safe due to no reports on adverse events related to these interventions. TCM emotional therapy plus usual care could benefit patients with CHD and depression.

2.2. Qi 2022

Qi WC, Fu HJ, Sun RR, Li X, Cai DJ, Wang C, Liang FR. Effectiveness and safety of acupuncture for angina pectoris: An overview of systematic reviews. Integr Med Res. 2022 Sep;11(3):100864. https://doi.org/10.1016/j.imr.2022.100864

Background	The number of systematic reviews meta-analyses (SRs/MAs) on the effectiveness of acupuncture for angina pectoris (AP) is increasing. Due to the inconsistent conclusions and unknown quality of these SRs/MAs, this overview aimed to systematically evaluate and synthesize the existing SRs/MAs, attempting to provide more reliable evidence for the effectiveness and safety of acupuncture in the treatment of AP.
Methods	SRs/MAs were searched via eight databases from inception to March 14, 2022. The risk of bias was evaluated using the Risk of Bias in Systematic reviews (ROBIS) tool. The quality of the methodology, reporting, and evidence were assessed by the Assess Systematic Reviews 2 (AMSTAR-2), the Preferred Reporting Item for Systematic Review and Meta-analysis for Acupuncture (PRISMA-A), and the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) system, respectively.

Results	**Sixteen SRs/Mas** were included and fifteen SRs/MAs were considered being of critically low quality according to AMSTAR-2. Only three SRs/MAs were rated at low risk of bias. No study reported all the items listed in the PRISMA-A checklist. No high-quality evidence with GRADE assessment was found. With the low-quality evidence, acupuncture combined with other interventions was superior to monotherapy (medications or Chinese medicine) in the angina symptom and electrocardiogram recovery. No adverse effects owing to acupuncture were reported.
Conclusions	Owing to the lack of high-quality evidence provided by the current SRs/MAs, the effectiveness of acupuncture for AP still warrants further proof. Further researches with more critical design and methodology are needed for providing more convincing evidence.

2.3. Shen 2021

Shen M, Huang J, Qiu T. Quality of the Evidence Supporting the Role of Acupuncture for Stable Angina Pectoris: An Umbrella Review of Systematic Reviews. Front Cardiovasc Med. 2021. [222758]. doi

Background	To systematically appraise and synthesize evidence, we conducted an overview of systematic reviews/meta-analyses (SRs/MAs) on acupuncture for stable angina pectoris (SAP).
Methods	Eight databases were searched for SRs/MAs of acupuncture on SAP. The methodological quality, reporting quality, and evidence quality were evaluated by Assessing the Methodological Quality of Systematic Reviews 2 (AMSTAR-2), the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist, and the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system, respectively.
Results	A total of **seven published SRs/MAs** met the inclusion criteria. According to the evaluation results of AMSTAR-2, two studies were considered as of moderate quality; the remaining five were considered as of very low quality. According to the evaluation results of the PRISMA checklist, only one study reported the checklist in its entirety, while others had reporting deficiencies. According to GRADE, a total of 18 outcome indicators extracted from the included studies were evaluated. The evidence quality was very low in three, low in three, moderate in eight, and high in four.
Conclusion	Acupuncture may be beneficial for SAP from the currently published evidence. However, this conclusion must be interpreted cautiously due to the generally low methodological quality, reporting quality, and evidence quality of the included studies. More rigorous, more standardized and comprehensive SRs/MAs are needed to provide strong evidence for convincing conclusions.

3. Clinical Practice Guidelines

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

3.1. Scottish Intercollegiate Guidelines Network (SIGN, Scotland) 2018 Ø

Management of stable angina. Scottish Intercollegiate Guidelines Network (SIGN). 2018:76P. [196082].

Insufficient evidence was found to support use of the following approaches for pain relief in patients with stable angina: stellate ganglion block, nerve block, transcutaneous electrical nerve stimulation, thoracic sympathectomy, analgesics, **acupuncture**, coronary sinus reducer stent.

3.2. Malaysia Health Technology Assessment Section (MaHTAS, Malaysia) 2018 ⊕

Malaysia Health Technology Assessment Section (MaHTAS). Clinical Practice Guidelines of Stable Coronary Artery Disease. National Heart Association of Malaysia (NHAM), Academy of Medicine Malaysia. 2018:156P. [172231]. doi

Options available to these symptomatic patients who are not amenable to conventional therapy include: [Acupuncture].

3.3. National Institute for Health and Clinical Excellence (NICE, UK) 2016 Ø

Stable angina: management (CG126), Evidence-based recommendations on the management of stable angina in adults London (UK): National Institute for Health and Clinical Excellence (NICE). 2016.

> We reviewed the evidence in April 2016. We found nothing new that affects the recommendations in this guideline. [157576].

1.6 *Pain interventions*. 1.6.1 Do not offer the following interventions to manage stable angina: transcutaneous electrical nerve stimulation (TENS), enhanced external counterpulsation (EECP), **acupuncture**.

3.4. American College of Physician (ACP, USA) 2012 Ø

Qaseem A, Fihn SD, Dallas P, Williams S, Owens DK, Shekelle Pqaseem A, Fihn SD, Dallas P, Williams S, Owens DK, Shekelle P Clinical Guidelines Committee of the American College of Physician. Management of stable ischemic heart disease: summary of a clinical practice guideline from the American College of Physicians/American College of Cardiology Foundation American Heart Association/American Association for Thoracic Surgery. Ann Intern Med. 2012;157(10):735-473. [165633].

Recommendation 29: The organizations recommend that acupuncture should not be used for the purpose of improving symptoms or reducing cardiovascular risk in stable IHD patients (Grade: strong recommendation; low-quality evidence).

3.5. American College of Cardiology Foundation (ACCF, USA) 2012Ø

Fihn SD, Gardin JM, Abrams J, Berra K, Blankenship JC, Dallas AP, Douglas PS, Foody JM et al. 2012 ACCF/AHA/ACP/AATS/PCNA/SCAI/STS guideline for the diagnosis and management of patients with stable ischemic heart disease. J Am Coll Cardiol. 2012;60(24):e44-164. [186912].

CLASS III: No Benefit. Acupuncture should not be used for the purpose of improving symptoms or reducing cardiovascular risk in patients with SIHD (916,917). (Level of Evidence: C)

3.6. National Institute for Health and Clinical Excellence (NICE, UK) 2011 Ø

National Clinical Guideline Centre. Management of stable angina. London (UK): National Institute for Health and Clinical Excellence (NICE). 2011; : 34P. [187969].

Do not offer the following interventions to manage stable angina: transcutaneous electrical nerve stimulation (TENS), enhanced external counterpulsation (EECP), acupuncture.

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