Table 1: Systematic reviews of acupuncture in chemotherapy-induced nausea and vomiting

Source: CAM-Cancer Collaboration. Acupuncture for chemotherapy-induced nausea and vomiting [online document]. https://cam-cancer.org/CAM-Summaries/xxx, date 2025.

Methods	Included studies	Risk of bias assessment	Results and conclusions	Comments
Alhusamiah B, Almomani J, Al Omari A, Abu attallah A, Yousef A, Alshraideh JA, et al. The effectiveness of P6 and auricular acupressure as a complementary therapy in chemotherapy-induced nausea and vomiting among patients with cancer: systematic review. Integr Cancer Ther. 2024;23:1-15. doi:10.1177/15347354241239110.				
Type of review: Systematic review **Search strategy – Databases:** MEDLINE, PubMed, Embase, CINAHL, EBSCO, SAGE Journals, Google Scholar, ScienceDirect. **Dates of search:** Articles published between 2015 and 2023. **Type of data synthesis:** Narrative-descriptive synthesis with summary tables (only unanimously agreed data included). **Risk of bias assessment used:** **Clinical trials:** Cochrane Risk of Bias Tool (ROB 2) and Effective Public Health Practice Project (EPHPP) Quality Assessment Tool. **Systematic reviews:** ROBIS tool and AMSTAR 2 checklist. **Inclusion criteria** **Population:** Patients diagnosed with any type of cancer, aged >18, who received chemotherapy and experienced nausea and/or vomiting after chemotherapy. **Intervention:** Acupressure (P6 or auricular) with or without antiemetic medications.	**Studies and participants** Total studies: 14 10 clinical trials (5 RCTs, 5 quasi-experimental) 4 systematic reviews **Number of participants** Clinical trials: total 508. Systematic reviews: 4 reviews including 68 studies overall (some overlapping with the trials). **Interventions** P6 (Neiguan) acupressure – manual pressure or wristbands 4 RCTs Auricular acupressure – ear seeds, pressure pellets, sometimes combined with ear massage 3 RCTs Combination of P6 with other acupoints (e.g., SP4, H7) 2 RCTs (some overlap) **Comparisons** Antiemetic medications alone 5 RCTs Placebo acupressure (non-acupoints) 3 RCTs Usual care 2 RCTs **Outcome measurement tools** RINV 3 RCTs MANE 1 RCT INVR: 1 RCT VAS for nausea severity 2 RCTs	**Results for risk of bias assessment of primary studies included in review:** ***Clinical Trials*** Overall ROB2 results: Low risk n=5, some concerns n=3, high risk n=2. Reported results do not match the RoB2 domains.* EPHPP results quality High: 6 studies (60%); Moderate quality: 4 studies (40%) ***Systematic Reviews*** ROBIS results Low RoB: n=2, high n=2, unclear: n=0 AMSTAR 2 results Low to critically low.	**Results for main outcome measures** ***Nausea Severity (Acute and Delayed)*** Statistically significant reductions compared with control. P6 acupressure delayed the onset and reduced the intensity of nausea. Auricular acupressure lowered nausea severity in both acute and delayed phases. ***Vomiting Frequency and Severity*** P6 stimulation (manual or with bands) was particularly effective in lowering delayed vomiting severity in breast cancer patients receiving doxorubicin and in lung cancer patients receiving cisplatin. Auricular acupressure reduced vomiting frequency in ovarian and breast cancer patients and showed benefit in colorectal cancer. One study combining auricular acupressure with ear massage produced mixed results. One leukemia study found reduced nausea but no significant change in vomiting intensity. ***Delayed CINV*** P6 acupressure and auricular acupressure both significantly reduced delayed nausea intensity and vomiting frequency compared to controls. **Adverse events** Adverse effects were and mild (GI and discomfort from auricular tape). **Conclusion** *"The successful and effective application of*	**Quality of SR** AMSTAR2 Low. Publication bias not assessed. Methods and reporting not transparent. No justification of why different study types were included. **Limitations** Included SRs, RCTs and quasi-experimental studies. Overlap between the SRs and individual trials not clarified. Only data that were "unanimously agreed by three authors" were included in the synthesis. No transparent reporting of results. Study results not described in detail, Statistical significance reported without standardized effect measures or CI. *Authors report RoB2 assessment but the results reported do not align with the domains of the RoB2 tool. SRs not included in results. Table only reports SR conclusions but no results. Clinical heterogeneity of included studies.

Comparison: Conventional interventions/antiemetics alone or placebo/non-acupressure points. **Outcome:** Reduction in severity, frequency, and delayed onset of CINV. **Exclusion criteria:** Patients receiving more than one complementary therapy. Patients in end-of-life care.	Morrow Standard Questionnaire (16 items, 7-point Likert) 1 RCT **Measure of treatment effects** Reduction in severity, frequency, and delayed onset of nausea and vomiting. Reported as statistical significance in changes between intervention and control groups (p-values reported in individual studies).		*acupressure in managing CINV for certain types of cancer had been supported in previous literature as a safe, affordable, and non-invasive alternative to pharmaceutical medications. However, standardization guidelines regarding the use of acupressure independently or in combination with other pharmacological therapies to address CINV in various cancers require immediate attention"*	Only English-language studies were included, potentially introducing language bias.

Chen L, Wu X, Chen X, Zhou C. Efficacy of auricular acupressure in prevention and treatment of chemotherapy-induced nausea and vomiting in patients with cancer: a systematic review and meta-analysis. Evid Based Complement Alternat Med. 2021;2021:8868720. doi:10.1155/2021/886872

Type of review
SR and MA

Search strategy
Databases
PubMed, Cochrane Library, EMBASE, Web of Science, CBM, CNKI, Wanfang, and VIP

Dates of search
From inception to April 2020

Restrictions
Language: English and Chinese;

Data synthesis
MA

Risk of bias assessment
Cochrane RoB

Inclusion criteria

Population
Human participants of any age undergoing chemotherapy for cancer

Studies and participants
19 RCTs (17 parallel RCTs, 2 crossover RCTs)
1,449 total participants
Interventions
Auricular acupressure alone
Auricular acupressure combined with antiemetics
Comparisons
Antiemetics alone
Placebo
Outcome measurement tools
Nausea/vomiting frequency records
Included trials did not use standardized, validated nausea/vomiting scales, outcome measurement was based on clinical trial criteria and symptom recording methods described in the individual RCTs.

Incidence of adverse reactions.

Measure of Treatment Effects
RR for dichotomous outcomes (improved vs. not improved)

Results for risk of bias assessment of primary studies included in review:

Low risk: Random sequence generation, incomplete outcome data, selective reporting were judged as low in all studies.

Unclear risk: 16/19 had unclear allocation concealment and lack of blinding due to intervention nature.

High risk: Performance and detection bias were high in 16/19 RCTs (blinding).

Domain	Low Risk	Unclear Risk	High Risk
Random sequence generation	19	0	0
Allocation concealment	3	16	0
Blinding of participants and personnel	2	0	17
Blinding of outcome assessment	1	0	18
Incomplete outcome data	18	1	0
Selective reporting	19	0	0
Other bias	19	0	0

Results for main outcome measures:

Significant improvement:

Overall nausea relief efficiency
5 RCTs, RR = 1.24 (1.09 to 1.43), P=0.002

Overall vomiting relief efficiency
9 RCTs, RR = 1.14 (1.02 to 1.28), P=0.02

Delayed vomiting relief efficiency
5 RCTs, RR = 1.11 (1.01 to 1.21), P=0.02

Delayed nausea frequency
3 RCTs, SMD = −0.68 (−1.01 to −0.35), P<0.001

Delayed vomiting frequency
4 RCTs, SMD = −0.91 (−1.22 to −0.61), P<0.001

Overall efficiency of CINV
10 RCTs, RR = 1.31 (1.22 to 1.41), P<0.001

No significant improvements:

Acute nausea relief efficiency
4 RCTs, RR = 1.08 (0.95 to 1.22), P=0.23

Delayed nausea relief efficiency
4 RCTs, RR = 1.30 (0.92 to 1.84), P=0.14

Acute nausea frequency
2 RCTs, SMD = −0.18 (−0.77 to 0.41), P=0.55

Acute vomiting relief efficiency
5 RCTs, RR = 1.05 (0.93 to 1.18), P=0.44

Quality of SR
AMSTAR 2: Low
No mention of protocol, no publication bias assessment; partial weakness: limited integration of RoB into conclusions.

Limitations
Clinical heterogeneity of included studies in terms of treatment protocols, outcome measures, participants

Non-standardized outcome measures, no use of validated antiemesis assessment tools; most outcomes based on clinical criteria or episode counts.
Limited blinding due to the nature of acupressure intervention, leading to high risk of performance and detection bias.
Small sample sizes in included RCTs, many trials were

Intervention Auricular acupressure (AA) with or without antiemetic medication; materials used must be non-invasive (e.g., cowherb seeds, magnetic beads) **Comparison** Placebo or antiemetic medication alone **Outcomes** Relief efficiency and frequency of nausea and vomiting (overall, acute, delayed). Incidence of adverse reactions **Study type** RCTs (parallel or crossover) only **Exclusion criteria*** Studies without extractable outcome data	SMD for continuous outcomes (mean number of episodes); 95% CI		Overall vomiting frequency 2 RCTs, SMD = −0.67 (−2.61 to 1.27), P=0.50 Acute vomiting frequency 3 RCTs, SMD = −0.18 (−0.47 to 0.12) P=0.23 **Adverse reactions**: 6 RCTs Likelihood of adverse reactions related to antiemetics was reduced by AA combined with antiemetics RR 0.62 (0.53 to 0.74), P≤0.001. Statistically significant association was found between AA and incidence of constipation, diarrhoea, and tiredness, while No statistically significant association between AA and abdominal distension or headache. **Conclusions**: *"Auricular acupressure supplementation benefited delayed CINV as well as constipation, diarrhea, and tiredness. AA alone or AA supplementation has little effect on acute nausea and acute vomiting.. There is no conclusion on whether AA alone is superior to antiemetics in the management of delayed CINV."*	underpowered. Few high-quality trials included Publication bias not assessed (small number of studies per outcome).

Ho KY, Lam KKW, Xia W, Liu Q, Chiu SY, Chan GCF, Li WHC. Systematic review of the effectiveness of complementary and alternative medicine on nausea and vomiting in children with cancer. *Cancer Nurs.* 2025;48(2):89–98. doi:10.1097/NCC.0000000000001239.

Systematic review.

Search Strategy
Databases Searched:
MEDLINE, CENTRAL, EMBASE, CINAHL, PsycINFO, LILACS, OpenSIGLE, Chinese Biomedical Literature Database, Chinese Medical Current Contents, CNKI; trial registries
Dates of Search:
Up to February 2020 (no further details)
Restrictions:
Only fully published RCTs, no language restrictions mentioned

Studies and participants

Total 19 RCTs, thereof 7 acupoint stimulation: acupuncture n=4, acupressure n=3 (1 combined acupressure and massage).

Acupuncture
4 RCTs, 69 participants

Interventions
Auricular acupuncture, body acupuncture, laser acupuncture

Comparisons
Sham acupuncture, placebo, standard care

Results for risk of bias assessment of primary studies included in review:
High risk of bias: 5 RCTs (3 acupuncture, 2 acupressure)
Some concerns: 2 studies (1 acupuncture, 1 acupressure)

Domain	Low Risk	Unclear Risk	High Risk
Randomization process	3	3	2
Deviations from intended interventions	1	1	5
Missing outcome data	2	0	5
Measurement of the outcome	3	0	4
Selection of reported result	1	4	2
Overall bias	**0**	**1**	**6**

Results for main outcome measures
Conflicting results for all outcomes with acupuncture.
Vomiting occurrence improved in 3 / 4 trials,
Nausea intensity in 2/4;
Nausea occurrence and vomiting intensity improved in 1 / 4 RCTs, respectively.

Acupressure
No significant improvements reported in all but one trial reporting improvements in nausea intensity.

Adverse events
Acupuncture: Pain from needling (n=5) and itching caused by acupuncture tape (n=3).

Quality of SR
AMSTAR2 low-moderate, publication bias only partially reported.

Strengths

Focus on paediatric populations.

Limitations

High risk of bias in most included studies, downgrading the reliability of the findings.

Due to methodological heterogeneity and poor study quality, the authors could not

Data Synthesis: **Narrative synthesis,** meta-analysis was not possible due to high risk of bias and heterogeneity of included studies **Risk of Bias Assessment Tool**: Cochrane RoB 2 **Inclusion Criteria** **Population**: Children under 18 years old, any type of cancer, receiving active cancer treatment, trials with >50% cancer patients included if mixed diagnoses **Interventions**: CAM interventions, including acupuncture, acupressure **Comparisons**: Not stated. **Outcomes**: Nausea and vomiting (measured by validated scales or objective indicators like antiemetic use and weight change); Intervention adherence and number of adverse events	**Outcome Measurement Tools** VAS for nausea and vomiting, use of antiemetic medications, weight change **Acupressure** 3 RCTs, 211 participants **Interventions** Acupressure wristbands applied before and during chemotherapy **Comparisons** Placebo wristbands, standard care **Outcome Measurement Tools** VAS, nausea and vomiting scores, daily vomiting control		Acupressure: most frequently reported tight wristband, causing discomfort (n=7). **Conclusion** "*There was insufficient evidence to conclude that CAM is effective, feasible, or safe for controlling nausea and vomiting among pediatric oncology patients. Of the reviewed CAM interventions, acupressure, hypnosis, and massage appear to be effective. However, the number of trials reviewed was small and their methodological quality ranged from some concerns to high risk of bias.*"	perform a quantitative synthesis. Many studies used unvalidated or overly simplistic tools (e.g., visual analog scales) to assess nausea and vomiting. Very small sample sizes (≤23 participants) and underpowered studies.

Issac A, Nayak SG, Halemani K, Mishra P, Chand G. Systematic review of acupressure on chemotherapy-induced nausea and vomiting among breast cancer patients. Asian Pac J Cancer Prev. 2024;25(10):3421-3428. doi:10.31557/APJCP.2024.25.10.3421.

Type of review
Systematic review
Search strategy
Databases
PubMed, CINAHL, Scopus, Web of Science, Cochrane Library, and Google Scholar
Dates of search
Studies published from 2018 to 2023
Restrictions
English language only

Studie and participants
7 studies: 6 RCTs and 1 quasi-experimental study
Number of participants
592 participants across included studies
Populations
Breast cancer patients receiving chemotherapy
Interventions assessed

Results for risk of bias assessment of primary studies included in review
All studies were judged at low risk of bias in all domains with the exception of one study which had unclear risk of bias for the randomization process.*

RoB2 Domain	Low Risk	Unclear Risk	High Risk
Randomization process	5	1	0
Deviations from intended interventions	6	0	0

Results for outcome measures
Significant improvements
Severity of Acute Nausea (5 RCTs)
-0.35 (-0.62, -0.08) P=0.01
Severity of Delayed Nausea (6 RCTs)
0.52 (-0.78, -0.26) P<0.001
Severity of Delayed Vomiting (4 RCTs)
-0.46 (-0.83, -0.08) P=0.02
No significant improvements
Severity of Acute Vomiting (3 RCTs)
0.06 (-0.29, 0.4), P=0.74

Quality of SR:
AMSTAR2: critically low, two critical domains not fulfilled, one only partially)

ROB2 results graphically presented but not reported in results and not included in the interpretations of results.
No publication bias assessment (small number of studies included).

Exclusion criteria No full text, interventions combined with other therapies **Type of data synthesis** MA and narrative synthesis **Risk of bias assessment used** Cochrane RoB 2 **Inclusion criteria** **Population** Breast cancer patients undergoing chemotherapy **Intervention** Acupressure **Comparison** Routine care or Other non-acupressure interventions **Outcome** CINV **Study design** RCTs and quasi-experimental studies	Acupressure at P6 (Neiguan) point, either manual or using wristbands **Comparisons** Routine care, sham acupressure, placebo wristbands **Outcomes** Incidence, frequency, and severity of chemotherapy-induced nausea and vomiting **Outcome measure tools** INVR; VAS for nausea severity; daily symptom diaries **Measure of treatment effects** RR and MD with 95% CI; descriptive summary of direction and magnitude of effects for narrative synthesis	Missing outcome data: 6 / 0 / 0 Measurement of the outcome: 6 / 0 / 0 Selection of reported result: 6 / 0 / 0 **Overall bias: 6 / 0 / 0**	Frequency of Acute Nausea (2 RCTs) -0.24 (-0.73, 0.25) P=0.33 Frequency of Acute Vomiting (2 RCTs) 0.30 (-0.98, 1.59) P=0.64 Frequency of Delayed Vomiting (2 RCTs) -0.05 (-0.48, 0.37) P=0.81 **Conclusion** "*In conclusion, controlling CINV in BC patients receiving chemotherapy was more effective when acupressure was used in conjunction to conventional antiemetic medicine and care than when it was used alone.*"	**Strengths** Focused population, breast cancer **Limitations** *Serious doubts about RoB2 assessment particularly regarding blinding. Unclear how blinding can be achieved when acupressure was administered in addition to control treatment. No drop outs, no incomplete data, no allocation concealment issues reported in any of the included studies. Heterogeneity in acupressure protocols (techniques, points used, duration, and devices. Adverse events were not assessed.

Wang Y, Wang F, Hu F, Long F. Effect of non-pharmacological interventions on chemotherapy induced delayed nausea and vomiting for tumors: A systematic review and Bayesian network meta-analysis. Complement Ther Med. 2025;88:103124. doi:10.1016/j.ctim.2024.103124

Type of review
Systematic review and Bayesian network meta-analysis

Search strategy

Databases
Four Chinese databases: CNKI, Wanfang Data Knowledge Service Platform, VIP, Sinomed; Five English databases: PubMed, Cochrane Library, Embase, Web of Science, CINAHL

Dates of search
From database inception to April 2024

Type of data synthesis
Bayesian network meta-analysis; SUCRA ranking used for intervention ranking

Studies and participants
58 RCTs; 52 thereof various forms of acupoint stimulation. All but one conducted in China; 7 in English, 51 in Chinese

4,081 patients

Interventions
Acupuncture (15 RCTs); Acupoint patch (8 RCTs); Electroacupuncture; Electrothermal acupuncture; Moxibustion; Auricular point therapy; Acupoint embedding; Acupoint injection; Transcutaneous acupoint electrical stimulation; Others: Aromatherapy; Herbal

Results for risk of bias assessment of primary studies included in review
Majority of domains low risk* but frequent unclear risk in allocation concealment blinding of participants, blinding of outcome assessors and other bias,* rated as unclear by the authors as is it could not be interpreted). Random sequence generation, incomplete outcome data and selective reporting all at low risk.*

Domain	Low Risk	Unclear Risk	High Risk
Random sequence generation	56	2	0
Allocation concealment	21	37	0
Blinding of participants and personnel	15	43	0
Blinding of outcome assessment	6	52	0

Results for outcome measures:

Delayed vomiting relief
All studies showed a significant improvement in comparison with conventional antiemetics ($p<0.05$).

Acupuncture OR = 2.58 (1.89, 3.52),
Acupoint patch: highest SUCRA ranking (89.9%), OR = 6.95 (4.51, 11.05)
Electroacupuncture OR = 2.19 (1.30, 3.76)
Moxibustion, OR = 5.59 (3.11, 10.48)
Auricular point therapy OR = 2.42 (1.62, 3.66);
Transcutaneous acupoint electrical stimulation OR = 2.33 (1.51, 3.64).

Herbal hot pack OR=5.88 (1.24, 46.53)

Progressive relaxation therapy OR=3.09 (1.59, 6.21)

Delayed nausea relief

Quality of SR

AMSTAR2: Low.
Several methodological and reporting issues.

*Risk of bias judgement:

Two domains of RoB, incomplete outcome data and selective reporting, all 58 studies were judged to be at low risk of bias; in a third domain, randomization sequence generation, 56/58 were at low risk of bias. This is highly unusual; unclear whether this is due to the exclusion criteria (randomization mentioned by

Risk of bias assessment
Cochrane RoB Tool v 1

Inclusion criteria
Population
Patients with delayed nausea and vomiting after chemotherapy for tumors
Interventions
Non pharmacological interventions with or without conventional antiemetics (e.g., acupuncture, moxibustion, acupoint injections, auricular pressure, relaxation therapy)
Comparisons
Conventional antiemetics, other nonpharmacological interventions, or usual care
Outcomes
Primary: Delayed nausea relief efficiency; delayed vomiting relief efficiency (24–120h); Secondary: Karnofsky Performance Scale (KPS) score

Study design
RCTs

Exclusion criteria
Randomization mentioned but without method description

Studies with incomplete data.

Combined/mixed nonpharmacological interventions where single effect could not be judged.

hot pack; Progressive relaxation therapy; No vomiting ward

Comparisons
Conventional antiemetic drugs (dexamethasone, granisetron, palonosetron, ondansetron, methylprednisolone, aprepitant); Usual care; Other non-pharmacological interventions

Outcome measure tools
CTCAE for delayed nausea/vomiting classification;
KPS for functional status

Measure of treatment effects
Binary outcomes: Odds Ratio (OR) with 95% CI,
Continuous outcomes: Mean Difference (MD) with 95% CI

Incomplete outcome data	58	0	0
Selective reporting	58	0	0
Other bias	0	58	0

All forms of acupoint stimulation showed significant improvements ($p<0.05$) in comparison with conventional antiemetics.

Acupuncture OR = 3.15 (1.99, 5.06)

Acupoint patch OR = 7.11 (4.64, 11.12) Highest SUCRA ranking (91.5%)

Moxibustion OR = 7.04 (2.66, 23.03)

Herbal hot pack OR = 3.52 (1.07, 13.16)

Transcutaneous acupoint electrical stimulation OR = 3.04 (1.75, 5.34)

No vomiting ward OR = 3.81 (1.29, 12.04)

Karnofsky Performance Scale
Acupuncture + conventional antiemetics vs. conventional antiemetics MD = 5.90 (1.24, 10.90)

Acupuncture vs. acupoint embedding MD = 11.01 (1.14, 21.64)

Adverse events

Subcutaneous haemorrhage (n=4), headache, constipation (n=2), local reactions such as itching, rash, skin infection, tingling (n=1, respectively). 23 studies did not assess AEs, 23 reported no observed AEs.

Conclusions
"In particular, acupoint application may be the optimal complementary therapy to mitigate the incidence of delayed nausea and vomiting, though more high-quality, large-scale evidence is required."

without method description and incomplete data).

It is also unclear how participants and providers were blinded to acupuncture or related treatments as there is no mention of sham or placebo acupuncture.

Strengths
First Bayesian network meta-analysis comparing a wide range (14) of non-pharmacological interventions for delayed CINV.

Attempt to use of SUCRA rankings to identify the most probable optimal interventions.

Limitations
However, methodological limitations reduce the confidence in the effect sizes and SUCRA rankings.

Subjective outcomes were dichotomized.

Although the conclusion implies that the intervention group also received antiemetics it is unclear whether acupoint stimulation was administered in addition to antiemetic drugs or as sole treatment.

High proportion of included trials were in Chinese, which may increase language and publication bias. All but one RCT were conducted in China, which limits generalizability.

<table>
<tr><td></td><td></td><td></td><td></td><td>Many included studies had small sample sizes, with most RCTs having fewer than 100 participants.

Included studies suffered from including heterogeneity in intervention protocols and comparator treatments.

Some interventions had few studies, leading to wide confidence intervals and reduced certainty.</td></tr>
<tr><td colspan="5">Yan Y, López-Alcalde J, Zhang L, Siebenhüner AR, Witt CM, Barth J. Acupuncture for the prevention of chemotherapy-induced nausea and vomiting in cancer patients: a systematic review and meta-analysis. Cancer Med. 2023;12(13):12504-12517. doi:10.1002/cam4.5962</td></tr>
<tr><td>Type of review
Systematic review and meta-analysis

Search strategy databases
MEDLINE, EMBASE, Cochrane CENTRAL, CINAHL, Chinese Biomedical Literature Database, VIP Chinese Science and Technology Periodicals Database, CNKI, Wanfang

Dates of search
From inception of databases to June 2020; conference proceedings (2015 to March 2021); ongoing trials registries also searched

Type of data synthesis
Meta-analysis of relative risks

Risk of bias assessment used
Cochrane RoB Tool v1

Inclusion criteria
Populations
Adults with any type or stage of cancer, scheduled for chemotherapy, without pre-</td><td>Studies and participants
38 RCTs; majority conducted in China (84%, n=32).

Number of participants

2,503 patients

Interventions assessed
Manual acupuncture (n=23 RCTs), electroacupuncture (n=10 RCTs), both manual & electroacupuncture (n=5 RCTs)

Comparisons
Acupuncture + usual care vs. usual care (n=33 RCTs);
Acupuncture + usual care vs. sham acupuncture + usual care (n=4 RCTs);
Acupuncture + UC vs. sham + UC vs. UC (n=1 RCT)

Outcome measure tools
WHO side effects rating criteria (n=4 RCTs); NCI Common Terminology Criteria for Adverse Events (CTCAE) (n=3 RCTs); other non-</td><td>Results for risk of bias assessment of primary studies included in review
Overall low n=1, unclear n=25, high n=12.
Majority of studies had high risk for performance and detection bias. Most other domains were rated as unclear due to insufficient reporting.

<table><tr><th>Domain</th><th>Low Risk</th><th>Unclear Risk</th><th>High Risk</th></tr><tr><td>Random sequence generation</td><td>23</td><td>15</td><td>0</td></tr><tr><td>Allocation concealment</td><td>5</td><td>33</td><td>0</td></tr><tr><td>Performance and detection bias</td><td>0</td><td>2</td><td>36</td></tr><tr><td>Attrition bias</td><td></td><td></td><td></td></tr><tr><td>Selective reporting</td><td>1</td><td>37</td><td>0</td></tr><tr><td>Overall</td><td>1</td><td>25</td><td>12</td></tr></table>
GRADE: Overall, the certainty of evidence was downgraded to very low in most outcomes due to high risk of bias, imprecision</td><td>, inconsistency, and suspected publication bias.

Results for outcome measures

Acupuncture plus UC compared with UC alone:
Small but statistically significant increase in complete control of:
Acute vomiting: (RR = 1.13, 95% CI 1.02–1.25, p = 0.022)
Delayed vomiting (RR = 1.47, 95% CI 1.07–2.00, p = 0.021).

No significant effects for
Acute nausea (RR = 2.20, 95% CI 0.66–7.33, p = 0.128)
Delayed nausea (RR = 3.75, 95% CI 0.00–71,477.12, p = 0.338).

Acupuncture plus UC compared with sham acupuncture plus UC:
No statistically significant differences for any outcome
Acute nausea (RR = 0.87, 95% CI 0.26-2.90, p = 0.379)
Acute vomiting (RR = 1.05, 95% CI 0.72-1.53, p = 0.647)
Delayed nausea (RR = 0.59, 95% CI 0.27-1.26, p = 0.169)</td><td>Quality of SR
AMSTAR2: high
All critical domains are fulfilled.

Strengths

Transparently, well-reported review.

Used GRADE approach for evaluation of certainty of evidence; efforts to identify potential moderators of treatments effects.

Limitations
In this rigorous SR, certainty of evidence is low due to limitations in primary studies.

Only a small proportion of included studies could be meta-analyzed due to heterogeneous outcome reporting in the included studies.</td></tr>
</table>

existing nausea/vomiting before acupuncture **Interventions** Needle acupuncture (manual or electroacupuncture). Co-interventions allowed if applied equally in both groups **Comparisons** Sham acupuncture or usual care **Outcomes** Primary: Complete control of nausea and/or vomiting in acute (0–24h), delayed (24–120h), and overall phases; Safety: adverse events related to acupuncture	validated or unreported tools in remaining studies **Measure of treatment effects** Relative risks (RR) with 95% CI		Delayed vomiting (RR = 1.10, 95% CI 0.28-4.36,p = 0.539) **Adverse events:** n=8, mostly mild events such as hematoma, pain, localized bruising **Conclusion** *"Very low certainty evidence suggesting that acupuncture in addition to usual care, as compared with usual care alone, may increase the chance of complete control of chemotherapy-induced acute vomiting and delayed vomiting. We did not find an effect when acupuncture was compared with sham acupuncture."*	

Yang Y, Su H, Wen J, Hong J. Acupoint injection for alleviating side effects of chemotherapy in people with cancer: a systematic review and meta-analysis. Evid Based Complement Alternat Med. 2021;2021:9974315. doi:10.1155/2021/9974315

Type of Review: Systematic review

Search Strategy

Databases
PubMed, EMBASE, Cochrane Library, CNKI, Chinese Science and Technology Periodical Database (VIP), WanFang Data, Chinese Biology Medicine Disc (CBMdisc).

Date range
From inception through **December 28, 2020**.

Restrictions
Studies in English or Chinese.

Data Synthesis
Meta-analysis of RRs (dichotomous data) and MD or SMD (continuous data), all with 95%CI.

Risk of Bias Assessment
Cochrane RoB (seven domains).

Number of Studies and participants
8 RCTs, all conducted in China
557 participants, ranging from 40 to 96 participants per trial

Interventions
Acupoint injections with different agents, including Astragalus, Shenfu, Droperidol, Metoclopramide dihydrochloride, Dexamethasone.

Common acupoints used: Zusanli (ST36), Xuehai (SP10), Neiguan (PC6), Sanyinjiao (SP6)

Comparisons
Oral or subcutaneous western medications
Conventional treatment
No further treatment

Results for risk of bias assessment of primary studies included in review

Moderate risk of bias due to lack of blinding and incomplete methodological reporting in some studies.

Domain	Low Risk	Unclear Risk	High Risk
Random sequence generation	5	3	0
Allocation concealment	5	3	0
Blinding of participants and personnel	5	3	0
Blinding of outcome assessment	2	6	0
Incomplete outcome data	8	0	0
Selective reporting	0	8	0
Other bias	8	0	0

Results for main outcome measures
Incidence of nausea and vomiting (4 RCTs):
RR=0.39 (0.26, 0.58), p<0.00001

White blood cell count (4 RCTs):
MD=1.89 (0.74, 3.03), p=0.001

Platelet count (3 RCTs):
MD = 28.82 (19.33, 38.30), p<0.00001

Other adverse reactions (2 RCTs):
Thrombocytopenia, chills/fever, headache, fatigue, muscle soreness
RR 0.29 (0.11,0.75), p=0.01

Conclusion
"*The analysis indicated that acupoint injection can alleviate side effects of chemotherapy in people with cancer. However, due to the high risk of bias and small sample size in the included studies, the results need to be further confirmed by further large, rigorously designed trials*."

Quality of SR
AMSTAR2:Low; two critical items not met, one partially met: No protocol, no publication bias assessment. Consideration of risk of bias limited, no sensitivity analyses.

Limitations
Methodological weaknesses in primary studies

Small sample sizes

Clinical heterogeneity of included studies in terms of treatment protocols, participants; tumour types inconsistently reported

Outcome measures and measurement tools not stated; lack of standardized outcome measurement tools.

<table>
<tr>
<td>Inclusion Criteria

Population
Adult cancer patients (any stage) experiencing side effects of chemotherapy.

Intervention
Acupoint injection.

Comparison
Control groups included western medications, conventional treatment, or no further treatment.

Outcomes
White blood cell count, platelet count, incidence of nausea/vomiting, other adverse reactions.</td>
<td>Outcome Measurement tools
Incidence of nausea and vomiting (4 RCTs), not stated how it was assessed.

White blood cell count (leukocyte count) (4 RCTs), platelet count (3 RCTs)

Other adverse reactions</td>
<td></td>
<td></td>
<td>RoB not adequately assessed. Blinding described as low risk or unclear risk while in 5 RCTs acupoint injection was administered as an add-on treatment thus no blinding possible.</td>
</tr>
<tr>
<td colspan="5">Ying Y, Wu H, Chen X, Zhou J, Sun Y, Fang L. Electrical acupoint stimulation for the treatment of chemotherapy-induced nausea and vomiting: a systematic review and meta-analysis. Heliyon. 2024;10:e30965. doi:10.1016/j.heliyon.2024.e30965</td>
</tr>
<tr>
<td>Type of Review: Systematic review

Search Strategy

Databases searched
PubMed, Embase, Cochrane Library, Web of Science,

Dates
Through December 2023.

Restrictions
RCTs only, Language: English and Chinese

Type of Data Synthesis
MA

Risk of Bias Assessment
Cochrane Risk of Bias tool RoB 2.0
5 domains

Inclusion Criteria

Population
Cancer patients receiving</td>
<td>Studies and Participants

Number of studies included: 10 RCTs

Total participants: 1,281 cancer patients

Interventions

Electrical acupoint stimulation techniques used:
Transcutaneous Electrical Acupoint Stimulation (TEAS), Electroacupuncture (EA)
Various acupuncture points, most commonly Neiguan (PC6), Zusanli (ST36), and Hegu (LI4)

Comparisons

Conventional antiemetic drugs (7 RCTs)
Sham or placebo electrical</td>
<td>Results for risk of bias assessment of primary studies included in review

<table>
<tr><th>RoB2 Domain</th><th>Low risk</th><th>Unclear risk</th><th>High risk</th></tr>
<tr><td>Randomization process</td><td>8</td><td>0</td><td>2</td></tr>
<tr><td>Deviation from intended interventions</td><td>7</td><td>3</td><td>0</td></tr>
<tr><td>Missing outcome data</td><td>10</td><td>0</td><td>0</td></tr>
<tr><td>Measurement of the outcome</td><td>7</td><td>1</td><td>2</td></tr>
<tr><td>Selection of the reported result</td><td>10</td><td>0</td><td>0</td></tr>
<tr><td>Overall Bias</td><td>5</td><td>3</td><td>2</td></tr>
</table>
</td>
<td>Results for main outcome measures:

Significant improvements
Severity of nausea (2 RCTs):
TEAS vs sham TEAS RR=0.60 (0.38, 0.94), P=0.03

Severity of vomiting (4 RCTs):
TEAS vs sham TEAS RR=0.56 (0.34, 0.92), P=0.02
TEAS with antiemetics vs antiemetics alone RR=0.37 (0.16, 0.85), P=0.02

No significant improvements
Complete control rate of nausea (4 RCTs)
EA vs sham EA group RR=1.25 (0.84, 1.85), P=0.27
TEAS with antiemetic vs sham TEAS with antiemetic RR=1.27 (0.87, 1.86), P=0.21

Complete control rate of vomiting
EA group compared with the sham EA group [RR = 1.13, 95 % CI (0.93, 1.37), P=0.27</td>
<td>Quality of SR
AMSTAR2 low: Authors acknowledged that study quality was low and findings should be interpreted cautiously. However, risk of bias was not integrated into the interpretation of each outcome (e.g., subgroup or sensitivity analyses based on study quality).

Publication bias not adequately addressed

Limitations:
Few trials with small number of participants, clinically heterogeneous, and sometimes methodologically weak trials.

Inconsistent controls and outcomes, poor reporting of adverse events.</td>
</tr>
</table>

chemotherapy and experiencing CINV. **Intervention** Electrical acupoint stimulation (e.g., electroacupuncture, TEAS, other electrical stimulation of acupuncture points). **Comparison** Conventional antiemetic drugs, sham/placebo electrical stimulation, or usual care. **Outcomes** Complete control rate of nausea and vomiting Severity of nausea and vomiting Incidence rate of nausea and vomiting Quality of life Adverse events	stimulation (7 RCTs) Usual care without additional intervention (4 RCTs) **Outcome Measures and Tools** Not explicitly stated. Table reports Incidence: rates (yes/no occurrence) based on clinical observation and patient reports but no structured patient diaries or standardized reporting forms Severity: 2 studies used WHO toxicity grading criteria for nausea/vomiting; NCI-CTCAE, not reported for other studies. Complete control rate of nausea and vomiting Quality of life (QoL) EORTC QLQ-C30, KPS, ECOG, MDASI. Adverse event: counts.		TEAS with antiemetics with sham TEAS with antiemetic RR=1.22 (0.85, 1.74), P=0.67 Incidence of nausea (4 RCTs) TEAS vs sham TEAS RR=0.43 (0.05, 3.91), *P*=0.45] Incidence of vomiting (4 RCTs) TEAS vs sham TEAS RR=0.75 (0.35, 1.59), *P*=0.45 Quality of Life (4 RCTs) Favoured EAS; significant pooled effect **Adverse events** (5 RCTs): 3 RCTs reported no AE, 2 RCTs no serious events; constipation, headache, vertigo, and two cases of redness, swelling, and itching on the local contact surface. No numbers or further details provided. **Conclusion** "EAS could improve moderate-to-severe CINV. However, EAS did not show a significant difference in reducing overall incidence and improving complete control rates compared with sham EAS. Due to limitations in the quality of the included articles, the available studies are insufficient to have sufficient evidence to confirm the efficacy of EAS for CINV."	Limited generalizability as most studies were conducted in China.

Abbreviations
AE Adverse event
CBM Chinese Biological Medicine
CI Confidence Interval
CNKI Chinese National Knowledge Infrastructure
CTCAE Common Terminology Criteria for Adverse Events
FLIE Functional Living Index-Emesis
Index of Nausea, Vomiting, and Retching (INVR)
KPS Karnofsky Performance Scale
MD Mean difference
Morrow Assessment of Nausea and Emesis (MANE)
Morrow Standard Questionnaire (16 items, 7-point Likert)
Rhodes Index of Nausea and Vomiting (RINV)
RoB Risk of bias (version 1)
RoB2 Risk of bias version 2
RR relative risk ; RR >1 indicates increased rate of complete control in acupuncture group
SUCRA: Surface Under the Cumulative Ranking curve, a metric used in network meta-analysis to rank the effectiveness of different treatments. Numerical value ranging from 0 to 100%, 0% SUCRA means the treatment is definitely the worst, 100% SUCRA means the treatment is definitely the best.
VAS Visual Analogue Scale

Cochrane Risk of Bias (original version), domains assessed:

1. Random sequence generation
2. Allocation concealment
3. Blinding of participants and personnel
4. Blinding of outcome assessment
5. Incomplete outcome data
6. Selective reporting
7. Other bias

Cochrane Risk of Bias tool 2.0, domains assessed:

1. Randomization process
2. Deviations from intended interventions
3. Missing outcome data
4. Measurement of the outcome
5. Selection of reported result

***AMSTAR 2 Critical Domain Items**

1. Was the review protocol established a priori (e.g., registered in PROSPERO)?
2. Was the search comprehensive and included multiple databases, grey literature, and appropriate search strategies?
3. [Did the authors provide a list of excluded studies and justify the exclusions?]
4. Was the risk of bias (RoB) of included studies assessed using appropriate tools?
5. If a meta-analysis was conducted, were the methods used appropriate and clearly described?
6. Did the authors consider the RoB in individual studies when discussing the results?
7. Was publication bias assessed and discussed appropriately?