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Acupuncture for analgesia and sedation in ICU: a systematic review and meta analysis

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Shen, YF; Zhen RR; Wang XL; Yan GL.

Corresponding author:
Yi-fan Shen

shenyifan94@qq.com

Author Affiliation:
ICU, Shanghai municipal Hospital of Traditional Chinese Medicine, Shanghai University of Traditional Chinese Medicine.

ADMINISTRATIVE INFORMATION

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Review Stage at time of this submission - The review has not yet started.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 20 September 2025 and was last updated on 20 September 2025.

INTRODUCTION

Review question / Objective Pain, anxiety, and agitation are commonly present in the ICU. The reasons include primary diseases, high-intensity iatrogenic stimuli, and psychological factors. Sedative and analgesic treatment can improve patients' pain, alleviate or eliminate their anxiety, and reduce organ function load. However, sedatives and analgesics have side effects such as respiratory and circulatory inhibition, exacerbation of gastrointestinal dysfunction, and increased burden on liver and kidney metabolism. eCASH emphasizes the use of multimodal pain management concepts to reduce the dosage of opioid and sedative drugs, such as using non pharmacological means such as music and massage to alleviate pain in the PADIS 2018 guidelines. Acupuncture technology is widely used in the management of acute and chronic pain, anxiety, and sleep disorders, and has sufficient evidence-based medicine. However, it is not widely used in ICU sedation and analgesia.

Condition being studied At present, clinical studies on acupuncture assisted analgesia and sedation intervention for mechanically ventilated patients have been retrieved, and it has been found that it can reduce the dosage of sedative and analgesic drugs, shorten the duration of mechanical ventilation and ICU stay. Acupuncture assisted analgesia and sedation can improve pain scores and reduce the dosage of sedative and analgesic drugs in perioperative patients.

METHODS

Search strategy The systematic search was conducted using the following database: Pubmed, Cochrane library, EMBASE, web of Science, CNKI, wanfang data, cqvip, CBM, Chinese clinical trial registry and US National Institutes of Health

Ongoing Trials Register. The search consisted of MeSH terms and keywords related to acupuncture, analgesia, sedation,ICU.Taking PubMed as an example.
(((((needling[Title/Abstract]) OR (acupuncture[Title/Abstract])) OR (electroacupuncture[Title/Abstract])) OR ((((("Acupuncture"[Mesh]) OR "Acupuncture Therapy"[Mesh]) OR "Acupuncture Analgesia"[Mesh]) OR "Acupuncture, Ear"[Mesh])) AND ((((("Intensive Care Units"[Mesh]) OR "Critical Care"[Mesh]) OR ("Respiratory Care Units"[Mesh] OR "Coronary Care Units"[Mesh] OR "Intensive Care Units, Neonatal"[Mesh])) OR "Respiration, Artificial"[Mesh])) AND ((((("Conscious Sedation"[Mesh] OR "Deep Sedation"[Mesh]) OR "Analgesia"[Mesh]) OR "Delirium"[Mesh]) OR "Sleep Initiation and Maintenance Disorders" [Mesh]).

Participant or population Patients using sedatives and analgesics in ICU.

Intervention Intervention must be acupuncture in any form aimed at assisting sedation and analgesia.

Comparator Placebo, usual standard treatment which is not include of any kind of acupuncture.

Study designs to be included All RCTs and quasi-RCTs.

Eligibility criteria Eligibility criteria needs (1) Participant must be Patients using sedatives and analgesics in ICU; (2)Intervention must be acupuncture in any form aimed at assisting sedation and analgesia; (3)Included study must be RCTs and quasi-RCTs; (4)The outcomes are based on the reduction in dosage of sedatives and analgesics, the degree of improvement in pain sedation related scores, ventilation time and ICU stay time, circulatory, respiratory, and gastrointestinal function status, etc.

Information sources The systematic search was conducted using the following database: Pubmed, Cochrane library, EMBASE, web of Science, CNKI, wanfang data, CBM, Chinese clinical trial registry and US National Institutes of Health Ongoing Trials Register. Article language was restricted in Chinese and English.

Main outcome(s) The main outcome measures were the reduction in dosage of sedatives and analgesics, as well as the degree of improvement in pain sedation related scores.

Additional outcome(s) Additional outcomes include mechanical ventilation time and ICU stay time, circulatory, respiratory, and gastrointestinal function status, etc.

Data management The data was managed and carried out by Zotero and RevMan 5.3.

Quality assessment / Risk of bias analysis The risk of bias of each included RCT or qusi-RCT will be evaluated by Cochrane ROB. Methodological quality (randomisation method, allocation concealment, blinding of participants, investigators, outcome assessors and data analysers, intention-to-treat analysis, and completeness of follow-up) of included studies will be assessed by the same reviewers, without blinding to author or source. Any discrepancies in methodological quality assessment or in data extraction will be resolved by discussion.

Strategy of data synthesis Review Manager 5.3 software will be used for this statistical analysis. Risk ratio(RR) will be used for dichotomous outcomes and mean difference (MD) will be adopted for continuous outcomes. Statistical heterogeneity will be tested by examining I^2, with an I^2 greater than 50% indicating a possibility of statistical heterogeneity. A random effects model will be used for the meta-analysis if there is significant heterogeneity, and a fixed effect model will be used when the heterogeneity is not significant. The confidence interval (CI) will be established at 95%. Publication bias will be explored by funnel plot analyses.].

Subgroup analysis Subgroup analyses will be conducted if data is sufficient. We plan to analyze the mechanical ventilation group and perioperative group.

Sensitivity analysis We will conduct sensitivity analyses to search for the potential sources of heterogeneity and reliability.

Language restriction The searching language limits in Chinese and English.

Country(ies) involved China.

Keywords Acupuncture, analgesia, sedation, ICU.

Contributions of each author
Author 1 - Yi-fan Shen.
Email: shenyifan94@qq.com
Author 2 - Rong-Rong Zhen.
Author 3 - Xin-Lu Wang.
Author 4 - Guo-Liang Yan.