Acupuncture analgesia during surgery: a systematic review

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CRD summary
This review assessed acupuncture as an adjunctive analgesic to standard anaesthesia for surgery. The authors concluded that there was strong evidence that acupuncture is not more effective than placebo. The reliability of this conclusion is unclear, given the incomplete reporting of review methods and the classification of studies as positive, neutral or negative.

Authors' objectives
To assess the effectiveness of acupuncture as an adjunctive analgesic to standard anaesthesia for surgery.

Searching
MEDLINE, EMBASE, PsycINFO, AMED, CINAHL, British Nursing Index, and the Cochrane CENTRAL Register were searched from inception to February 2004 without any language restrictions; the search terms were reported. Reference lists of located articles and reviews, and departmental files were also searched.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs) were eligible for inclusion.

Specific interventions included in the review
Studies of needle acupuncture were eligible for inclusion. Studies of acupressure, laser acupuncture, acupuncture point injection or transcutaneous electrical nerve stimulation were excluded. The included studies evaluated electroacupuncture or manual acupuncture, with sham acupuncture, placebo or no electrical stimulation as the comparators. The included studies used a range of different acupuncture techniques.

Participants included in the review
Studies of people undergoing surgery were eligible for inclusion. Studies of other invasive procedures, such as endoscopies, were excluded. The surgical procedures carried out in the included studies were oocyte aspiration, knee arthroscopy, abdominal or pelvic surgery, gastrectomy, lymphadenectomy, appendectomy, tooth extraction or restoration, cholecystotomy, thyroidectomy, nephrectomy or pyelotomy, cholecystectomy, sterilisation, or hysterectomy.

Outcomes assessed in the review
Studies reporting pain relief or intensity, quality or grade of anaesthesia, or analgesic or anaesthetic consumption during surgery were eligible for inclusion. Studies reporting post-operative pain control, analgesic consumption, nausea and vomiting were excluded. When more than one pain-related outcome was reported, the patient-based outcome was preferred when local anaesthetic was used and the anaesthetist's assessment when general anaesthetic was used.

How were decisions on the relevance of primary studies made?
The authors did not state how the studies were selected for the review, or who performed the selection.

Assessment of study quality
Study quality was assessed using a modified Jadad scale that assessed randomisation, blinding of the patients and assessors, and withdrawals and drop-outs, giving a score of between 0 and 5. Trial validity was assessed using the 16-point Oxford Scale. The authors did not state how study quality was assessed, or who performed the quality assessment.
Data extraction
One reviewer extracted the data onto a standardised form and a second reviewer checked them. Any disagreements were resolved by consensus. Pain-related outcome measures and results were extracted. The overall results of the studies were classed as positive, negative, or neutral when the intervention was significantly better, worse, or no different to the control, respectively.

Methods of synthesis
How were the studies combined?
Pooled weighted or standardised mean differences for continuous outcomes, and pooled relative risks for dichotomous outcomes, were calculated using fixed-effect meta-analyses. A narrative synthesis was also provided.

How were differences between studies investigated?
Heterogeneity was assessed using the chi-squared and I-squared statistics. The association between direction of outcome and study quality was assessed using chi-squared or Fisher's exact test, while the association between the direction of outcome with the validity score was assessed using the Mann-Whitney U-test. Differences between the studies were also discussed in the text, and forest plots were provided to enable a visual inspection of heterogeneity.

Results of the review
Nineteen studies (n=1,689) were included in the review.

The authors reported that 9 studies were high quality (Jadad score 3 or more) and 11 were low quality (Jadad score lower than 3). No significant correlation was observed between study quality and direction of result. Scores ranged from 3 to 13 for the 16-point Oxford Validity Scale. Studies deemed more valid were more likely to be classed as negative or neutral.

Overall, 7 RCTs were classed as positive (2 high quality), nine as neutral (6 high quality) and three as negative (1 high quality).

Acupuncture compared with standard anaesthesia (15 RCTs): 7 RCTs were classed as positive, six as neutral and two as negative. Of the 5 high-quality RCTs, two were positive and three were neutral.

Acupuncture with sham acupuncture or placebo (4 RCTs): 3 RCTs were classed as neutral and one as negative. All were considered high quality.

Of the 12 studies reporting analgesic consumption, six were considered high quality of which three were classed as positive and three as neutral. All 6 low-quality RCTs were classed as positive.

Authors’ conclusions
The authors stated that the evidence was inconclusive regarding the efficacy of acupuncture as an adjunct to standard anaesthesia during surgery. However, there was strong evidence that acupuncture was not more effective than placebo.

CRD commentary
The review question was clear in terms of the intervention, participants, outcomes and study design. Several relevant sources were searched, and attempts were made to reduce publication and language bias. Although the data extraction was performed in duplicate, it was unclear whether similar methods to reduce error and bias were employed during the other stages of the review. Study quality and validity were assessed using recognised tools, and study details were provided on the journal website (accessed 25 April 2006; a subscription is required to access this information). The discrepancy regarding the Jadad scale could not be checked, as only the score for the Oxford validity scale was given for each individual study. The authors stated that due to heterogeneity between the studies, a narrative synthesis of the results was undertaken. However, forest plots with pooled results of heterogeneous subgroups, using fixed-effect meta-analyses, were presented and might not have been appropriate. The classification of studies as positive, neutral or
negative gives no indication as to the magnitude of effect and, therefore, limits the usefulness of the results. This, along with the inability to assess the potential for error and bias in the review methodology, makes the reliability of the results uncertain.

**Implications of the review for practice and research**

Practice: The authors stated that there was no evidence to support the use of acupuncture as an adjunct to standard anaesthesia.

Research: The authors stated that further research is required to answer open questions and resolve current contradictions.

**Bibliographic details**


**PubMedID**

15777876

**DOI**


**Indexing Status**

Subject indexing assigned by NLM

**MeSH**

Acupuncture Analgesia; Adjuvants, Anesthesia; Anesthetics, General /administration & dosage; Humans; Randomized Controlled Trials as Topic

**AccessionNumber**

12005009734

**Date bibliographic record published**

30/06/2006

**Date abstract record published**

30/06/2006

**Record Status**

This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.