The immediate analgesic effect of acupuncture for pain-related disorders: a systematic review and meta-analysis
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Citation

Review question(s)
To critically evaluate the immediate effect of acupuncture for pain relief.

Searches
The PubMed and Cochrane Central Register of Controlled Trials (CENTRAL) databases as well as three Chinese databases including the China National Knowledge Infrastructure (CNKI), Wanfang, and VIP platforms through November 2015.

Types of study to be included
Only randomized controlled clinical trials (RCTs) will be included.

Condition or domain being studied
Pain-related disorders without any restrictions on the type, cause, or duration

Participants/population
Participants suffering from pain. There will be no restrictions on the type, cause, or duration of pain. But those about acupuncture for pain management during the perioperative period will be excluded.

Intervention(s), exposure(s)
Any types of needle acupuncture as a treatment group will be included. Those using transcutaneous electrical nerve stimulation (TENS) will be excluded.

Comparator(s)/control
Sham acupuncture, no treatment, or effective western medicine used as a control will be included. We do not include studies comparing different types of acupuncture among each other.

Context
Studies that meet the following criteria will be included in the present review:

(1) randomized controlled clinical trials (RCTs);

(2) randomized controlled clinical trials comparing acupuncture with sham acupuncture, no treatment, or effective western medicine. We do not include RCTs comparing different types of acupuncture among each other, or those using transcutaneous electrical nerve stimulation (TENS) as a treatment, or those about acupuncture for pain management during the perioperative period;

(3) Studies including participants suffering from pain. There will be no restrictions on the type, cause, or duration of pain; and

(4) Studies measuring pain relief using scales such as the visual analogue scale (VAS), numeric rating scale (NRS), or verbal rating scale (VRS).
The outcome for this review is improvement in pain immediately after the end of the first treatment (i.e., less than or equal to 30 min after the end of treatment) from the baseline level. In case of RCTs reporting the outcomes at multiple time points after treatment, we will use the data at the time point closest to the end of the treatment. We do not use pressure/palpation pain as the outcome in this review.

**Outcome(s)**

**Primary outcomes**
- Pain relief using scales such as the visual analogue scale (VAS), numeric rating scale (NRS), or verbal rating scale (VRS).
- Improvement in pain immediately after the end of the first treatment (i.e., less than or equal to 30 min after the end of treatment) from the baseline level.

**Secondary outcomes**
- None

**Data extraction, (selection and coding)**
- In case of RCTs reporting the outcomes at multiple time points after treatment, we will use the data at the time point closest to the end of the treatment.

**Risk of bias (quality) assessment**
- For each of the included studies, we will assess the risk of bias using the Cochrane Collaboration's risk of bias tool. In the assessment of the blinding of the participants, we will assign sham-controlled trials a judgment of “unclear” unless we are certain that the sham control is convincing enough in fully blinding the participants to the treatment being evaluated. We consider sham-controlled trials as having a low risk of bias for blinding if the RCT either:
  1. evaluated the credibility of the sham treatment and found it to be indistinguishable from true acupuncture or
  2. used a penetrating needle or a previously validated sham needle.

**Strategy for data synthesis**
- We only pool the data from the trials that used similar controls (e.g., sham acupuncture, no treatment, or analgesic injection treatment). For the pooled data, the summary test statistics will be calculated with the RevMan software, version 5.1, using the random effects model to account for the expected heterogeneity. We will evaluate the heterogeneity using the I-squared statistic, which indicates the proportion of variability across the trials not explained by chance alone. The statistical heterogeneity will be assessed using the I-squared statistic; an I-squared statistic value of 50% or more will be considered as indicating substantial heterogeneity. All continuous data reported for all of the studies will be represented in forest plots.

**Analysis of subgroups or subsets**
- We will perform the subgroup analysis of two clinical characteristics that may influence the immediate effect of acupuncture on pain:
  1) the type of sham, penetrating or non-penetrating;
  2) the duration of pain, acute or chronic.

- We will perform statistical tests for interaction only if each subgroup included more than one study. We will calculate the P values, pooled estimates, and I-squared values of each of the two relevant subgroups for the subgroup comparisons of both characteristics.

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Anticipated or actual start date
01 November 2015

Anticipated completion date
01 June 2016

Funding sources/sponsors
National Basic Research Program of China (973 Program: 2015CB554505), the National Natural Science Foundation of China (NSFC: 81373753, 81320108028), and the Shanghai Natural Science Foundation (13ZR1441900)

Conflicts of interest
None known

Language
English

Country
China

Subject index terms status
Subject indexing assigned by CRD

Subject index terms
Acupuncture Therapy; Analgesics; Humans; Pain; Somatoform Disorders

Stage of review
Ongoing

Date of registration in PROSPERO
25 April 2016

Date of publication of this revision
25 April 2016

Stage of review at time of this submission
Preliminary searches

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