Bee venom acupuncture for musculoskeletal pain: a review
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CRD summary
This well-conducted review assessed the effectiveness of bee venom acupuncture in treating musculoskeletal pain and concluded that there was some evidence suggesting effectiveness. The authors' cautious conclusions were likely to be reliable.

Authors' objectives
To assess the effectiveness of bee venom acupuncture in treating musculoskeletal pain.

Searching
MEDLINE, AMED, British Nursing Index, CINAHL, PsycInfo, The Cochrane Library 2007 (Issue 3), six Korean databases and four Chinese databases were searched from inception to September 2007. Search terms were reported. Conference Proceedings and eight traditional oriental medical journals were handsearched, as were the authors' own files and articles. No language restrictions were applied.

Study selection
Randomised controlled trials (RCTs) of bee venom injection at acupuncture as sole treatment or as an adjunct to other treatments (if the control group received the same concomitant treatment), using any type of comparator intervention, were eligible for inclusion. Trials were excluded if only immunological or biological outcomes were assessed and if trials compared different types of bee venom acupuncture.

The included studies assessed pain in several illnesses and involving many different parts of the body. Many studies used bee venom acupuncture plus classic acupuncture as the intervention, with saline injection plus classic acupuncture and classic acupuncture alone being the most common comparator group treatments. Some studies compared bee venom acupuncture with classic acupuncture alone. Most studies allowed some form of concomitant treatment (usually infrared, physical or herbal therapy). Pain Visual Analogue Scales were the commonest outcomes assessed. Adverse events were reported when possible. All trials were carried out in South Korea.

The authors stated neither how the papers were selected for the review nor how many reviewers performed the selection.

Assessment of study quality
The Jadad and Oxford Pain Validity Scales (OPVS) were used to assess trial quality. A certified Korean traditional doctor also assessed the quality and appropriateness of the bee venom acupuncture used in each study. Three reviewers assessed validity, with disagreements resolved by discussion with two different reviewers.

Data extraction
Pain scores were extracted and weighted mean differences (WMD) or standardised mean differences (SMD) with 95% confidence intervals (CI) were calculated. Three reviewers extracted data, with disagreements resolved by discussion with two different reviewers.

Methods of synthesis
Mata-analyses examining pooled mean differences were conducted using a random effects model. The studies were weighted, but the method of weighting was not stated. Heterogeneity was assessed using the Tau^2, \( \chi^2 \) and I^2 statistics.

Results of the review
Eleven RCTs were included in the review (n=475). Sample sizes ranged from 26 to 80 participants. Trial quality varied, but was on average moderate (with a mean Jadad score of 3 out of 5, and a range of 1 to 5). OPVS scores ranged from 6 to 15 (out of 16). The degree of confidence that acupuncture was applied appropriately ranged from 60
per cent to 90 per cent.

Overall, bee venom acupuncture was associated with reduced pain compared to control treatments in 10 trials. A statistically significant difference in pain was seen for the four trials comparing bee venom acupuncture plus classic acupuncture with saline injection plus classic acupuncture, WMD 14.0mm (95% CI: 9.5, 18.6, p<0.001), the two trials comparing bee venom acupuncture plus classic acupuncture with classic acupuncture alone, WMD 23.4mm (95% CI: 16.2, 30.7, p<0.001) and the three trials comparing bee venom acupuncture with classic acupuncture, SMD 0.55 (95% CI: 0.16. 0.95, p<0.01).

No heterogeneity was found for any of the analyses. Only four trials reported adverse events. Itching and skin hypersensitivity were the most common.

**Authors' conclusions**
There was suggestive evidence for the effectiveness of bee venom acupuncture in treating musculoskeletal pain.

**CRD commentary**
This well-conducted review addressed a clear question and was supported by appropriate inclusion criteria. Attempts to identify all relevant studies in any language were undertaken by searching electronic databases and other sources. Suitable methods were employed to minimise the risks of reviewer error and bias for the processes of data extraction and assessing study quality, although the authors did not report on the methods used to select studies for inclusion. Study quality was assessed thoroughly and used in interpreting the results of the review. Sufficient study details were provided. Appropriate meta-analyses of the data were undertaken, with statistical heterogeneity assessed. The authors acknowledged the limitations of the review as being the small overall sample size, inadequate levels of blinding and that all studies were conducted in South Korea (where there may be less reporting of negative results). The suitably cautious conclusions were likely to be reliable.

**Implications of the review for practice and research**
Practice: the authors did not state any implications for practice.

Research: the authors stated that future trials (preferably in countries other than South Korea) should be of rigorous design and should use larger sample sizes, adequate blinding procedures, appropriate control interventions and clear treatment schedules that have been tested and are supported by good evidence. Further evidence was needed to confirm whether bee venom acupuncture was more beneficial than bee venom injection at non acupoints.

**Funding**
Not stated.

**Bibliographic details**

**PubMedID**
18226968

**DOI**
10.1016/j.jpain.2007.11.012

**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
Acupuncture Analgesia /methods /statistics & numerical data /trends; Acupuncture Points; Arthralgia /drug therapy; Bee Venoms /administration & dosage /adverse effects; Humans; Musculoskeletal Diseases /drug therapy; Placebo
Effect; Randomized Controlled Trials as Topic /standards /statistics & numerical data; Sample Size; Treatment Outcome

**AccessionNumber**
12008103395

**Date bibliographic record published**
01/12/2008

**Date abstract record published**
22/04/2009

**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.