Auricular acupuncture for insomnia: a systematic review
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CRD summary
This review concluded that there was limited evidence to support the use of auricular acupuncture as a symptomatic treatment for insomnia and further rigorously designed trials are required. The authors' cautious conclusions should be considered with caution as a result of the poor reporting, but appear to reflect the limited evidence available.

Authors' objectives
To evaluate the effectiveness of auricular acupuncture for the treatment of insomnia.

Searching
Eighteen databases were searched from their inception to April 2008, including MEDLINE, CINAHL, EMBASE, The Cochrane Library, sources of grey literature and Chinese-language resources. Search terms were reported and the references of eligible papers and reviews were screened. No language or date restrictions were applied. Departmental files were checked.

Study selection
Randomised controlled trials (RCTs) that compared auricular acupuncture with placebo, no intervention or other active interventions for the treatment of insomnia were eligible. Studies comparing two types of acupuncture or other treatments not proven to be effective for treating insomnia were excluded.

Most RCTs included in this review were based in China. Smaller numbers originated from Korea and USA. The auricular acupuncture intervention was delivered as semi-permanent beads, seeds or magnetic pellets implanted into the ear via needles or via thumb-tack needles. The control groups received placebo, conventional pharmacological drugs, routine care or no treatment. Patient ages ranged from 18 years to 82 years, where reported. Participants in four studies suffered from primary insomnia and chronic insomnia in three trials. Where diagnostic methods were reported, trials used either traditional Chinese medicine principles or standard Western criteria. Most trials used subjective patient reports to assess improvements in sleep.

The authors did not report how many reviewers selected the studies for inclusion.

Assessment of study quality
Methodological quality was assessed using a modified Jadad scale with a maximum of 5 points available; allocation concealment was assessed using the Cochrane criteria.

Validity assessment was carried out independently by two reviewers. Disagreements were resolved by discussion and seeking a third opinion where necessary.

The quality of the auricular acupuncture in each trial was assessed by one reviewer with extensive experience in this area based on a categorical response to the question “how would you treat the patients included in the study” and a visual analogue scale that rated the reviewer’s degree of confidence that the acupuncture was applied appropriately.

Data extraction
For each included study the mean change in reported sleep parameters and sleep time from baseline was extracted for intervention and control groups. Variance in the change was imputed using a correlation factor of 0.4.

Data were extracted independently by two reviewers. Disagreements were resolved by discussion and seeking a third opinion where necessary.
Methods of synthesis
Data were pooled using fixed-effect and random-effects meta-analyses to give weighted mean differences (WMD) and associated 95% confidence intervals (CI). Heterogeneity was assessed using the $\chi^2$ and $I^2$ tests.

Results of the review
Ten RCTs were included in this review (n=846). Overall methodological quality was described as poor, only three RCTs described their randomisation method and this was judged appropriate in two trials. No trials reported on allocation concealment, three mentioned blinding their participants, and only three reported drop-out and withdrawal rates. According to the auricular acupuncture quality assessor, 8/10 trials scored 80% or more on the visual analogue scale that measured confidence in the appropriate application of acupuncture. The assessor would have treated the patient groups in a similar or same manner as eight trials.

Auricular acupuncture versus placebo auricular acupuncture (three trials): Meta-analysis of two trials that compared magnetic pellet auricular acupuncture with placebo showed a significant effect in favour of the active treatment for sleep efficiency with no significant heterogeneity (WMD 7.5, 95% CI 2.2 to 12.9, p=0.006). The same two trials reported mixed results in terms of nocturnal sleeping time: one found a positive effect over placebo and the second found no effect. The third RCT compared needle auricular acupuncture with placebo and found no significant differences between groups for any of the reported sleep parameters.

Auricular acupuncture versus conventional drugs (four trials): Three RCTs compared Semen Vaccariae (SV) radish seeds with conventional drugs. All reported statistically significant benefits for the auricular acupuncture group over the controls, however, due to statistical heterogeneity pooling was not considered appropriate (no further details reported). One RCT compared magnetic pellet auricular acupuncture with diazepam and reported significantly greater benefits for symptoms and emotions relating to sleep for the auricular acupuncture group.

Auricular acupuncture versus no treatment or routine care (three trials): Two RCTs compared auricular acupuncture with thumb-tack type needles versus no treatment and reported significant effects in favour of auricular acupuncture for sleep score and satisfaction scores. Pooling was not possible due to the limited data reported in these studies. The third RCT compared Semen Vaccariae auricular acupuncture with usual care and found beneficial effects in favour of the auricular acupuncture intervention.

Authors' conclusions
There was limited evidence to support the use of auricular acupuncture as a symptomatic treatment for insomnia. Further rigorously designed trials were required.

CRD commentary
This review addressed a clear research question with broad and comprehensive searches of the published and grey literature. The inclusion criteria were generally well described, although the phrase not proven to be effective for treating insomnia was not clearly defined in relation to exclusion. Some aspects of the review process were not fully described (selection of studies), but overall error and bias were likely to have been minimised. Included studies were assessed for both methodological and intervention quality, but these results did not appear to have been incorporated into the synthesis. The statistical analyses appeared appropriate, but were poorly reported. Clinical heterogeneity was mentioned, but not considered further in the results. It was unclear why the variance for each study was imputed based on a correlational value and individual results were not presented. The authors’ cautious conclusions should be considered with caution as a result of the poor reporting, but appear to reflect the limited evidence available.

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

Research: The authors made a number of recommendations for future research. They suggested particularly that trials should adhere to accepted standards for rigour and design in terms of power and duration and that studies should report according to STRICTA and CONSORT guidelines and utilise validated outcome measures.
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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.