Acupuncture for Alzheimer's disease: a systematic review
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CRD summary
This review found that cognitive function and activities of daily living did not improve with acupuncture as a treatment for Alzheimer's disease, but the number of trials and sample sizes were too small to draw firm conclusions. Given this issue and some concerns with methodology, the authors' conclusions should be treated with some caution.

Authors' objectives
To assess the evidence for or against the effectiveness of acupuncture as a treatment for Alzheimer's disease.

Searching
The authors searched the following databases, from inception to August 2008, without language restrictions: MEDLINE, AMED, British Nursing Index, CINAHL, EMBASE, PsycINFO, the Cochrane Library 2008, six Korean medical databases, four Chinese medical databases and three Japanese medical databases. Search terms were briefly reported. The authors searched their departmental files and relevant journals, and manually searched the references of located articles. Dissertations and abstracts were eligible for inclusion.

Study selection
To be eligible, studies had to report a RCT in which patients with Alzheimer's disease were treated with needle acupuncture or electro-acupuncture, as the sole treatment or as adjunctive treatment. Trials comparing two different forms of acupuncture, or those in which there was no or insufficient data, were excluded.

All trials took place in China and used electro-acupuncture with differing treatment parameters, including a variety of acupuncture points. Control groups varied. Outcome measures included cognitive function assessment, activities of daily living and response rates.

Two independent reviewers assessed the articles, but it was unclear how disagreements were resolved.

Assessment of study quality
Allocation concealment was assessed according to the Cochrane classification; a modified Jadad scale was also used to assess randomisation, blinding of patient and evaluator, and description of withdrawals and drop-outs in the included trials. A maximum score of 5 points were available. The quality of acupuncture in the included trials was assessed by one reviewer, a certified traditional medical doctor with 14 years of acupuncture experience.

Two independent reviewers assessed validity and discrepancies were resolved by discussion or by recourse to a third reviewer.

Data extraction
Data were extracted according to pre-defined criteria (unspecified) by two independent reviewers. It was unclear how disagreements were assessed.

Methods of synthesis
The mean change of cognitive function (Mini Mental Status Examination - MMSE) and activities of daily living compared with baseline were used to assess the differences between treatment groups. Weighted mean differences (WMDs) and 95% confidence intervals (CIs) were calculated. Statistical tests of heterogeneity were conducted.

Results of the review
Three RCTs were included in the review (n=166 patients). The methodological quality of included trials was poor. None reported methods of randomisation, details of allocation concealment, described patient or assessor blinding, or gave sufficient details of drop-outs and withdrawals. The degree of confidence that acupuncture was applied
appropriately ranged from 50 to 90%.

Two RCTs were combined in meta-analysis and showed no statistically significant difference in effect between electro-acupuncture and conventional drug therapy, with no evidence of statistical heterogeneity.

Individual trials had mixed outcomes relating to the superiority of acupuncture or other therapies. Meta-analysis of two RCTs showed that drug therapy was superior to acupuncture for activities of daily living (WMD -1.29, 95% CI -1.77 to -0.80; n=72 patients). There was no statistically significant heterogeneity. In two trials comparing electro-acupuncture alone or electro-acupuncture plus drug therapy versus drug therapy alone, there were no statistically significant effects in favour of acupuncture in terms of response rates.

**Authors’ conclusions**
Cognitive function and activities of daily living did not improve with acupuncture as a treatment for Alzheimer's disease. However, the number of trials and the total sample size were too small to draw firm conclusions.

**CRD commentary**
This review had inclusion criteria for participants, intervention and study design, although outcomes did not appear to be pre-specified. Searching encompassed a range of western and eastern databases and other methods, with attempts to minimise language and publication bias. However, it was unclear if more than one reviewer was involved in the various stages of the review process, helping to minimise bias and errors.

Both the quality of the trials and the quality of the intervention was assessed. The differences in trial details suggested that pooling in a meta-analysis might not have been appropriate, despite the absence of statistical heterogeneity. Although overall acupuncture was not demonstrated as effective in this context, it is important to note that the total sample size was small and all studies related to electro-acupuncture. Given these issues and some concerns about methodology, the conclusions should be treated with some caution.

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

**Research:** The authors stated that future RCTs of acupuncture for treating Alzheimer's disease should adhere to accepted standards of trial methodology. They need sufficiently large samples based on power calculations. Duration and frequency of treatment should be appropriate and all methodology described in full. Validated outcome measures and statistical tests should be used and should evaluate functional benefit and quality of life. Withdrawals, with reasons, should be documented.

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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.