Contralateral acupuncture versus ipsilateral acupuncture in the rehabilitation of post-stroke hemiplegic patients: a systematic review

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CRD summary
The results of this review suggested there was limited evidence that contralateral acupuncture had superior benefits compared with ipsilateral acupuncture in post-stroke rehabilitation due to the paucity of well-designed trials. The review was well conducted and the authors’ cautious conclusions are likely to be reliable.

Authors’ objectives
To evaluate the effectiveness of contralateral acupuncture compared with ipsilateral acupuncture in post-stroke patients with hemiplegia.

Searching
MEDLINE, EMBASE, CINAHL, DARE, AMED, the Cochrane Methodology Register, Cochrane Central Register of Controlled Trials (CENTRAL), Cochrane Database of Systematic Reviews, a Chinese medical database (CNKI), three Japanese medical databases, and six Korean medical databases were all searched from inception to June 2010; search terms were reported. Four major Korean traditional medicine journals were also searched. References from all retrieved articles were checked to identify additional references. There were no language restrictions.

Study selection
Randomised controlled trials (RCTs) that evaluated comparisons of contralateral acupuncture and ipsilateral acupuncture in clinically-diagnosed or radiological-diagnosed post-stroke patients with hemiplegia were eligible for inclusion.

Most of the included trials were conducted in China; the remaining trial was conducted in Korea. Included patients had cerebral infarction, and intra-cerebral haemorrhages. Stroke was diagnosed using computerised tomography or magnetic resonance imaging. Acupuncture was administered by electro-acupuncture or manual acupuncture. In one trial, contralateral acupuncture was administered using a large-size needle to penetrate one acupuncture point through another and compared with ipsilateral acupuncture using filiform needles.

The outcomes examined were response rate, performance of activities of daily living, neurological deficit scores and motor function.

The authors did not state how many reviewers performed the study selection.

Assessment of study quality
Methodological quality was assessed by two reviewers using the assessment tool from the Cochrane Handbook for Systematic Reviews of Interventions. Criteria assessed were randomisation, allocation concealment, the treatment of incomplete data, and freedom from selective outcome reporting. Patient and assessor blinding were evaluated separately. Any disagreements between the reviewers were resolved through discussion.

Data extraction
Two reviewers independently extracted data to calculate mean differences (MDs), relative risks (RRs) and 95% confidence intervals (CIs) for each outcome using standardised data extraction forms. Any disagreements between the reviewers were resolved through discussion.

Methods of synthesis
Pooled weighted mean differences (WMDs), relative risks (RRs) and 95% confidence intervals for each summary estimate were calculated using a random-effects model. $I^2$, $\chi^2$ and $T^2$ tests were used to evaluate heterogeneity.
**Results of the review**

Eight RCTs (n=534 patients) were included in the review; sample sizes ranged from 13 to 120 patients. Three trials adequately described randomisation, but it was not clear if allocation was concealed in any of the trials. Two trials reported blinding of outcome assessors but patients across all the trials were either not blinded to treatment or blinding was unclear. One study did not clearly report how many patients were included in the analyses.

There were significant beneficial effects found with contralateral acupuncture in response rate compared with ipsilateral acupuncture (RR 1.12, 95% CI 1.04 to 1.22; I² =0%; six RCTs; n=361 patients). Subgroup analyses showed similar superior effects of contralateral acupuncture on response rate in patients with cerebral infarction (RR 1.15, 95% CI 1.04 to 1.27, I²=0%; four RCTs; n=261 patients).

Analyses of patients with cerebral infarction and intra-cranial haemorrhage did not show any difference in response rate between contralateral acupuncture and ipsilateral acupuncture, although there was some heterogeneity (I²=44%; two RCTs).

There were no significant differences between contralateral acupuncture and ipsilateral acupuncture observed across the trials in the performance of activities of daily living (three RCTs; I²=36%), neurological deficit scores (two RCTs; I²=60%), or on motor function (three RCTs; I²=86%); there was some heterogeneity found across the results for these outcomes.

**Authors’ conclusions**

The results suggested there was limited evidence that contralateral acupuncture had superior benefits compared with ipsilateral acupuncture in post-stroke rehabilitation. The paucity of RCTs and the low quality of the small trials included in the review meant that further well-designed trials were required in this area.

**CRD commentary**

The review addressed a clear and well defined question. Criteria for the inclusion of studies in the review were clearly stipulated. A range of appropriate databases were searched with no language restrictions; there were attempts to identify unpublished studies. Steps were reported to minimise errors and bias for the methodological quality assessment and data extraction, but not for study selection.

The combination of some of the results in a meta-analysis seemed appropriate. Some sources of heterogeneity were explored with an exploratory subgroup analysis. The authors acknowledged the limitations of the review including the low quality of the included trials, the potential for a number of biases, and that all the trials were conducted in China or Korea and may not be generalisable to other populations.

The review was well conducted and the authors’ cautious conclusions are likely to be reliable.

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

**Practice:** The authors stated that the clinical implications of the review may involve the selection of acupuncture points for treating stroke patients, which is thought to be one of the key issues in the therapeutic effectiveness of acupuncture.

**Research:** The authors stated that future rigorous studies were required to confirm the limited findings of the review. In particular, the authors urged the use of validated scales to determine response rate rather than arbitrarily categorised response rate, and the use of blinded outcome assessment.

**Funding**

Ministry of Health and Welfare (MOWH), Republic of Korea, Oriental Medicine Research and Development Project.

**Bibliographic details**

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.