The efficacy of acupoint stimulation for the management of therapy-related adverse events in patients with breast cancer: a systematic review
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CRD summary
The review found that acupoint stimulation reduced chemotherapy-related nausea and vomiting among breast cancer patients, but that there was insufficient good quality evidence about other treatment-related adverse events. Given weaknesses in the review (such as language bias and suboptimal reporting), and the small size and limited quality of the primary studies, the authors’ conclusions may not be reliable.

Authors' objectives
To evaluate the use of acupoint stimulation for managing adverse events related to the treatment of breast cancer.

Searching
PubMed, the Cochrane Library, EMBASE, CINAHL, PsycINFO, Chinese National Knowledge Infrastructure, Wanfang and Chinese Electronic Periodical Services were searched for studies. Search terms were reported. Reference lists of retrieved articles were also checked. Abstracts were excluded.

Study selection
Controlled and uncontrolled studies of acupoint stimulation to treat adults for adverse events related to treatment for any stage of breast cancer were eligible for inclusion. Cancer treatments could include surgery, radiotherapy, chemotherapy, hormonal therapy or palliative treatment. Acupoint stimulation could include any modality (e.g. manual needling, electroacupuncture, wristband, magnet, moxibustion, auricular acupuncture). Studies were required to report at least one clinical outcome (like symptom scores), as well as condition-specific and/or generic health outcomes. Case reports and qualitative or descriptive studies were excluded.

In the included studies, participants ranged from 28 to 76 years old and had a range of treatment-related adverse effects: vasomotor syndrome; nausea and vomiting; lymphoedema; postoperative pain; aromatase-inhibitor-related joint pain; and leucopenia. Few studies reported participant or acupuncturist characteristics in detail. Types of acupoint stimulation included conventional acupuncture, electroacupuncture, drug injection at acupoints, self-acupressure, acubands, and magnetic devices. Most studies of nausea and vomiting used the P6 acupoint. Control conditions varied (e.g. sham acupoint stimulation, hormone therapy, drug injection without acupoint stimulation, relaxation, usual care). The type, timing and number of outcome measures also differed widely. Most studies were set in the USA or China.

Two reviewers independently selected studies, with disagreements resolved by a third reviewer.

Assessment of study quality
Study quality was evaluated using a modified version of the Jadad scale to evaluate randomisation, blinding of participants and outcome assessors, and withdrawals. Studies were scored up to a maximum of 5 points.

Two reviewers independently assessed studies, with disagreements resolved by a third reviewer.

Data extraction
For each outcome in each study, data were extracted on the statistical significance of between and/or within-group differences. In most cases the p value was reported.

The authors did not state how many reviewers performed the data extraction.

Methods of synthesis
Studies were combined by narrative synthesis for most outcomes, grouped by target condition. For one outcome, some study data were pooled to calculate the standardised mean difference in effect size between the groups.

**Results of the review**

Twenty-six studies were included in the review (n=1,525 patients; range five to 160): 18 randomised controlled trials (RCTs, n=1,136 patients), two non-randomised controlled trials (n=284), and six single-group studies (n=105 patients). Nine studies scored 3 or more points out of 5 for quality and were designated high quality; only two of these used double blinding. Seventeen studies scored 2 points or fewer.

Overall, 23 studies found benefits from acupoint stimulation for at least one reported outcome.

- **Vasomotor symptoms** (seven studies): Daily hot flush frequency was significantly lower in the acupoint stimulation group in one RCT and two single-group studies (all p<0.001), but there was no significant difference between the groups in the other four RCTs, individually or when three (all high quality) were pooled.

- **Chemotherapy-induced nausea and vomiting** (11 studies): Nine RCTs (three high quality) and one single-group study reported a significant benefit from acupoint stimulation for at least one outcome (p<0.05 or less).

- **Post-mastectomy pain** (two RCTs, one non-RCT): One high quality RCT found no significant difference between the groups. The other two studies found a significant benefit in the acupoint stimulation group (p<0.05 or less).

- **Other outcomes**: Acupoint stimulation was associated with a significant benefit for joint pain and function (p=0.008, one RCT) and for lymphoedema (p<0.05, one single group study) and with a reduced risk of leucopenia (one CT, one single group study).

- **Adverse events** (nine studies): Five studies reported minor adverse events (e.g. skin irritation). None reported any serious adverse events.

**Authors’ conclusions**

Acupoint stimulation reduced chemotherapy-related nausea and vomiting among breast cancer patients. There was insufficient good quality evidence on acupoint stimulation effects on other treatment-related adverse events.

**CRD commentary**

The objectives and inclusion criteria of the review were clear and relevant sources were searched for studies. The exclusion of three studies published in Russian, and of studies in abstract or poster form, may have resulted in relevant studies being omitted. Steps were taken to minimise the risk of reviewer bias and error by having more than one reviewer independently select studies and undertake validity assessment, but it was unclear whether these precautions also applied to data extraction.

The Jadad scale was designed to measure the quality of RCTs, and is less relevant for non-randomised studies. This lack of relevance made it difficult to determine the quality of the non-randomised studies in the review. The decision to combine the data largely by narrative synthesis was appropriate, given the heterogeneity between the studies. Although the better quality data were prioritised in the interpretation of results, most of the studies designated high quality either failed to report drop-out rates or had drop-out rates of over 25%. Results were not reported as effect sizes, no measures of variability were reported, and control conditions varied widely. Several studies reported inconsistent results for multiple measures of the same outcome, which suggested that some of the statistically significant results may have been by chance. All these factors made the clinical significance of the findings hard to assess.

Given weaknesses in the review (such as language bias and suboptimal reporting), and the small size and limited quality of the primary studies, the authors’ conclusions may not be reliable.

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

**Practice**: The authors stated that health professionals could consider use of acupoint stimulation, particularly acupressure to the P6 acupoint, for treating chemotherapy-induced nausea and vomiting.
Research: The authors stated that there is a need for better-designed research to investigate the cost-effectiveness of acupoint stimulation for managing the adverse effects of breast cancer treatment. Sham acupuncture could be used as a control intervention for studies of acupoint stimulation.

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