The impact of acupuncture on assisted reproductive technology outcome
El-Toukhy T, Khalaf Y

CRD summary
This review concluded that there was insufficient evidence that adjuvant acupuncture, either at oocyte retrieval or at embryo transfer, improved the outcome of in-vitro fertilisation treatment. Therefore, acupuncture should not be recommended to increase treatment success rate during in-vitro fertilisation. These conclusions are probably reliable, although poor reporting of aspects of the review mean that some caution should exercised in their interpretation.

Authors' objectives
To assess the impact of acupuncture on the outcome of in-vitro fertilisation treatment.

Searching
MEDLINE (1966 to December 2008), EMBASE (1974 to December 2008) and the Cochrane Library (fourth quarter 2007) were searched. Search terms were not reported. Conference Proceedings Citation Index was searched for relevant conference abstracts. References of identified studies and reviews were also checked. Only published studies were eligible for inclusion.

Study selection
Randomised controlled trials (RCTs) that assessed the use of acupuncture during in-vitro fertilisation treatment were eligible for inclusion if they reported the rate of clinical pregnancy defined as ultrasound identification of an intra-uterine gestational sac following treatment.

Included studies assessed acupuncture performed either at the time of transvaginal oocyte retrieval or at the time of embryo transfer. Control groups received no intervention or sham acupuncture.

The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
It appeared that validity was assessed using the criteria of randomisation method, allocation concealment, blinding of outcome assessors, use of a placebo control, use of an intention-to-treat analysis and baseline comparability.

The authors did not state how many reviewers performed validity assessment.

Data extraction
Data were extracted to permit the calculation of relative risks (RR) with 95% confidence intervals (CI) for the outcome of clinical pregnancy. Data on the timing of the intervention and the type of control used were also extracted.

Methods of synthesis
The trials were pooled in separate random-effects analyses depending on whether acupuncture was administered at the time of oocyte retrieval or at the time of embryo transfer.

For trials conducted at the point of embryo transfer, subgroup analyses were undertaken of studies using a control of no intervention and those using sham acupuncture.

A sensitivity analysis was used to explore the effect of excluding a trial which used an additional intervention.

Results of the review
Fourteen RCTs were included in the review (n=2,870 women).
In trials using acupuncture at the point of oocyte retrieval (five RCTs; n=877 women), there was no statistically significant difference between acupuncture and no intervention groups in clinical pregnancy rates (RR 1.06, 95% CI 0.82 to 1.37).

In trials using acupuncture at the time of embryo transfer (nine RCTs; n=1,993 women) there was also no statistically significant difference between the groups in clinical pregnancy rates (RR 1.16, 95% CI 0.92 to 1.48). Subgroup analyses of studies using no intervention and those using sham acupuncture controls also revealed no statistically significant differences; this was also the case for a sensitivity analysis excluding a trial with an additional intervention. Statistical heterogeneity appeared to be considerable ($I^2=74\%$).

**Authors’ conclusions**

There was not sufficient evidence that adjuvant acupuncture, either at the time of oocyte retrieval or of embryo transfer, improved the outcome of in-vitro fertilisation treatment. Therefore, acupuncture should not be recommended to increase the success rate of treatment during in-vitro fertilisation.

**CRD commentary**

The review question and inclusion criteria were clear. The authors searched some relevant databases, but the restriction of the review to published studies may have increased the possibility of relevant studies being omitted or of publication bias. Publication bias was not assessed in the review. The authors did not report using measures to reduce reviewer bias and error at any stage of the review process.

Validity assessment used appropriate criteria, but was not used to inform the synthesis. The use of meta-analyses was appropriate, as was the use of subgroup analysis, but there was no attempt to assess or further explore statistical heterogeneity, which appeared to be substantial.

The authors’ conclusions accurately reflected the evidence presented and are probably reliable, although poor reporting of aspects of the review mean that some caution should exercised in their interpretation.

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

**Practice**: The authors stated that women should be advised that, on the basis of current knowledge, there is no evidence that receiving acupuncture during in-vitro fertilisation treatment, either at the time of oocyte retrieval or of embryo transfer, improves the outcome of the in-vitro fertilisation cycle.

**Research**: The authors stated that any future trials of acupuncture as an adjunct to in-vitro fertilisation treatment would need to recruit thousands of women, and should use live birth as the primary outcome. They further stated that, given current results and the lack of a biologically plausible mechanism, further such trials are highly unlikely to change the ineffective profile of the intervention.

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