**Claim supported by evidence?**

“Acupuncture works as a treatment for chronic pain”: There is a specific effect of acupuncture on chronic pain, beyond that of sham acupuncture, i.e. beyond the placebo effect. This paper gives evidence to support this conclusion. It is implausible that differences between real and sham acupuncture are due to chance.

The overall effect of the package of care received from acupuncturists (including any placebo effects) is large enough for it to be considered a reasonable treatment option.

**Summary**

This is a review of 29 high quality papers which are judged as unlikely to be biased, and with adequate blinding of the patients. Data from 17922 patients were analysed. It contains numerical summarising of the evidence for acupuncture as a treatment for chronic pain.

Benefits of acupuncture beyond those of sham acupuncture are shown separately in each of back and neck pain, shoulder pain, chronic headache and osteoarthritis, with statistically strong evidence for each. i.e. chance is highly implausible as an explanation for these effects.

The specific effect of acupuncture varies from small and of little or modest clinical value (for osteoarthritis and chronic headache, based on 9 studies) to of significant clinical value (for back & neck pain, and for shoulder pain, based on 11 studies), though were small for all diseases when results from one outlying trial were removed.

The effects of acupuncture are judged to be substantial enough to be of significant clinical value, as compared to non-acupuncture controls (i.e. not blinded comparisons) for each of chronic headache, osteoarthritis and neck & back pain, based on 18 studies).

**Study Conclusions**

The authors conclude that referral to acupuncturists for treatment of chronic pain is a reasonable treatment option. This is well supported by the data.

The authors conclude that part of the effect of the treatment is attributable to the acupuncture itself and part is attributable to other things. This is also well supported.

Because of small effect sizes, some remaining bias could plausibly explain the effects.

**Strengths/Limitations**

This is a thorough review of relevant high quality research studies, with a good meta-analysis (numerical combining of effects across studies), from individual patient data.

The fact that the benefits are shown separately in each of four different pain groups suggests a strong conclusion.
Only high quality research studies are included, which are assessed as being unlikely to be biased. They give clear reasons to believe that patients do not know whether or not they are receiving sham acupuncture – either because the method of blinding has good research to show that patients cannot tell the difference, or because data has been collected directly in the study itself which demonstrates that patients cannot generally tell the difference.

Statistical analyses are appropriate.

Many studies use pain as their primary endpoint and many others use some measure of function (function in daily activities which can be limited by chronic pain). It is somewhat controversial to combine different types of endpoint in this way. However, they have also looked at pain at 2/3 months as an outcome, in studies which report this, and come to very similar conclusions.

It is impossible to blind the acupuncturists to the treatment they are giving (real or sham acupuncture). Acupuncturists were asked to treat patients in the same manner, whether or not they offered real or sham acupuncture. It cannot be ruled out that their differential expectations, or subtle differences in their treatment, may have nevertheless have contributed to or explained differences in outcome between the two treatment arms (real and sham acupuncture). This same potential bias applies to all trials of non drug treatments. It is plausible as an explanation because of the small effect sizes observed here.

Meta-analyses, such as this, may be thought of as stronger evidence than relying on individual studies. However, they can also be criticised for combining studies which apparently disagree in their conclusions. For the most part, studies are pretty consistent here in their conclusions, though not always. The authors have done a range of sensitivity analyses to look at the effect of omitting certain types of studies on the results, and found the conclusions to be robust.

There have been numerous studies of the placebo effect in pain research (summarised elsewhere), which suggest that the placebo effect is an important part of the clinical effectiveness of most pain treatments, including drug treatments.

**Glossary**

**Systematic review** – a thorough and systematic searching of the literature looking for all relevant research studies

**Meta-analysis** – numerical combination of the estimated effects of the study intervention, from data combined across a number of different studies.

**Sham acupuncture** – this might involve using acupuncture needles where the needle withdraws into the shaft rather than being inserted into the patients body. It has been shown that patients cannot distinguish sham from real acupuncture for the techniques being used here.

**Specific effect of acupuncture** – effect of acupuncture above that of sham acupuncture, i.e. affect beyond any placebo effect.

**Any specific expertise relevant to studied paper (beyond statistical)?**

I have in depth knowledge of meta-analysis techniques and some knowledge of research methods in acupuncture including use of sham acupuncture. I have a little clinical knowledge about the practice of acupuncture. I do not have detailed knowledge of the research literature that is being summarised here.

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