

Current Research and Clinical Applications

John Deare MAppSc(Acu) BHSc(CompMed)
CompMed Health Institute, Gold Coast, Australia

ACUPUNCTURE IS EFFECTIVE FOR THE TREATMENT OF CHRONIC PAIN AND IS THEREFORE A REASONABLE REFERRAL OPTION

This is a summary of a recently published meta-analysis paper.¹ It is referred to as the Vickers' review in this article. The publication is the work of a number of leading academics from the northern hemisphere referred to as the 'The Acupuncture Trialists' Collaboration. This group was established in 2007 with the objective to synthesise data from high quality randomised trials (RCTs) on chronic pain using acupuncture; providing evidence with better quality for clinicians, physicians and patients which would improve referrals to acupuncturists. Their meta-analysis differs from all other published systematic reviews of acupuncture by utilising individual patient data rather than summary data in published papers. Such an approach enhances data quality, enables different forms of outcomes to be combined and allows for increased precision of statistical sensitivity.

Vickers' commented on the controversial nature of acupuncture therapy due to an apparent lack of differences between real and sham acupuncture. Consequently some researchers consider acupuncture a potent placebo as there is no accepted physiological mechanism of analgesia. Others argue that sham (placebo) acupuncture is not inert. Puncturing the skin anywhere or even touching the skin such as placebo acupuncture

needles could alleviate pain, therefore affecting the difference between two groups (effect size). Furthermore, studies with small sample size such as less than 100 participants, are often not powerful enough to detect a small difference between real and sham acupuncture. Results from such studies are often misinterpreted as there is no difference between the groups. That is why Cochrane reviews often conclude that larger studies are warranted.

In addition, different styles of acupuncture are practised in the clinic, with most published studies using formula acupuncture without traditional methods. This does not help identify the importance of differential diagnosis, acupoint location and stimulation practised in the clinic. Another critical factor is difficulty in blinding the therapist, which is the case in almost all non-drug interventions. This issue of unblinding in studies raises the possibility of both performance and response bias. With this background the authors of the paper undertook the meta-analyses to determine the effect size of acupuncture for four chronic pain conditions of back and neck, osteoarthritis, chronic headache and shoulder.

When studies are combined in a meta-analysis, the results of the poor quality ones downgrade the value of the better ones resulting in questionable interpretability. To overcome this, only high quality RCTs with proper randomisation and allocation concealment were included in Vickers'

review. To be eligible, RCTs had to have at least one group receiving needling acupuncture and one group receiving either sham or no-acupuncture with pain duration of four weeks in the musculoskeletal disorders. Endpoint must be measured more than four weeks after initial acupuncture treatment.

Twenty nine of the 31 eligible studies with 17922 participants were included. Data were from the United States of America, the United Kingdom, Germany, Spain and Sweden. Primary analysis showed acupuncture being superior to sham and no-acupuncture for all four pain conditions ($p < 0.001$). The effect size was larger for acupuncture versus no-acupuncture when compared with acupuncture versus sham interventions. The effect size comparing acupuncture with no-acupuncture for back and neck were 0.55 (95%CI, 0.51–0.58), osteoarthritis 0.57 (95%CI, 0.50–0.64), and chronic headache 0.42 (95%CI, 0.37–0.46) of a standard deviation (SD). While effect size of acupuncture compared with sham interventions for back and neck were 0.37 (95%CI, 0.27–0.48), osteoarthritis 0.26 (95%CI, 0.17–0.34), and chronic headache 0.15 (95%CI, 0.07–0.24), and shoulder pain 0.62 (95%CI, 0.46–0.77) SDs. Sensitivity analyses were undertaken that excluded a set of RCTs that strongly favoured acupuncture and showed effect size reduced for acupuncture having less pain versus sham controls with scores for back and neck 0.23 (95%CI, 0.13–0.33), osteoarthritis 0.16 (95%CI, 0.07–0.25), and chronic headache 0.15

(95% CI, 0.07–0.24) SDs (shoulder was excluded in this grouping).

What these effect sizes mean in real terms is best described on a baseline pain scale of 0 to 100 with pain relief of 50% or more. An often used standard of effectiveness in pain relief is a reduction from say 60 to 30. Using this measure, the rate of effectiveness for real acupuncture, sham acupuncture and no treatment would be 50%, 43% and 30% respectively.

To test for publication bias, data from small and large studies were entered. Small studies had a larger effect for the sham comparison ($p = 0.02$), but not the no-acupuncture ($p = 0.72$). Other sensitivity analyses undertaken to ensure quality of evidence showed overall effect of $p < 0.001$ for separate pain types, inclusion of trials for which raw

data was not obtained, only trials with low likelihood of bias for blinding and multiple imputation for missing data.

The final interpretations of this paper are important. Vicker and co-authors suggest that the total effects of acupuncture as experienced by the participants are clinically relevant. However, one part critical to a traditionalist acupuncturist treatment in clinical practice, correct location of acu-point and depth of needling, has not been assessed at this stage. We understand further work is being undertaken by the authors. Until such time as this has been analysed, systemic reviews of acupuncture treatments should be clearly noted as to what style is being used.

In conclusion, Vickers' study indicates that acupuncture is superior to sham and no acupuncture for treatment

of chronic pain. As well, their study provides the most robust evidence to date that acupuncture's effects are 'over and above' those of placebo acupuncture even if it is relatively modest and therefore is suitable for referral by physicians. This is the study that acupuncturists have been waiting for. I highly recommended that every practitioner reads and comprehends the paper; and use it when being questioned about the effects of acupuncture.

Reference

1. Vickers AJ, Cronin AM, Maschino AC, Lewith G, MacPherson, Foster NE, et al. Acupuncture for Chronic Pain, Individual Patient Data Meta-analysis. *Arch Intern Med.* 2012;172(19):1-10. [cited September 2012] Available from: <<http://archinte.jamanetwork.com/article.aspx?articleid=1357513>>.