Research reviews

This section is designed to give a synopsis of some of the latest research published in Medline listed journals over the last year or so. It will concentrate on controlled trials and systematic reviews, but will also include other papers that may be of interest to the readership. Some papers will be reviewed in more detail than others. If summaries and comments are based on an abstract only, this will be indicated. The main reviewer in this section is Mike Cummings, London. Other reviewers are indicated after the relevant review.

RCTs

Acupuncture for PONV in gynaecological or breast surgery (n=220)


Summary

This randomised, placebo-controlled, patient and observer blinded trial was conducted to determine whether acupuncture at the acupuncture point PC6 is more effective than placebo acupuncture in preventing postoperative nausea and vomiting (PONV). Female patients (n=220) scheduled for gynaecological or breast surgery were randomly assigned to two groups receiving either acupuncture (n=109) or placebo acupuncture (n=111). Each group was stratified for the type of surgery and included two subgroups receiving intervention either before or after induction of anaesthesia. The incidence of PONV or antiemetic rescue medication within 24 hours after surgery was the main outcome measure. This showed no statistically significant difference between groups (43.7% acupuncture, 50.9% placebo, p=0.27). The differences were more pronounced for patients having gynaecological surgery (48.9% acupuncture, 67.6% placebo, p=0.07) than for those having breast surgery (38.7% acupuncture, 40.3% placebo, p=0.86). The secondary outcome, vomiting, was significantly reduced by acupuncture from 39.6% to 24.8% (p=0.03). Subgroup analysis showed no difference between applications of acupuncture before compared to after induction of anaesthesia.

Comment

Given that the efficacy of acupuncture in the treatment of PONV has already been established,1 the results of this trial seem a little disappointing. This was a well-designed and conducted trial, and it was powered to show a difference of 20% in the PONV rate between real and sham acupuncture. The authors do not specify how they determined this figure, but they do refer to a previous study of PC6 acupuncture vs no treatment control for PONV after gynaecological laparoscopy.2 Strangely, not only do they misquote the results of this trial, but the reference is also incorrect. Anyway the trial quoted did show a difference of 30%, so choosing to power for a 20% difference does not seem unreasonable.

There are two quite interesting results in the present study: first, and the reason that the trial appears negative, is that there was absolutely no effect from PC6 acupuncture over the non-penetrating sham in the breast surgery patients. Secondly, there was no difference between applying the acupuncture before or after induction of anaesthesia. Both these results are surprising given the existing literature to date.

Reference list

Acupuncture is effective for chronic LBP in older patients (n=55)


**Summary**
The aim of this study was to determine whether or not acupuncture is an effective and safe adjunctive treatment to standard therapy for chronic low back pain (LBP) in older patients. The inclusion criteria for subjects were: (i) LBP ≥12 weeks and (ii) age ≥60 years. The exclusion criteria were: (i) spinal tumour, infection or fracture and (ii) associated neurological symptoms. The subjects were randomised to two groups. The control group of subjects continued their usual care as directed by their physicians, ie NSAIDs, muscle relaxants, paracetamol and back exercises. Subjects in the acupuncture group received acupuncture with electrical stimulation biweekly for five weeks in addition to their usual care. Outcome was measured by the modified Roland Disability Questionnaire (RDQ) at weeks 0, 2, 6 and 9. The primary outcome measure was change in RDQ score between weeks 0 and 6. Fifty-five patients were enrolled, with eight drop-outs. Twenty-four subjects were randomised to the acupuncture group and 23 were randomised to the control group. Acupuncture subjects had a significant decrease in RDQ score of 4.1±3.9 at week six, compared with a mean decrease of 0.7±2.8 in the control group (P=0.001). This effect was maintained for up to four weeks after treatment at week nine, with a decrease in RDQ of 3.5±4.4 from baseline, compared with 0.43±2.7 in the control group (P=0.007). The mean global transition score was higher in the acupuncture group, 3.7±1.2, indicating greater improvement, compared with the score in the control group, 2.5±0.9 (P<0.001). Fewer acupuncture subjects had medication-related side-effects compared with the control group. The authors concluded that acupuncture is an effective, safe adjunctive treatment for chronic LBP in older patients.

**Comment**
This is a well-reported and performed pragmatic study. The acupuncture intervention used consisted principally of electroacupuncture (EA) to bladder points in the low back, with the option of adding points in the hip girdle and posterior thigh if there was pain referred to these areas. The EA was set at 4-6Hz and 0.5ms pulse duration. It was applied to four pairs of leads (the exact connections were not specified in the report). Each treatment lasted 20 minutes.

As a pragmatic study, it was open, and there was no control for the acupuncture intervention. Thus, whilst the results are useful in practice, this study does not tell us whether there was a specific effect from the needling intervention.

This is now the second randomised controlled trial of acupuncture for chronic low back pain in older adults. The first compared acupuncture with TENS and found that both interventions were effective, but without significant difference between them. So there are consistent results suggesting effectiveness of acupuncture, but as yet any specific efficacy beyond placebo has not been established in older adults.

**Reference**

Longterm specific effect of acupuncture on chronic neck pain (n=24)


**Summary**
The study was carried out to examine whether acupuncture treatment can reduce chronic pain in the neck and shoulders and related headache, and also to examine whether possible effects are long-lasting. Twenty-four female office workers (47±9 years old, mean±SD) who had had neck and shoulder pain for 12±9 years were randomly assigned to a test group (TG) or a control group (CG). Acupuncture was applied ten times during three to four weeks either at presumed acupoints
for treating pain (TG) or at ‘placebo’ points (CG). A physician measured the pain threshold (PPT) in the neck and shoulder regions with algometry before the first treatment, after the last one, and six months later. Questionnaires on muscle pain and headache were answered at the same time and again three years after the treatment. The intensity and frequency of pain fell more for TG than for CG (P≤0.04) during the treatment period. Three years after the treatments TG still reported less pain than before the treatments (P<0.001), but CG did not, and the difference was significant (P<0.04). The degree of headache fell during the treatment period for both groups, but more for TG than for CG (P=0.02). Three years after the treatments the effect still lasted for TG (P<0.01), while the degree of headache for CG was back to the pre-treatment level, and the difference between groups was highly significant (P<0.001). PPT of some muscles rose during the treatments for TG and remained higher six months after the treatments (P<0.05), which contrasts with the situation for CG. Adequate acupuncture treatment may reduce chronic pain in the neck and shoulders and related headache. The effect lasted for three years.

Comment
This is a small but encouraging study for ‘acupuncture’. From the physiological perspective both groups received a form of acupuncture, so the length of effect measured in the test group seems remarkable. In terms of treatment parameters, there were only two main differences between the groups. First, electroacupuncture (EA) to local points was used in the test group, and sham EA with no voltage applied (but an audible beep) in the control group. Second, the ‘placebo’ points used in the control group were placed 10 to 40mm distal to the ‘presumed real acupoints’ [authors’ words], or, in the case of the ear points, 4 to 6mm below. The whole treatment package included: EA to 10 points on the neck (Jingjiaji points, GB21, BL12, GV14, SI14, SI15), manual acupuncture to six distal point (LI4, LI11, GB31), and ear acupressure to six points. All things considered, therefore, this study is probably measuring the difference between EA and local manual non-point needling.

Latent myofascial trigger points affect muscle activation patterns in the shoulder girdle (n=42)


Summary
Kibler (Medicine and Science in Sports and Exercise 30 (1998) 79) suggests that when there is dysfunction in a proximal body segment, distal segments have to change workloads in order to preserve movement outcomes at the most distal body segment. One aspect of function is the timing of muscle activation. As the presence of pain could affect the muscle activation pattern (MAP), the effects of pain-free latent myofascial trigger points (LTrPs) in the scapular rotator muscle group were investigated. Surface electromyography was used to identify the MAP of the upper and lower trapezius, serratus anterior, infraspinatus and middle deltoid during scapular plane elevation. Repeated measures ANOVA was used to compare the control group (n=14) and the LTrP group (n=28). The LTrP group was then randomly assigned to either placebo intervention or true treatment to investigate the effect of removing the LTrPs. The data established that LTrPs in the scapular rotator muscles changes the MAP of this muscle group and of muscles further distal in the shoulder girdle kinetic chain. Treatment to remove LTrPs normalised the MAP.

Comment
Readers of this section may wonder why this paper has been chosen for review, since it is not from a Medline-listed journal, and there is no mention of acupuncture. Well, the treatment used to remove LTrPs was dry needling and passive stretch, so in terms of Western medical acupuncture it counts as an acupuncture study. It appears to have been carefully performed, but there are a couple of potential methodological failings. The method of randomisation to LTrP treatment is not described, and it is not clear whether the outcome assessments were performed by blinded observers. Furthermore, and perhaps most importantly, the presence of
LTrPs was not rechecked after the interventions, so it could be argued that any effects observed may not necessarily be related to deactivation of LTrPs, but may result from the intramuscular stimulation of dry needling.

The results are interesting, and the authors’ arguments are considered and logical. But what do these results imply in clinical terms? The authors suggest that abnormal MAP may predispose individuals to increased risk of subacromial impingement, and overuse of the rotator cuff. Presumably, by normalising the MAP, the risk of developing impingement or rotator cuff strain is reduced. But does that mean we should treat asymptomatic adults? As usual, there is much more work to be done in this area, but the authors are to be congratulated for setting us off on an interesting path.

Research methodology

Some problems in measuring quality of life (n=23)


Summary

An outcome questionnaire that is patient-centred should encompass the aims, values and treatment effects that are prioritised by individuals, and should enable each individual to provide an unambiguous assessment of change over time. There is little evidence about how well outcome questionnaires perform in this regard. This paper describes how interviews that combined in-depth enquiry and cognitive techniques were used to explore patients’ experiences of completing three outcome questionnaires over a six month period. The 23 interviewees all had chronic disease and were receiving acupuncture treatment for the first time. Many of the problems uncovered by this study can be ameliorated by attention to questionnaire design. For example, by the provision of at least five response options, by being explicit about including co-morbidity, and by measuring medication change as a separate outcome. The study also highlighted more fundamental conceptual difficulties, such as response shift and the respondent’s conflict between scoring external function and internal distress (what they did, vs what they felt). These issues relate to the co-existence of different perspectives and the impossibility of reducing health status to one ‘single truth’. The study concludes that qualitative evaluations have an important role to play in questionnaire design and development and are likely to lead to more modest and realistic appraisals of outcome questionnaire performance.

Comment

At first sight this paper has little to do with acupuncture, and little interest for clinicians. But stay with it a while: there are important messages here, for anyone who wants to know how patients rate their health, or for anyone who is thinking of doing a clinical audit.

The problem is this: you want to measure whether patients’ health is improved when they have had their acupuncture. So you set them a questionnaire. And what Dr Paterson has shown here is that the questionnaire you so carefully selected may be reliable and accurate enough if you want to compare the effects of different treatments in a large clinical trial, but might have serious limitations if you want to know how your individual patient has improved.

There are many ways this can happen. One straightforward example is in the WOMAC questionnaire that attempts to evaluate arthritis of hip or knee. It asks the patient ‘Do you have difficulty getting in/out of the bath?’ She scores, ‘No’ because she thinks, ‘I don’t have any difficulty. I have a shower. I never have a bath, I can’t get into it.’

One thing Dr Paterson did was to ask patients to think aloud while filling out these three questionnaires. For example, as they completed a VAS with one end marked with the words ‘best imaginable health’. Some people imagined that
meant the best they could hope for in the present circumstances, but others thought it meant their health when they were a fit teenager. It is well known that some patients with conditions that limit their function quite severely will score their health high on a VAS: after all, ‘What can you expect in my condition?’

Then there is something called the ‘response shift’: a patient who has to be absent from work because of illness might therefore score himself low on ‘ability to perform daily activities’. When he loses the job, then work is no longer a ‘daily activity’ and his score might go up even though he is no better.

Patients can be particularly sensitive about questions on emotional state, of course, and a patient on antidepressant medication said she would never score herself as depressed.

These examples just touch the surface of the difficulties that can arise and make patients’ responses to questionnaires inaccurate. The important messages seem to be: firstly, use questionnaires in exactly the way they have been designed to be used, then, if the individual responses are wrong, they can at least be compared to other studies. Secondly, these questionnaires need modifying for use as patient-centred measures, and if they are updated, make sure you use the most recent edition. Thirdly, if you are particularly interested in the response to one question (eg getting into the bath), talk a few patients through it, and if they have difficulty in interpreting it, make sure all patients are supervised for that section. Fourthly, be reassured that these shortcomings only affect the individual patient’s response, and this paper does not invalidate all quality of life research ever done!

Adrian White
Longterm specific effect of acupuncture on chronic neck pain (n=24)

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