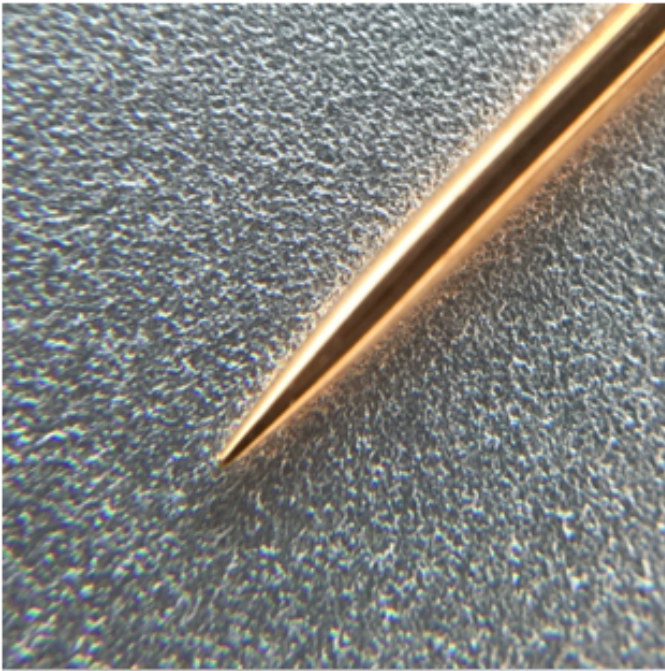


An Overview of Acupuncture



...in pain management and pain prevention



Dr Mike Cummings MB ChB DipMedAc

Musculoskeletal Physician
Medical Acupuncturist

Medical Director BMAS
Director of Education BMAS
Associate Editor *Acupuncture in Medicine*
Honorary Clinical Specialist UCLH

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goo.gl/6XQeXv

Mike is Medical Director of the British Medical Acupuncture Society (BMAS). This is a full time post that involves running the BMAS London Teaching Clinic (LTC), co-ordinating and lecturing on BMAS courses in Western medical acupuncture, acting as an associate editor for the Medline-listed journal *Acupuncture in Medicine*, and representing the BMAS at various academic and political meetings. Mike is an Honorary Clinical Specialist at the Royal London Hospital for Integrated Medicine, which is part of the University College London Hospitals NHS Foundation Trust, where he supports acupuncture services.

His principal academic and clinical interest is musculoskeletal pain, and in particular, needling therapies in the treatment of myofascial pain syndromes.

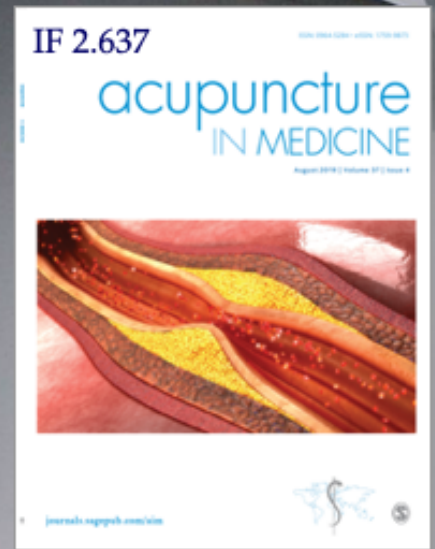
After completing his medical degree at Leeds, and several hospital jobs in the north of England, Mike joined the Royal Air Force for a six and a half year short service commission. A substantial portion of the workload for a general duties medical officer (GDMO) in the RAF is musculoskeletal medicine. Mike came across acupuncture by accident whilst working as a GDMO. He followed his interest in musculoskeletal medicine and acupuncture on retiring from military service, and finally found himself occupied full time in the field of acupuncture (see start of the piece).

Read Mike's profile in the Leeds University Medical School Alumni magazine from 2003.

Read a description of how Mike unexpectedly got into acupuncture in Toby Murcott's book - *The Whole Story* from 2005.

Disclosure – no conflict of interest
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Medicine (Leeds) 1987
Musculoskeletal Medicine
RAF Medical Officer 1989–96
Acupuncture 1993–
Director of Education BMAS 1997–
Editor *Acupuncture in Medicine* 1999–
Medical Director BMAS 2001–
Expert Adviser NICE CG88 2007–09



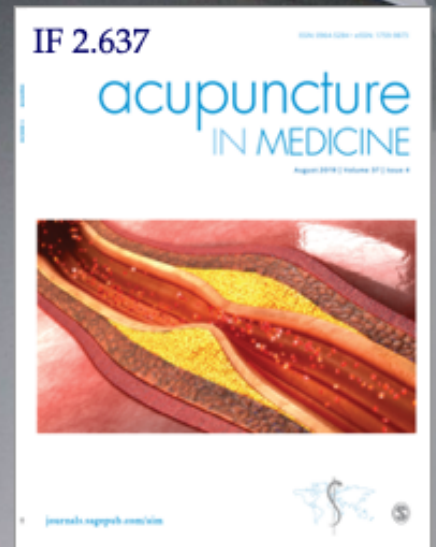
From an early age I was interested in somatic anatomy and of musculoskeletal physiology. I continued that interest through medical school and beyond. Acupuncture was a chance discovery whilst serving as a medical officer in the British military. After retiring from the Royal Air Force, my career took a path that was guided by my interest in musculoskeletal pain and strongly influenced by taking over an acupuncture practice that was formerly run by Dr Adrian White. At the time Adrian was the president of the British Medical Acupuncture Society (BMAS), and when I took over his practice, he went into research at Exeter University. I continued my interest in clinical medicine, but at the same time was inducted into the world of systematic reviews and publishing. I kept a foot in both camps, and this has served me well in my position as medical director of the BMAS.

Disclosure – no conflict of interest
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Publications

81 total publications
67 in peer reviewed journals
4 systematic reviews
1 Cochrane review
10 textbook chapters
4 textbooks



The full list of references can be found here: goo.gl/6XQeXv

Declaration of interests

I am the salaried [medical director](#) of the [British Medical Acupuncture Society \(BMAS\)](#), a membership organisation and charity established to stimulate and promote the use and scientific understanding of acupuncture as part of the practice of medicine for the public benefit.

I am an [associate editor](#) for [Acupuncture in Medicine](#).

I have a very modest private income from lecturing outside the UK, royalties from textbooks and a partnership teaching veterinary surgeons in Western veterinary acupuncture. I have no private income from clinical practice in acupuncture. My income is not directly affected by whether or not I recommend the intervention to patients or colleagues, or by whether or not it is recommended in national guidelines.

I have not chaired any NICE guideline development group with undeclared private income directly associated with the interventions under discussion. I have participated in a NICE GDG as an expert advisor discussing acupuncture.

I have used Western medical acupuncture in clinical practice following a chance observation as a medical officer in the Royal Air Force in 1989. My opinions are formed by data that spans the range of quality and reliability, much of which is in the public domain.

I have a logical mistrust of the motives of anyone who advertises an interest or hobby in being a 'Skeptic', as opposed to using appropriate scepticism within their primary profession, or indeed organisations that claim to promote generic 'science' as opposed to actually engaging in it.

An Overview of Acupuncture

...in pain management and prevention

Topics

- ✧ Mechanisms
- ✧ Chronic pain
- ✧ Acute pain treatment
- ✧ Acute pain prevention
- ✧ Prophylaxis
- ✧ Conclusions



Fritillaria imperialis
Royal Botanical Gardens
Kew

Fritillaria imperialis is a species of flowering plant in the lily family, native to a wide stretch from Kurdistan across the plateau of Turkey, Iraq and Iran to Afghanistan, Pakistan and the Himalayan foothills.

It grows to about 1m in height, and bears lance-shaped, glossy leaves at intervals along the stem. It bears a prominent whorl of downward facing flowers at the top of the stem, topped by a 'crown' of small leaves, hence the name. While the wild form is usually orange-red, various colours are found in cultivation, ranging from nearly a true scarlet through oranges to yellow. The pendulous flowers make a bold statement in the late spring garden; in the northern hemisphere, flowering takes place in late spring, accompanied by a distinctly foxy odour that repels mice, moles and other small animals.

Due to the way that the bulb is formed, with the stem emerging from a depression, it is best to plant it on its side, to prevent water causing rot at the top of the bulb.

This photo was taken at the Royal Botanical Gardens in Kew on 14 April 2018.

I placed the camera on the grass as an experiment to avoid including the crowds of admiring visitors.

Two black dots in the sky were captured by accident, as the shutter was on a 10 second delay. The fatter blob on the left is a bee flying over the flowers, and the thinner black object on the right is a commercial aircraft on a westerly approach to land at Heathrow airport.

Canon EOS 5D Mark III

Canon EF24-70mm f/2.8L II USM

Taken at f/8.0 24mm 1/250 iso100

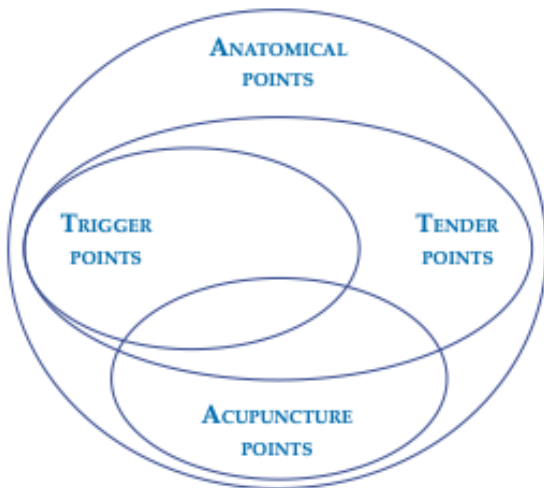
PoPS



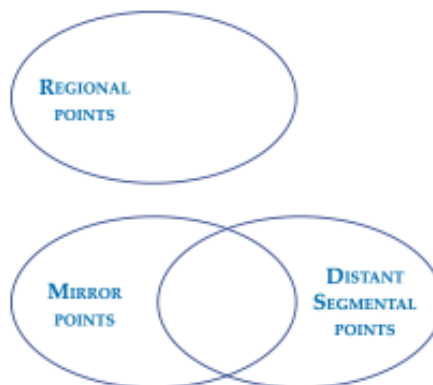
- Principles of Point Selection



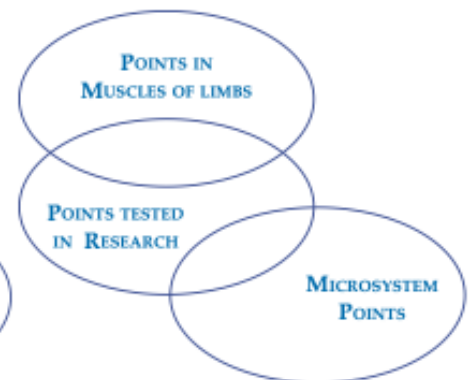
Local



Segmental



General



The neurophysiological mechanisms from the previous slide directly inform the choice of points selected for needling. This slide classifies points according to anatomical location and potential neurophysiological mechanisms.

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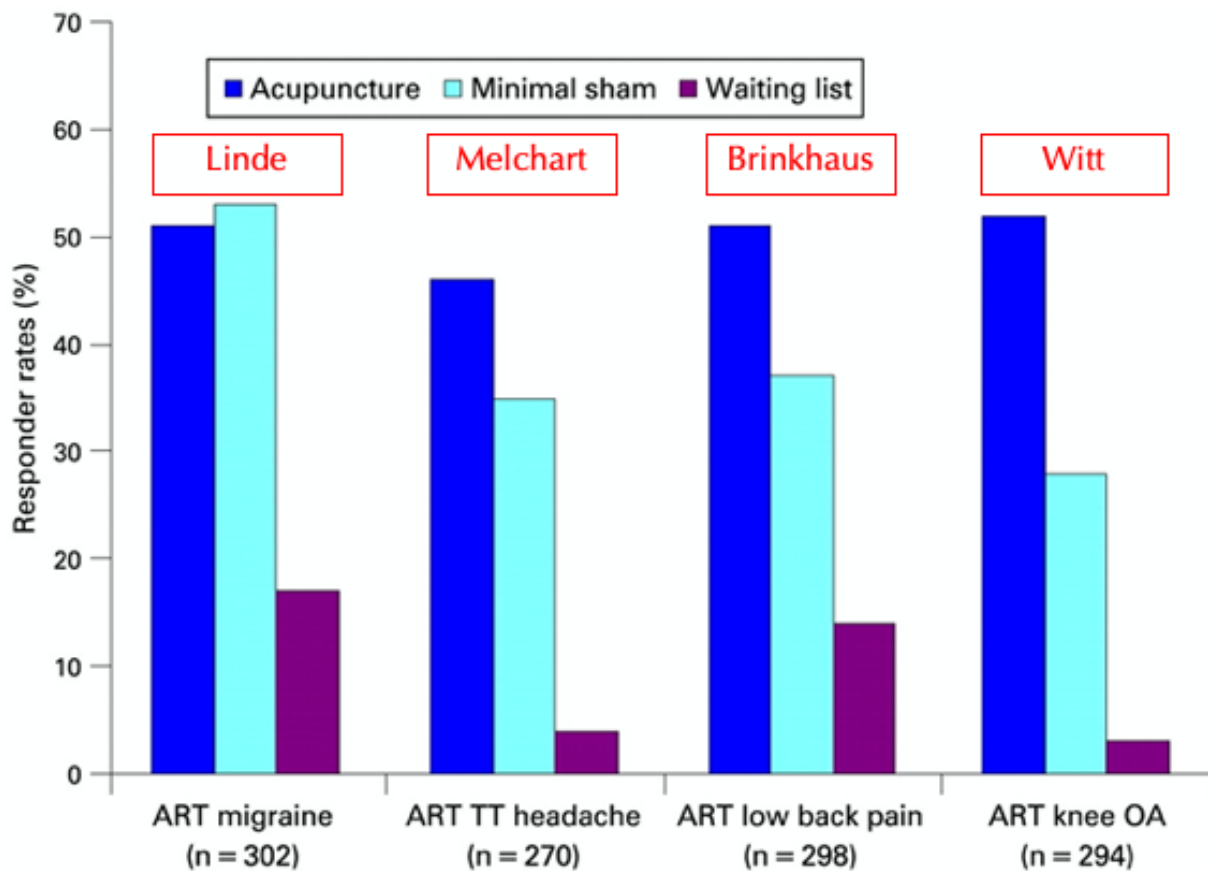
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Taken at f/8.0 24mm 1/250 iso100

Figure 1 Responder rates in the Acupuncture Randomised Trials (ART) trials after 8 weeks from baseline (9-12 weeks in ART migraine and tension-type (TT) headache); responder rates were defined (post hoc) as a 50% or greater reduction in the primary outcome measure. Acupuncture and minimal acupuncture were significantly superior to waiting list in all trials. Acupuncture was superior to minimal acupuncture only in ART knee osteoarthritis (OA).



Cummings, M. *Acupunct Med* 2009;27:26-30

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ART

These were four RCTs with roughly 300 subjects in each. They were performed principally as efficacy trials in four conditions: migraine; tension-type headache; chronic low back pain; and osteoarthritis of the knee. Each of the trials followed the same design: three parallel arms with a 2:1:1 distribution of subjects, so that there were approximately 150 subjects in the real (verum) acupuncture arm, and 75 in the others – the minimal acupuncture and waiting list arms. The acupuncture involved deep needling to classical acupuncture points with manipulation of the needles to produce de qi – a characteristic needling sensation. Twelve treatments were given over eight weeks. Minimal acupuncture involved superficial needling to standardised sites that were not near to any recognised acupuncture points. The waiting list group received acupuncture 2 or 3 months after randomisation ie after the data were collected for the primary outcome.

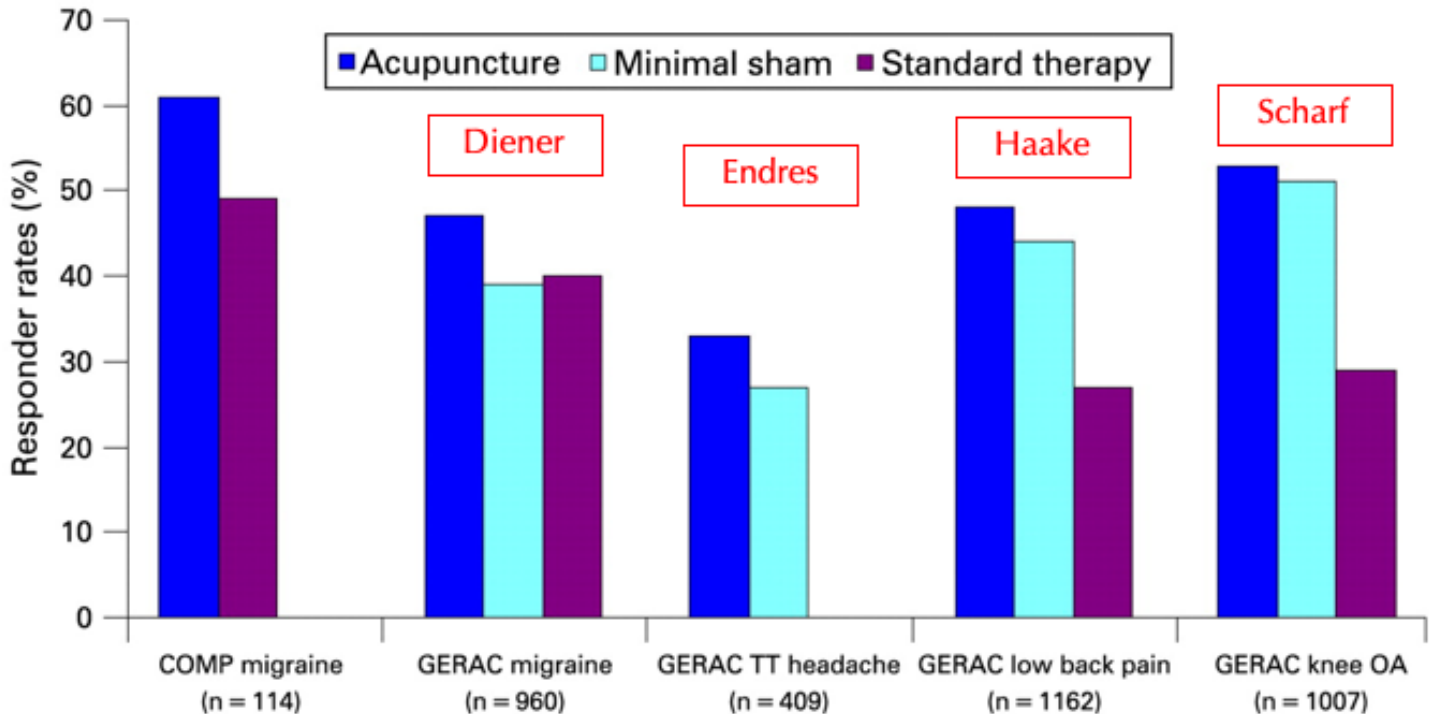
The primary outcomes were short term, just after the interventions at around 8 weeks, although outcomes were also assessed at 26 and 52 weeks from baseline.

The primary outcome for ART migraine was the difference in number of days with headache of moderate or severe intensity between the four weeks before randomisation (baseline phase) and weeks 9 to 12 after randomisation. Responders were defined (post hoc) as those with a 50% reduction or greater in days with moderate or severe pain (headache). The primary outcome and responder rates for ART tension-type headache were the same, with an additional comment that patients with missing data were automatically counted as non-responders.

The primary outcome in ART low back pain was the change in low back pain intensity from baseline to the end of week eight after randomisation, as measured by a visual analogue scale (range, 0-100 mm), and responders were defined (post hoc) by at least 50% reduction in pain intensity. Finally, the primary outcome measure in ART knee osteoarthritis was the change in the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) between baseline and week eight after randomisation, and responders were defined (post hoc) by a decrease of at least 50% in their WOMAC index score.

The ART programme trials were performed across between 18 and 30 outpatient centres across Germany: ART migraine 18; ART tension-type headache 28; ART low back pain 30; ART knee osteoarthritis 28.

Figure 2 Responder rates in the comparative trial (COMP) at 9-12 weeks from baseline, and the German Acupuncture trials (GERAC) at 6 months from baseline; responder rates were defined as: $\geq 50\%$ reduction in migraine days (COMP and GERAC migraine); $> 50\%$ reduction in headache days (GERAC tension-type (TT) headache); $\geq 33\%$ improvement on Chronic Pain Grade Scale questionnaire (CPGS) or $\geq 12\%$ improvement on the Hanover Functional Ability Questionnaire (GERAC low back pain); and $\geq 36\%$ improvement in Western Ontario and McMasters Universities Osteoarthritis Index (GERAC knee osteoarthritis (OA)). Acupuncture and sham acupuncture were both significantly superior to standard therapy in GERAC low back pain and GERAC knee OA. There were no other statistically significant differences between groups.



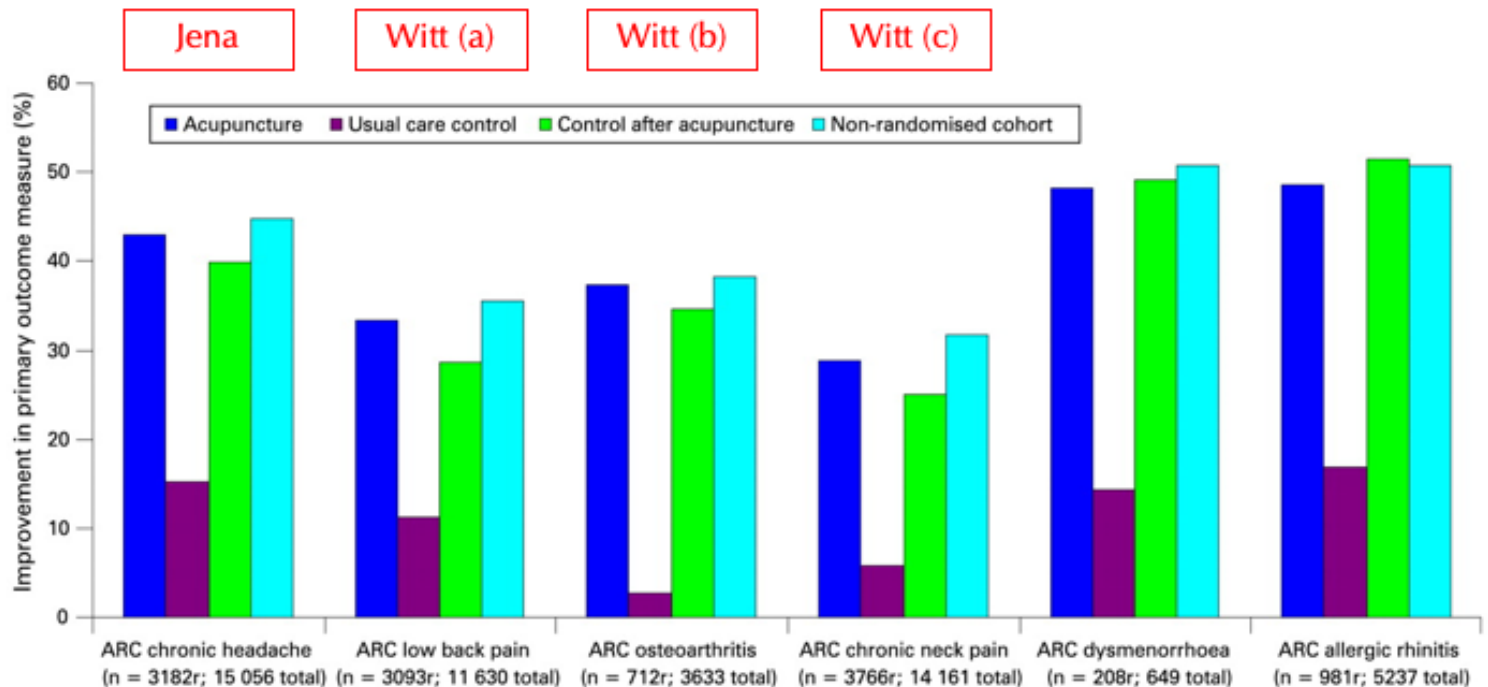
GERAC

There were four GERAC trials with up to 1000 subjects in each. They were designed as comparative trials with three equal parallel arms: acupuncture vs sham acupuncture vs standard care (note that the terminology: 'sham' is used rather than 'minimal'). They were performed in migraine, tension-type headache, chronic low back pain, and knee osteoarthritis. Rather like the ART trials, the real acupuncture involved deep needling to classical acupuncture points with manipulation of the needles to produce de qi. Ten treatments were given over six weeks, with the option to extend treatment by a further five sessions for partial response. Sham acupuncture involved superficial needling to standardised sites that were not near to any recognised acupuncture points. The standard care arms used best conventional care based on guidelines where available: GERAC migraine – beta blockers first choice, flunarizine second, valproic acid third; GERAC tension-type headache – the intention was to use amitriptyline; GERAC chronic low back pain – multimodal treatment programme including physiotherapy, exercise and NSAIDs; GERAC knee osteoarthritis – physiotherapy, physician visits, NSAIDs (in this trial all groups had six sessions of physiotherapy, and acupuncture groups were allowed limited NSAIDs as rescue medication).

The primary outcomes were measured around six months from baseline, although secondary outcomes were measured at six weeks and three months as well. The primary outcome in GERAC migraine was the difference in migraine days between four weeks before randomisation and weeks 23–26 after randomisation, and response was defined as a reduction in the number of migraine days by 50% or more. GERAC tension-type headache was somewhat different in that the response (defined as $> 50\%$ reduction in number of headache days per four weeks from baseline to six months) was the primary outcome, and all minor variations from protocol resulted in patients being classified as non-responders. In GERAC low back pain the primary outcome was response after six months, defined as 33% improvement or better on three pain related items on the Von Korff Chronic Pain Grade Scale questionnaire (CPGS) or 12% improvement or better on the back specific Hanover Functional Ability Questionnaire (HFAQ). Patients who were unblinded or who used (disallowed) co-interventions during follow up were classified as non-responders regardless of symptom improvement. In GERAC knee osteoarthritis the effect on pain and function was measured with the WOMAC score (total score and the subscales were standardised to 0 to 10). 'Success' rates were calculated according to a change of at least 36% from baseline WOMAC scores at 13 and 26 weeks after the start of treatment. Patients with missing data were considered to have had treatment failure.

The GERAC trials were performed across between 122 and 340 practices across Germany: GERAC migraine 149; GERAC tension-type headache 122; GERAC chronic low back pain 340; GERAC knee osteoarthritis 315.

Figure 3 Percentage improvement in the primary outcome measure at 3 months from baseline in the Acupuncture in Routine Care (ARC) trials ("control after acupuncture" is 6 months from baseline -- 3 months usual care followed by 3 months acupuncture treatment). Numbers in brackets are those randomised (r) followed by the total sample including the non-randomised cohort. In all six trials there was a very highly significant difference between acupuncture and usual care alone at 3 months ($p < 0.001$).



Cummings, M. *Acupunct Med* 2009;27:26-30

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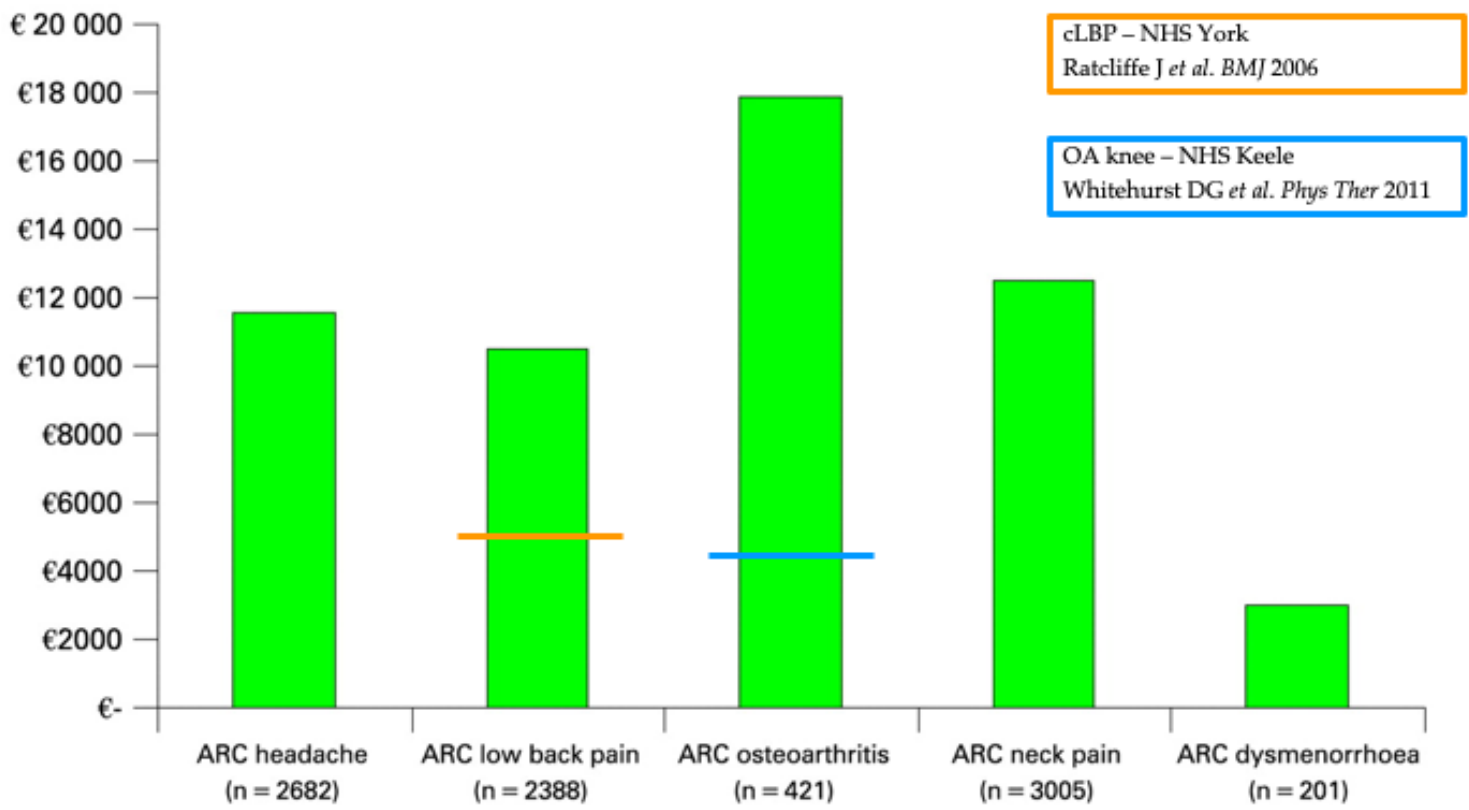
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ARC

The ARC studies were a series of large to very large pragmatic RCTs, with associated non-randomised cohorts. They used a standard design and included detailed economic analysis from a societal perspective. Subjects insured by one of the participating social health insurance funds were recruited by general practitioners across Germany for acupuncture treatment of either: osteoarthritis of the hip or knee; chronic neck pain; chronic low back pain; chronic headache; dysmenorrhoea; allergic rhinitis; or asthma (awaiting publication). If they agreed to be randomised, they either received 15 sessions of manual acupuncture over three months, or they waited three months for acupuncture treatment. If they expressed a strong preference for acupuncture and declined to be randomised, they received acupuncture treatment immediately. There was no standardisation of treatment, but only manual acupuncture was allowed.

Outcomes were measured at three and six months. After three months the group randomised to usual care alone were given acupuncture treatment. The primary outcomes were all set at three months. ARC chronic headache used the reduction in days with headache per month. ARC low back pain measured back function assessed by the HFAQ. ARC osteoarthritis used the change in WOMAC score, and ARC chronic neck pain used a validated neck pain and disability scale (NPAD). In ARC dysmenorrhoea the main outcome was the average pain intensity during the last menstruation before assessment measured on a numeric rating scale. ARC allergic rhinitis used the Rhinitis Quality of Life Questionnaire (RQLQ).

Figure 4 This figure illustrates the cost utility of acupuncture in various conditions, expressed as a cost per quality-adjusted life-year gained at 3 months from baseline, compared with usual care alone. The data are derived from within the Acupuncture in Routine Care (ARC) trials, and represent societal costs (see text under methods).



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ARC

As part of the ARC programme of studies, additional measurements were performed to assess quality of life (QoL), costs and the cost effectiveness relationship of routine care plus acupuncture compared with routine care alone. QoL was assessed with the Short Form (SF)-36 questionnaire, using the subscales and the components scales. The SF-36 also served as the basic benefit estimator for the cost effectiveness analyses. At baseline and at three months the patients completed questionnaires which assessed the quality of life over the previous seven days. The costs considered were measured in societal perspective and included the direct healthcare related costs of acupuncture (cost of each acupuncture session was €35), physician visits and hospital stays, and any drugs prescribed. In addition to health insurance costs, the indirect costs caused by lost workdays were also taken into account. These were estimated to be approximately €78 per lost workday. Additional analyses were performed to estimate cost utility in the case of higher costs and better medical outcome. QoL measures using SF-36 were converted to quality adjusted life years (QALY), and the excess cost in the acupuncture group in each study was divided by the increment in QALYs gained in the acupuncture group compared with the usual care group. This gave an incremental cost effectiveness ratio (ICER) expressed as a cost per additional QALY.

The additional information here is from two trials carried out in the UK. These calculated direct costs to the NHS only, whereas the ARC trials reported societal costs, which included costs related to working days lost.

Table 2
Primary Analyses (N = 44 Trials)

Analysis	Indication	Sham				No Acupuncture Control			
		Studies, n	FE (95% CI)	Heterogeneity P	RE (95% CI)	Studies, n	FE (95% CI)	Heterogeneity P	RE (95% CI)
Main analysis	Nonspecific musculoskeletal pain	10	.30 (.21-.38)	< .001	-.49 (.16-.81)	12	-.54 (.50-.57)	< .001	.50 (.38-.63)
	Osteoarthritis	9	.24 (.17-.31)	< .001	-.45 (.15-.75)	10	.63 (.56-.69)	< .001	.74 (.46-1.01)
	Chronic headache	5	.16 (.08-.25)	.4	.16 (.08-.25)	7	-.44 (.39-.48)	< .001	-.56 (.35-.76)
	Shoulder	4	.57 (.44-.69)	.4	-.57 (.44-.69)	0	No trials		

Table 3
Sensitivity Analyses Including Only Pain End Points Measured Between 2 and 3 Months After Randomization

Analysis	Indication	Sham				No Acupuncture Control			
		Studies, n	FE (95% CI)	Heterogeneity P	RE (95% CI)	Studies, n	FE (95% CI)	Heterogeneity P	RE (95% CI)
Main analysis	Nonspecific musculoskeletal pain	5	.13 (.01-.25)	.005	.23 (-.03 to .49)	9	.60 (.56-.64)	< .0001	-.47 (.34-.61)
	Osteoarthritis	7	.31 (.23-.39)	< .0001	.69 (.24-1.14)	9	.73 (.66-.80)	< .0001	.88 (.61-1.15)
	Chronic headache	5	.14 (.06-.22)	.4	.14 (.06-.22)	7	-.43 (.38-.47)	< .0001	-.45 (.27-.63)
	Shoulder	2	No meta-analysis						

Abbreviations: FE, fixed effects estimate; RE, random effects estimate.

In summary, the effect of acupuncture over sham acupuncture in chronic pain is about 0.2 SMD (standardised mean difference: mean difference divided by standard deviation – referred to here as effect size), and the effect of acupuncture over no acupuncture controls is about 0.5 SMD. An effect size of 0.2 is small, but 0.5 is moderately large and is very likely to be of clinical relevance. There is no practical point in assessing clinical relevance over a sham intervention, since the latter is not an option in practice; however, unfortunately the main guideline producer in the UK (NICE) insists on measuring the clinical relevance of acupuncture compared with sham acupuncture and not usual care (no acupuncture) controls.

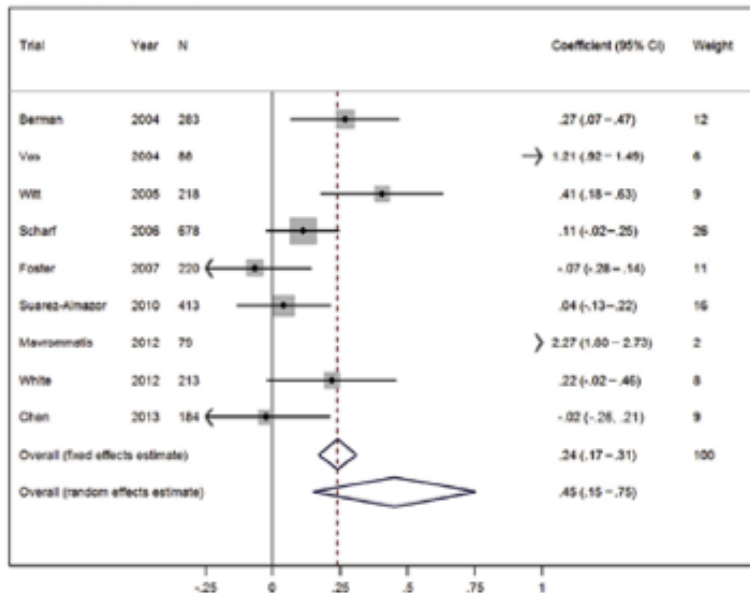
There are often arguments over whether fixed effects or random effects should be used. These are two methods of pooling data – similar methods with different assumptions. The fixed effect method assumes that the test intervention is better than control, and the random effects method does not make this assumption. I prefer fixed effects for acupuncture versus sham but I am not so clear that this is better when comparing acupuncture with no acupuncture controls, some of which may include best conventional care. Note that the CIs (confidence intervals) are generally much wider with the random effects method.

Heterogeneity (variability) of the results is high in most of the analyses – reflected in the very low p values. This does not concern me when pooling acupuncture data. Normally it would reduce the level of certainty in a result, but in the case of acupuncture trials we know that there is considerable clinical heterogeneity in the way acupuncture and sham acupuncture is applied, so statistical heterogeneity is not a surprise.

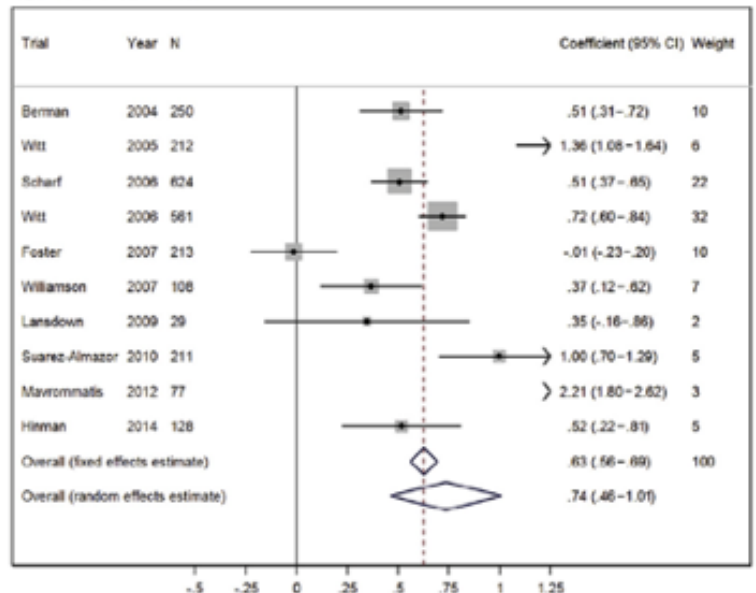
acupuncture vs sham

acupuncture vs no acupuncture

Osteoarthritis



Osteoarthritis



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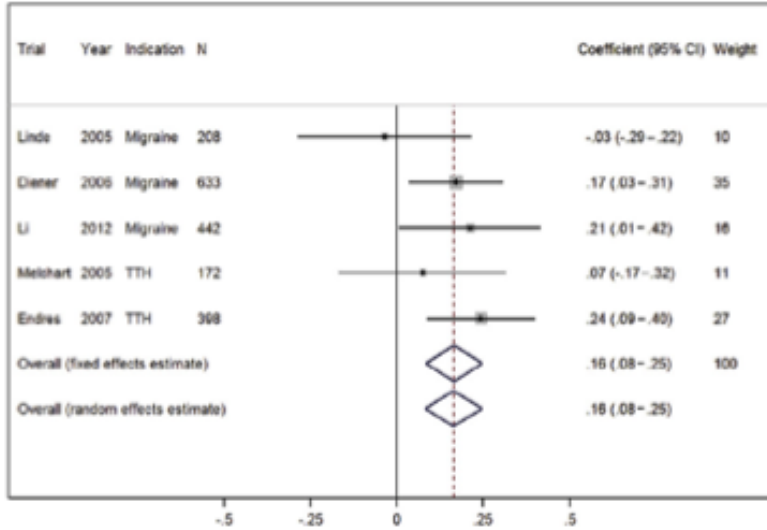
The forest plot on the left shows a small but highly significant effect of acupuncture over sham. The analysis is dominated by Scharf 2006 – one of the three arm comparative GERAC trials. Directly above it in the plot is the ART trial (Witt 2005). Go back to the slides summarising the ART and GERAC trials and compare the results in the acupuncture and sham acupuncture groups. You will see that the responder rate for acupuncture is similar, but there is a very big difference in the result of the sham group. Why such a difference? Well the ART studies were more tightly controlled and involved fewer centres (28 versus 315 in GERAC). All the practitioners in the ART studies met and were instructed on correct application of the sham technique. In the GERAC trial the practitioners received written instructions only.

The forest plot on the right shows a moderately large and highly significant effect of acupuncture over no acupuncture controls. The biggest influence this time is from the ARC trial (Witt 2006 – note this is not the same as the ART trial: Witt 2005). This trial compared acupuncture with a waiting list made up of patients who agreed to defer the start of their treatment by 3 months. It probably gives the most useful measure of the effect of acupuncture in practice. The comparison above this is from the GERAC trial (Scharf 2006), and the results are quite similar, but in this case both groups received physical therapy sessions, and the no acupuncture group received normal doses of NSAIDs.

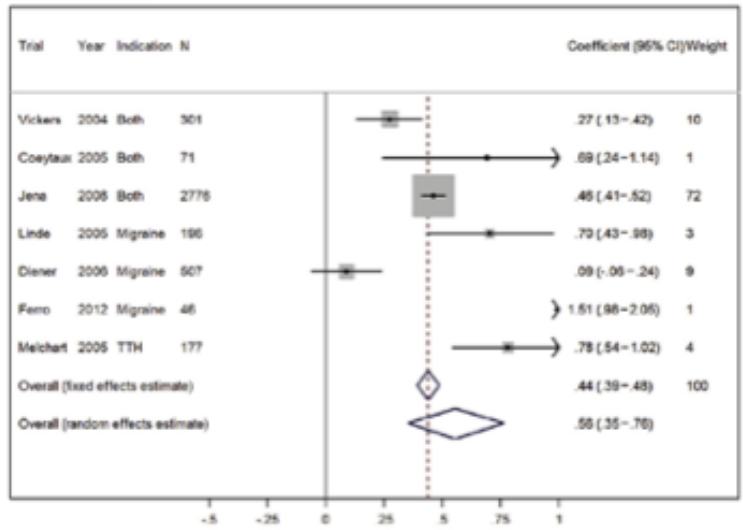
acupuncture vs sham

acupuncture vs no acupuncture

Headache



Headache



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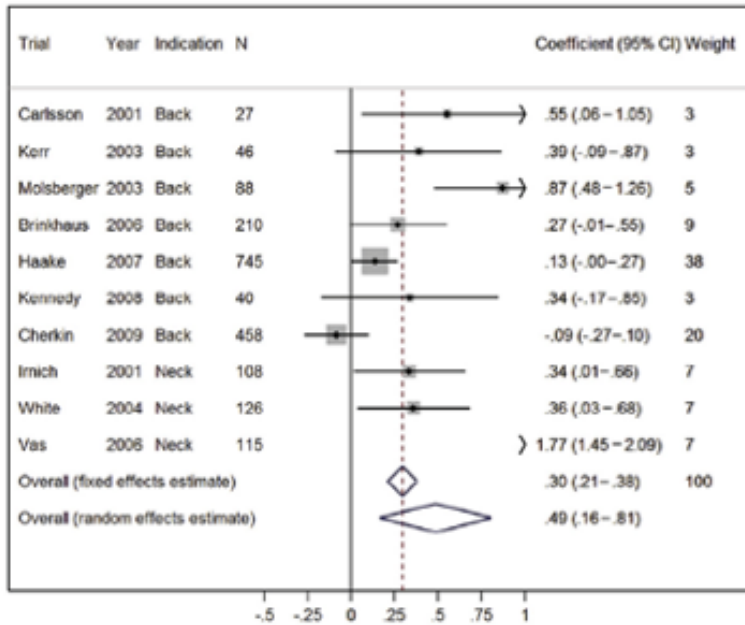
The forest plot on the left shows a very small but significant effect of acupuncture over sham. The first trial listed in this analysis is the ART migraine trial (Linde 2005). As you can see the point estimate is left of the line of no effect. This means that the sham group did marginally (not significantly) better than the true acupuncture group. If you look back to the ART summary slide you will see that the responder rate in the sham group was over 50% - probably the biggest surprise of the ART studies.

The forest plot on the right shows a moderately large and highly significant effect of acupuncture over no acupuncture controls. This plot is dominated by the ARC trial (Jena 2008) - it is given a 72% weighting in the analysis (this is based on size and narrow confidence intervals).

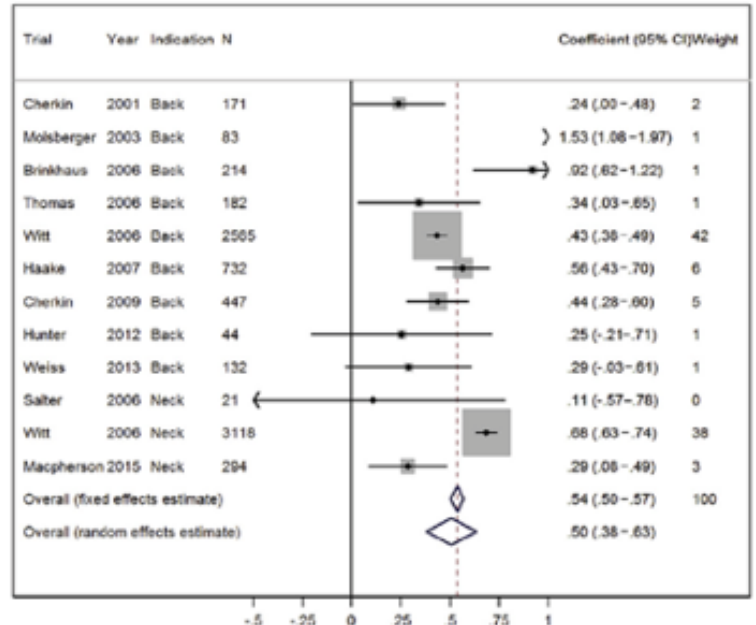
acupuncture vs sham

acupuncture vs no acupuncture

Musculoskeletal Pain



Musculoskeletal Pain



goo.gl/6XQeXv

The forest plot on the left shows a small but significant effect of acupuncture over sham in back and neck pain. This analysis is dominated by Haake 2007 (GERAC low back pain) and Cherkin 2009 (a 4-arm trial from the US in which all three acupuncture groups, including a cocktail stick sham, were twice as good as conventional care). If you look at the same two trials in the forest plot on the right, you will see moderately large effects over guideline-based conventional care, with results similar to the very large ARC trial (Witt (a) 2006). The difference reflects the moderately large effect of sham acupuncture in these trials. Data from the forest plot on the left has been used to create summary data that estimates the effect of acupuncture in back pain at 0.2 and the effect in neck pain at 0.8. This grossly exaggerates the real difference in effect, and the difference is dominated by different effects in the sham groups rather than the real acupuncture groups (see below). Note the very large effect measured in Vas 2006 in neck pain. The sham used in this trial was mock TENS. Note also a comment in the IPDM paper that the effect of acupuncture in neck pain appears to disappear faster than for other types of pain. This is entirely due to the change (gradual improvement) over time in the mock TENS group of Vas 2006. The effect of acupuncture in neck pain appears stable and similar to other forms of chronic pain assessed. This example illustrates the risk of only looking at intergroup differences in meta-analysis, and using small heterogeneous data sets.

The forest plot on the right shows a moderately large and highly significant effect of acupuncture over no acupuncture controls in back and neck pain. This analysis is dominated by the ARC trials (Witt (a) 2006 and Witt (b) 2006), and these give a more accurate, real world, picture of the difference in the effect of acupuncture in back pain and neck pain. There does appear to be a difference, with neck pain showing a slightly larger effect. Returning to the summary slide of the ARC trial results will reveal a larger percentage change in the primary outcome measure in back pain than neck pain in both real and control groups, but a bigger difference in neck pain. These trials used different outcome measures, so in this case it is safer to look at the difference over control.

Table 6. Results of Univariate Metaregression Analyses for the Effect of Acupuncture Characteristics on Acupuncture Effect

CHARACTERISTIC	SHAM ACUPUNCTURE				NO ACUPUNCTURE CONTROL			
	TRIALS, N	B	95% CI	P	TRIALS, N	B	95% CI	P
Style of acupuncture	25				25			
Some TCM versus Western only		-.00	-.49 to .48	>.9		.10	-.55 to .74	.8
TCM only versus some Western		.02	-.38 to .42	.9		-.07	-.42 to .28	.7
Point prescription	25				25			
Fixed needle formula		Reference		.6		Reference		.075
Flexible formula		.20	-.21 to .60			.01	-.45 to .46	
Fully individualized		-.01	-.75 to .73			-.34	-.79 to .10	
Electrical stimulation allowed	25	.32	-.11 to .75	.14	25	-.12	-.50 to .26	.5
Manual stimulation allowed	25	.26	-.42 to .95	.5	25	-.38	-.99 to .23	.2
Moxibustion allowed		No trials allowed			25	-.32	-.71, .06	.10
Other adjunctive treatment allowed	25	-.04	-1.00 to .92	.9	25	-.22	-.59 to .16	.3
De qi attempted	25	.29	-.67 to 1.24	.6	21	.74	-.04 to 1.52	.063
Acupuncture-specific patient practitioner interactions allowed	25	-.03	-.50 to .44	.9	25	-.05	-.38 to .28	.8
Minimum years of experience required	25	.04	-.05 to .13	.4	25	.05	-.03 to .12	.2
Maximum number of sessions (per 5 sessions)	25	-.01	-.23 to .22	.9	25	.01	-.12 to .14	.9
Patient-level analysis	5 (1,317/1,377)	.09	-.31 to .48	.7	5 (8,036/10,157)	.10	-.01 to .21	.001
Patient-level analysis, including Hinman et al ³⁹	6 (1,421/1,517)	-.03	-.36 to -.30	.9				
Frequency of sessions (per week)	25	-.06	-.29 to .18	.6	25	.21	-.22 to .64	.3
Duration of sessions (per 5 minutes)	25	.06	-.13 to .25	.5	20	-.06	-.25 to .13	.5
Patient-level analysis	6 (2,863/2,969)	.01	-.08 to .09	.9				
Number of needles used (per 5 needles)	25	.05	-.17 to .27	.6	19	.16	-.05 to .38	.13
Patient-level analysis	5 (2,232/2,317)	.04	-.08 to .16	.5				
Age of practitioner (per 5 years)								
Patient-level analysis					6 (9,127/10,550)	-.01	-.04 to .02	.5
Male practitioner								
Patient-level analysis					6 (9,384/10,550)	-.07	-.16 to .02	.084

Abbreviation: TCM, traditional Chinese medicine.

NOTE: β is an estimate of the change in the effect of acupuncture in terms of standardized difference compared with controls for each characteristic; a positive β indicates a larger effect of acupuncture compared with controls for trials. The number of patients in the analysis and number of patients in included trials are given in parentheses where applicable.

In terms of the characteristics of acupuncture, the only factor that had a clear influence was the number of treatments, and this was only apparent in the comparison against no acupuncture. This perhaps does not come as a surprise, but it does suggest that we should be more focussed on providing enough treatment sessions and not worrying as much about other aspects of the acupuncture approach.

In this update the effect based on number of needles used was no longer significant, but a positive trend remained.

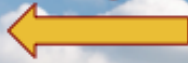
I have a particular interest in electroacupuncture (EA), so I am keen to highlight the fact that in the more mechanistic comparison of acupuncture over sham the use of EA as a treatment characteristic had the largest effect size (0.32) and the lowest p value (p=0.14) of any characteristic studied. This does not reach the commonly adopted level of statistical probability, but equates to a 6:7 chance of being a real effect.

Going back to the more pragmatic comparison of acupuncture over no acupuncture, there are a couple of interesting trends apparent. The largest was for 'de qi attempted', and this reached 0.74 with p=0.063. This might also suggest a dose effect, but strangely the characteristic 'manual stimulation allowed' actually had a moderately negative effect.

Another characteristic that approached significance in the pragmatic comparison was 'male practitioner' at a p value of p=0.084. The effect size associated with this was very small and negative at -0.07, but it is tempting to view this against a backdrop of mechanistic research on placebo in pain, and suggest that male practitioners might think about channelling their more feminine sides during consultations.

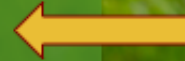
An Overview of Acupuncture

...in pain management and prevention



Topics

- ✧ Mechanisms
- ✧ Chronic pain – controversies in perspective
- ✧ Acute pain treatment
- ✧ Acute pain prevention
- ✧ Prophylaxis
- ✧ Conclusions



Fritillaria imperialis
Royal Botanical Gardens
Kew

This photo was taken at the Royal Botanical Gardens in Kew on 14 April 2018.
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Canon EOS 5D Mark III
Canon EF24-70mm f/2.8L II USM
Taken at f/8.0 24mm 1/250 iso100

Controversies in perspective

By drawing attention to the black dots in this image I am trying to illustrate the necessarily restricted view point of the RCT.

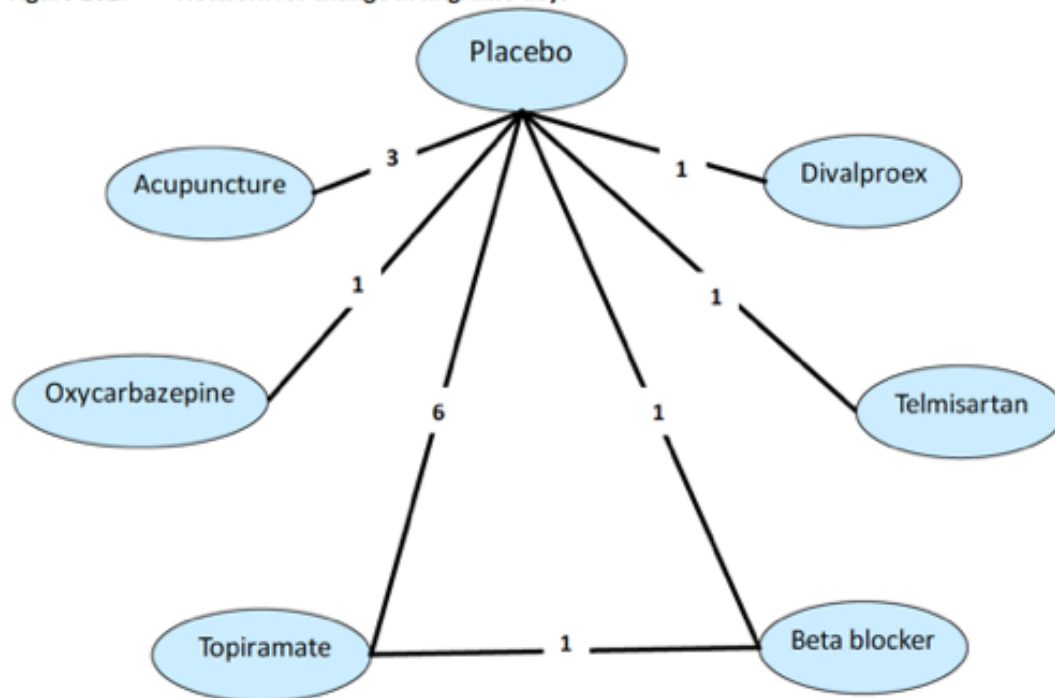
The black dot on the right (let us say this represents real acupuncture) does not appear to be much bigger than the black dot on the left (let us say this represents a sham acupuncture technique).

From the real world perspective we know that a commercial aircraft is substantially larger, but it just doesn't appear so from the view of this camera.

K.3 Results

A total of 12 studies from the original evidence review met the inclusion criteria for the network. Figure 282 shows the network created by eligible comparisons for the NMA, with numbers on the connecting lines indicating the number of studies for each comparison.

Figure 282: Network for change in migraine days



The trial data from the 12 studies included in the NMA for change in migraine days are shown in Table 24.

Network meta-analysis (NMA) is a method for combining data from multiple two-way comparisons of interventions so that both direct and indirect comparisons between interventions can be performed. For indirect comparisons there must be a common node (or intervention). In CG150 a limited network meta-analysis used placebo as a common node to compare acupuncture directly with topiramate, and concluded that topiramate was twice as good as acupuncture.

Note that there are only 12 studies included in this NMA.

Chart produced by Adrian White from data in CG150

White A, Cummings M. Inconsistent placebo effects in NICE's network analysis. *Acupunct Med* 2012;30(4):364-5.

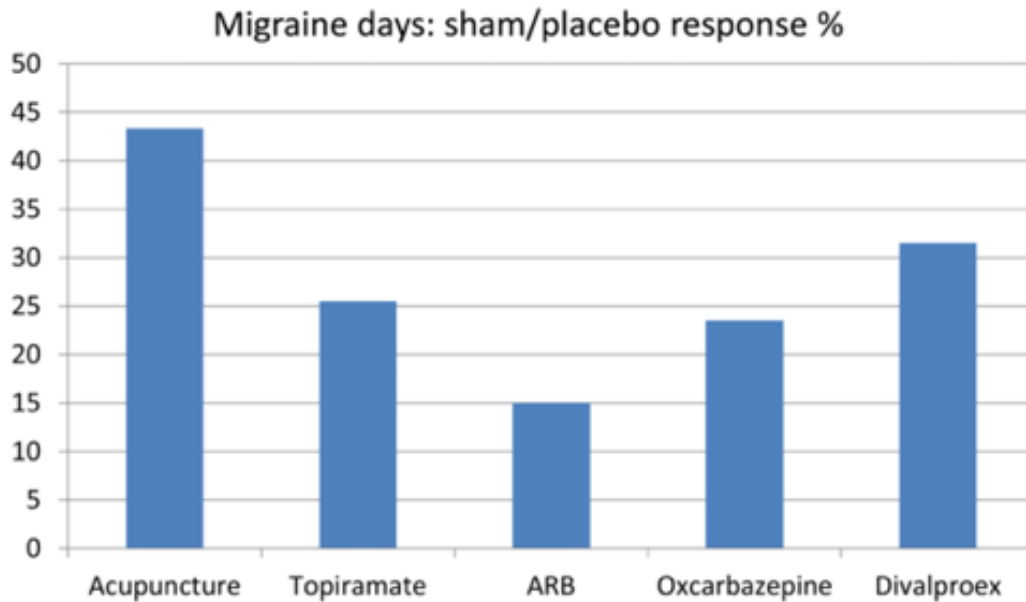


Figure 1 Migraine days: response rates of sham/placebo groups. ARB, angiotension receptor blocker.

Acupunct Med December 2012 Vol 30 No 4

For this to be a valid analysis, sham acupuncture would have had to be the same as placebo topiramate, yet the absolute data (see above) seemed to indicate that sham acupuncture was associated with a higher responder rate than any other placebo included.

Chart produced by Adrian White from data in CG150

- modified by MC to include an estimate of the efficacy of topiramate & real acupuncture

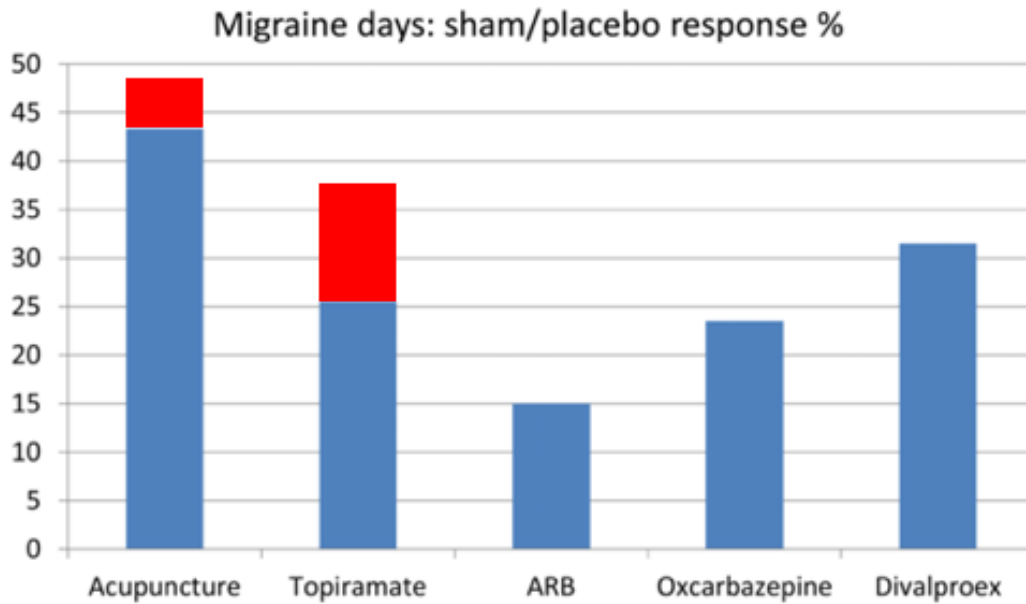


Figure 1 Migraine days: response rates of sham/placebo groups. ARB, angiotension receptor blocker.

In this chart, the effect of acupuncture and topiramate over their respective shams is included, and this reveals why NICE concluded that topiramate was twice as good as acupuncture (compare the height of just the red portions) whereas a different view seems to imply that sham acupuncture is superior to real topiramate.

RESEARCH ARTICLE

Open Access



Methods for network meta-analysis of continuous outcomes using individual patient data: a case study in acupuncture for chronic pain

Pedro Saramago^{1*}, Beth Woods¹, Helen Weatherly¹, Andrea Manca¹, Mark Sculpher¹, Kamran Khan², Andrew J. Vickers³ and Hugh MacPherson⁴

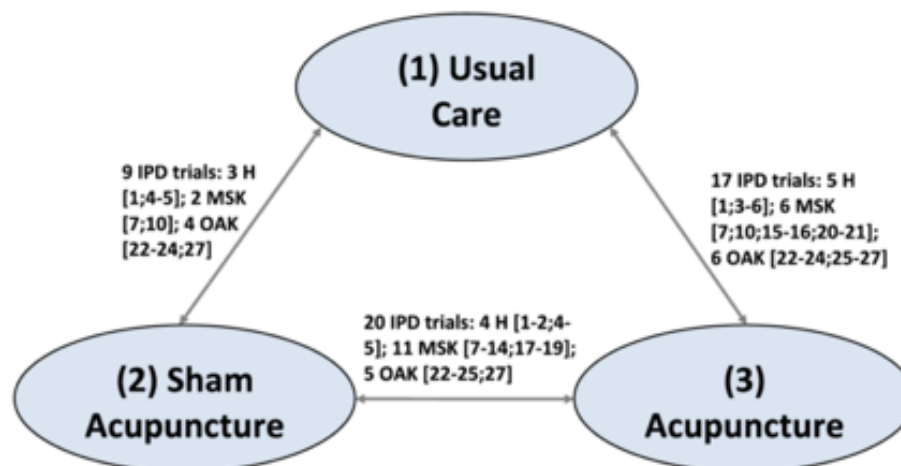


Fig. 1 Network of RCTs. Legend: In the network, a unique treatment category is indicated by a circle. Arrows between circles indicate that these treatments have been compared in a trial (trials are identified using 'I', numbered according to column 'ID' in Table 1. (Pain groups: H – Headache/migraine; MSK – Musculoskeletal; OAK – Osteoarthritis of the knee)

Data from the Acupuncture Trialists' Collaboration IPDM has been used in the first network meta-analysis using analysis of covariance in a continuous variable (VAS pain). Whilst this was not the intention of the paper, it has given us, for the first time, a large data set comparing sham acupuncture with usual care or best standard care (depending on the individual trial).

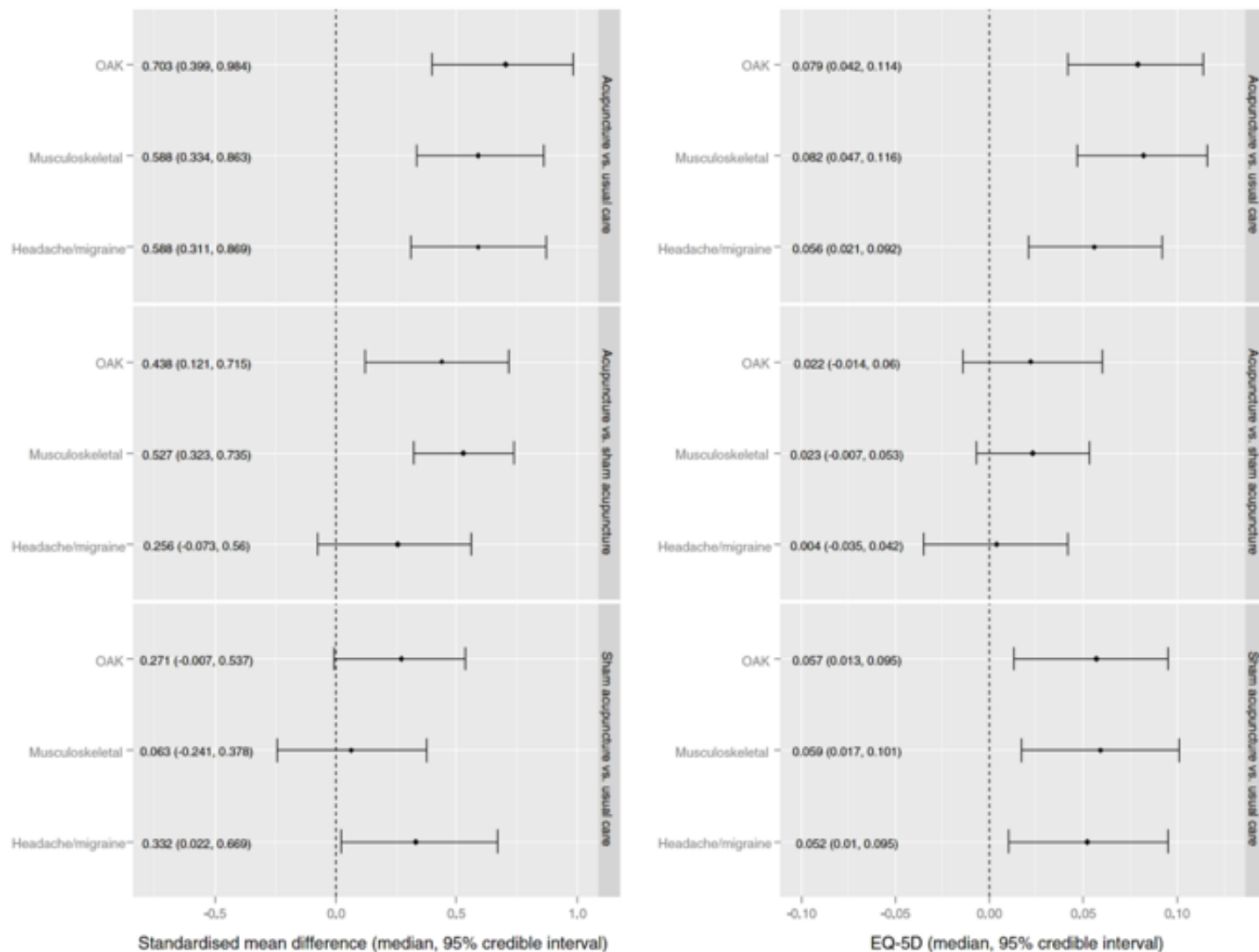


Fig. 2 Forest plot showing network meta-analysis results for standardised pain and EQ-5D outcomes

It is most interesting to note that sham is significantly superior to usual care in all conditions tested for health-related quality of life (HRQoL), and whilst acupuncture is superior to sham for pain outcomes, it is not superior in terms of HRQoL. This data must add to the weight of evidence that suggests sham acupuncture is far from being a placebo.

Note 1:

Usual care is a term used in the paper by Saramago *et al*, and it refers to the same data set labeled by Vickers *et al* as no acupuncture controls. This group includes a variety of interventions that could be described as standard or conventional care. Some involved quite intense treatment regimes, and others could be seen as more of a background usual care that might be common to all groups (ie including acupuncture and sham acupuncture groups).

Note 2:

Sham acupuncture mostly involves needling superficial tissues and has similarities with gentle forms of acupuncture. Non-penetrating sham or 'placebo' needles are blunt ended, and often cause significant discomfort and can penetrate the skin. It seems clear that sham acupuncture is not synonymous with the term 'placebo'.

Problems with Sham Acupuncture?

- The comparison of acupuncture with sham acupuncture:
 - ◇ underestimates the effect of real acupuncture over 'placebo' control
 - because sham is not inactive
 - so acupuncture appears effective in practice but not in blinded RCTs
 - ◇ some sham devices may reduce the effect of real acupuncture
 - because they restrict the needling depth or stimulus
 - ◇ sham acupuncture often outperforms conventional medicine
 - see Haake *et al* (slide 9)
 - sham was 50% better than guideline-based conventional care in LBP
 - this varies with the degree to which sham is an active intervention
 - ◇ sham acupuncture outperforms usual care comparisons in HRQoL
 - a chance finding of Saramago *et al* 2016, but statistically robust

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Royal Botanical Gardens
Kew

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It grows to about 1m in height, and bears lance-shaped, glossy leaves at intervals along the stem. It bears a prominent whorl of downward facing flowers at the top of the stem, topped by a 'crown' of small leaves, hence the name. While the wild form is usually orange-red, various colours are found in cultivation, ranging from nearly a true scarlet through oranges to yellow. The pendulous flowers make a bold statement in the late spring garden; in the northern hemisphere, flowering takes place in late spring, accompanied by a distinctly foxy odour that repels mice, moles and other small animals.

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Canon EOS 5D Mark III

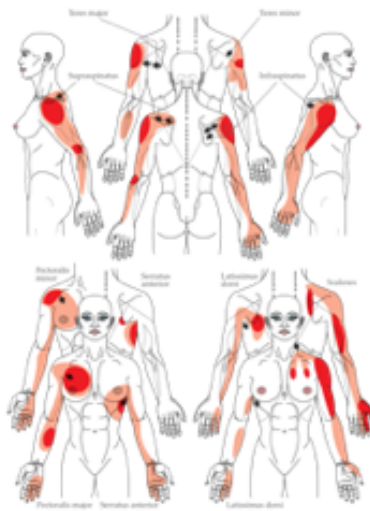
Canon EF24-70mm f/2.8L II USM

Taken at f/8.0 24mm 1/250 iso100

OVERVIEW OF TrPs IN THE HEAD & NECK



OVERVIEW OF TrPs IN THE SHOULDER & ARM



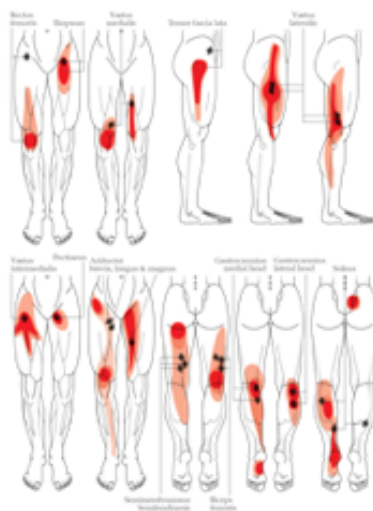
OVERVIEW OF TrPs IN THE THORAX & ABDOMEN



OVERVIEW OF TrPs IN THE LOW BACK & HIP



OVERVIEW OF TrPs IN THE GROIN & LOWER LIMB



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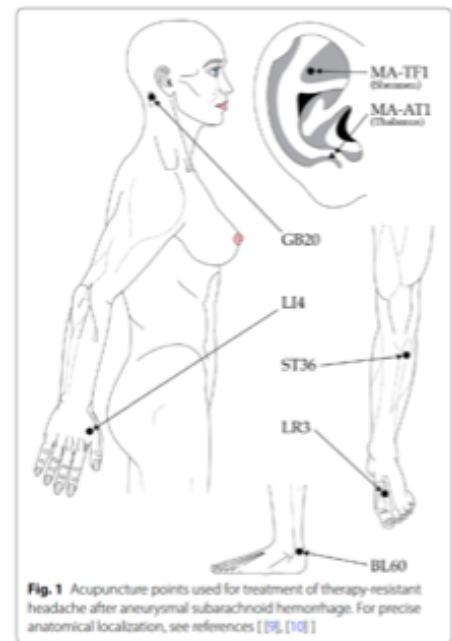
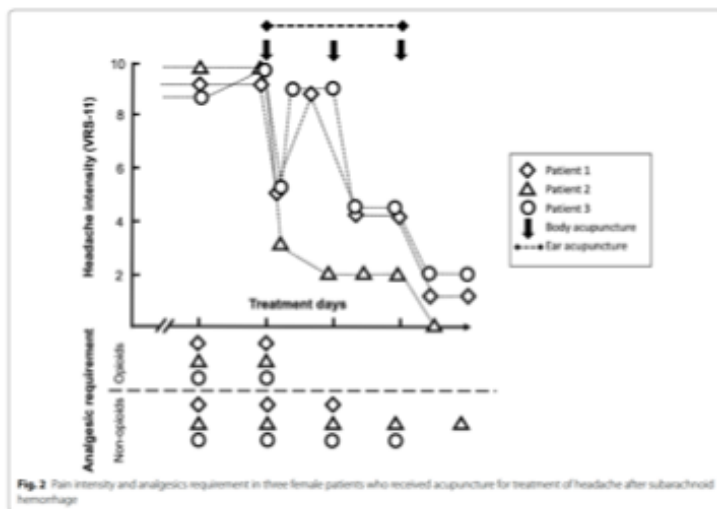
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PRACTICAL PEARL



Treating Therapy-Resistant Headache After Aneurysmal Subarachnoid Hemorrhage with Acupuncture

Joanna Dietzel¹, Torsten Eck² and Taras Usichenko^{2,3*}



Neurocrit Care. 2019 Oct;31(2):434-438.
doi: 10.1007/s12028-019-00718-3

Treating Therapy-Resistant Headache After Aneurysmal Subarachnoid Hemorrhage with Acupuncture.

[Dietzel J](#)¹, [Eck T](#)², [Usichenko T](#)^{3,4}.

Author information

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Abstract

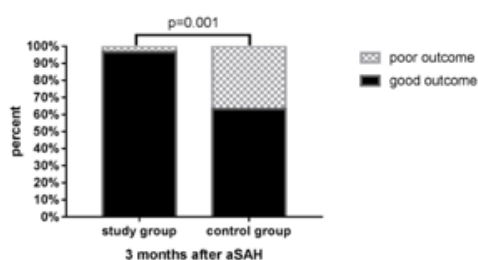
INTRODUCTION: Subarachnoid haemorrhage (SAH) is usually associated with severe headache, whereas the options of pharmacological analgesia are restricted. Acupuncture is a promising method in treatment of headaches associated with meningeal sensitivity or irritation, such as migraine or post-dural puncture headache.

CASE REPORT: We report on 3 patients, who suffered severe headache due to aneurysmal SAH, and received acupuncture when pharmacological measures were exhausted. After acupuncture treatment all patients reported at least 50% pain reduction and could stop or reduce analgesics without side effects.

DISCUSSION: Acupuncture may be an effective pain treatment method in patients suffering from headache due to SAH. Randomized trials using acupuncture as an add-on to standard analgesic therapy would help evaluate the role of acupuncture for this purpose.

KEYWORDS: Acupuncture; Headache; Subarachnoid haemorrhage

PMID: 31037638 DOI: [10.1007/s12028-019-00718-3](https://doi.org/10.1007/s12028-019-00718-3)



Electroacupuncture Improves Cerebral Vasospasm and Functional Outcome of Patients With Aneurysmal Subarachnoid Hemorrhage

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TABLE 6 | The outcome of aSAH patients in the two groups.

	1 Month after aSAH		3 Months after aSAH	
	Good outcome (GOS > 3)	Poor outcome (GOS ≤ 3)	Good outcome (GOS > 3)	Poor outcome (GOS ≤ 3)
Study group	24	6	29	1
Control group	7	23	19	11
p-value	<0.001		0.001	

aSAH, Aneurysmal subarachnoid hemorrhage; GOS, Glasgow Outcome Scale. All the data were analyzed using chi-square test.

Glasgow Outcome Score:

1. Death
2. Persistent vegetative state
3. Severe disability
4. Moderate disability
5. Low disability

bmas.blog – 7th May 2019

Front Neurosci. 2018 Oct 9;12:724.
doi: 10.3389/fnins.2018.00724

Electroacupuncture Improves Cerebral Vasospasm and Functional Outcome of Patients With Aneurysmal Subarachnoid Hemorrhage.

Sun J1, Liu Y1, Zhang J1, Chen X1, Lin Z1, Nie S1, Shi M2, Gao X1, Huang Y1.

Author information

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2 Department of Acupuncture, Ningbo First Hospital, Zhejiang University School of Medicine, Ningbo, China.

Abstract

Cerebral vasospasm is the major cause of a poor outcome after aneurysmal subarachnoid hemorrhage (aSAH), and effective treatments for vasospasm are limited. The purpose of this study was to research the impact of electroacupuncture (EA) on cerebral vasospasm and the outcomes of patients with aSAH. A total of 60 age- and sex-matched aSAH patients were collected from Ningbo First Hospital between December 2015 and June 2017. All patients were given a basic treatment of nimodipine and randomized into two groups. The study group was treated with EA therapy on the Baihui (GV20) acupoint, and the control group was given mock transcutaneous electrical nerve stimulation. Cerebral vasospasm was measured by computed tomographic perfusion (CTP) and transcranial doppler (TCD). The mean flow velocity (MFV) in the middle cerebral artery (MCA), cerebral blood flow (CBF), cerebral blood volume (CBV), and mean transit time (MTT) of the patients were analyzed. The CBV and MTT exhibited significant differences between the study and control groups on the 1st ($p = 0.026$ and $p = 0.001$), 7th ($p = 0.020$ and $p < 0.001$), and 14th ($p = 0.001$ and $p < 0.001$) day after surgery, whereas CBF exhibited statistical significance only on the 14th day after surgery ($p = 0.002$). The MFV in MCA were significantly reduced after EA treatment in all patients (all $p < 0.001$). Additionally, the MFV in the MCA in patients treated with EA were considerably reduced compared with those of the control group (3rd day $p = 0.046$; 5th day, $p = 0.010$; 7th day, $p < 0.001$). Moreover, better outcomes were noted in the EA-treated group for the 1st month ($p < 0.001$) and 3rd month ($p = 0.001$) after surgery than in the control group. In conclusion, EA represents a potential method to treat cerebral vasospasm after aSAH and can improve the outcomes of patients with aSAH.

KEYWORDS: Baihui (GV20); aneurysmal subarachnoid hemorrhage; cerebral vasospasm; computed tomographic perfusion; electroacupuncture; transcranial doppler

PMID: 30356696 PMCID: [PMC6189302](https://pubmed.ncbi.nlm.nih.gov/30356696/) DOI: [10.3389/fnins.2018.00724](https://doi.org/10.3389/fnins.2018.00724)

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Royal Botanical Gardens
Kew

goo.gl/6XQeXv

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Taken at f/8.0 24mm 1/250 iso100

Preoperative Intradermal Acupuncture Reduces Postoperative Pain, Nausea and Vomiting, Analgesic Requirement, and Sympathoadrenal Responses

Naoki Kotani, M.D.,* Hiroshi Hashimoto, M.D.,* Yutaka Sato, M.D.,† Daniel I. Sessler, M.D.,‡ Hideki Yoshioka, M.D.,§ Masatou Kitayama, M.D.,§ Tadanobu Yasuda, M.D.,§ Akitomo Matsuki, M.D.||

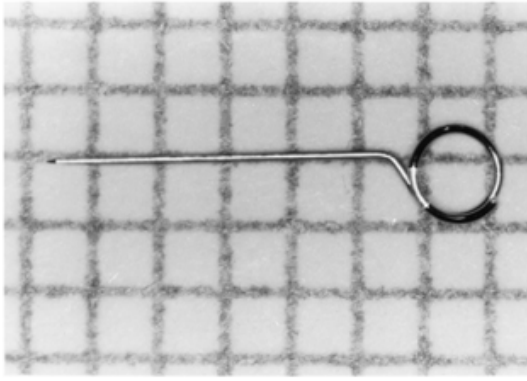
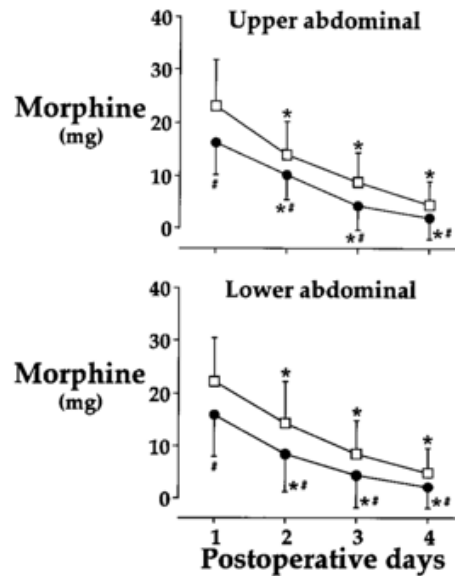


Fig. 1. Photograph of intradermal needle used in this clinical study. Scale markings are in millimeters.



[Anesthesiology](#) 2001 Aug;95(2):349-56.

Preoperative intradermal acupuncture reduces postoperative pain, nausea and vomiting, analgesic requirement, and sympathoadrenal responses.

[Kotani N](#) (1), [Hashimoto H](#), [Sato Y](#), [Sessler DI](#), [Yoshioka H](#), [Kitayama M](#), [Yasuda T](#), [Matsuki A](#).

[Author information](#)

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Abstract
BACKGROUND: In a controlled and double-blind study, the authors tested the hypothesis that preoperative insertion of intradermal needles at acupoints 2.5 cm from the spinal vertebrae (bladder meridian) provide satisfactory postoperative analgesia.

METHODS: The authors enrolled patients scheduled for elective upper and lower abdominal surgery. Before anesthesia, patients undergoing each type of surgery were randomly assigned to one of two groups: acupuncture (n = 50 and n = 39 for upper and lower abdominal surgery, respectively) or control (n = 48 and n = 38 for upper and lower abdominal surgery, respectively). In the acupuncture group, intradermal needles were inserted to the left and right of bladder meridian 18-24 and 20-26 in upper and lower abdominal surgery before induction of anesthesia, respectively. Postoperative analgesia was maintained with epidural morphine and bolus doses of intravenous morphine. Consumption of intravenous morphine was recorded. Incisional pain at rest and during coughing and deep visceral pain were recorded during recovery and for 4 days thereafter on a four-point verbal rating scale. We also evaluated time-dependent changes in plasma concentrations of cortisol and catecholamines.

RESULTS: Starting from the recovery room, intradermal acupuncture increased the fraction of patients with good pain relief as compared with the control (P < 0.05). Consumption of supplemental intravenous morphine was reduced 50%, and the incidence of postoperative nausea was reduced 20-30% in the acupuncture patients who had undergone either upper or lower abdominal surgery (P < 0.01). Plasma cortisol and epinephrine concentrations were reduced 30-50% in the acupuncture group during recovery and on the first postoperative day (P < 0.01).

CONCLUSION: Preoperative insertion of intradermal needles reduces postoperative pain, the analgesic requirement, and opioid-related side effects after both upper and lower abdominal surgery. Acupuncture analgesia also reduces the activation of the sympathoadrenal system that normally accompanies surgery.

Comment in [Suggesting an alternative to the term "double-blind"](#). [Anesthesiology. 2002]

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Auricular acupuncture for pain relief after total hip arthroplasty – a randomized controlled study

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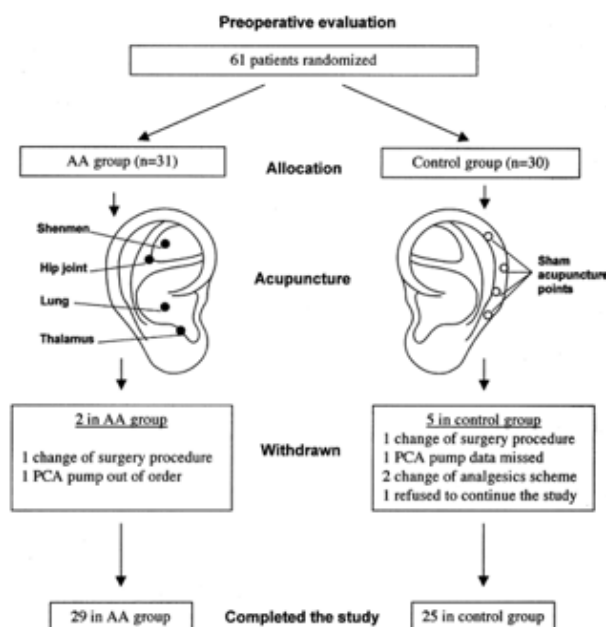
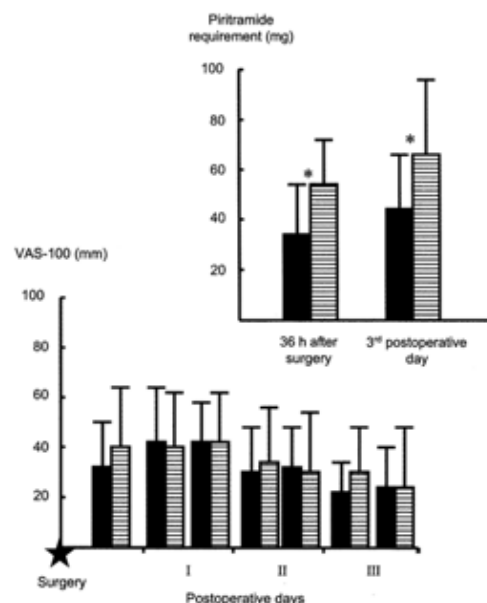


Fig. 1. Flow diagram with specific and sham auricular acupuncture points (non-acupuncture points of helix) used in the study.



[Pain](#). 2005 Apr;114(3):320-7.

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[Usichenko TI](#)¹, [Dinse M](#), [Hermsen M](#), [Witstruck T](#), [Pavlovic D](#), [Lehmann Ch](#).

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Abstract

Auricular acupuncture (AA) is known to be effective in treatment of various pain conditions, but still there have been no randomized controlled studies of AA for treatment of acute postoperative pain. Therefore we tested whether AA of specific points is superior to sham acupuncture for complementary analgesia after total hip arthroplasty in a patient-anesthesiologist-evaluator-analyst blinded study. The patients were randomly allocated to receive true AA (lung, shenmen, thalamus and hip points) or sham procedure (4 non-acupuncture points on the auricular helix). Permanent press AA needles were retained in situ 3 days after surgery. Postoperative pain was treated with intravenous piritramide (opioid receptor agonist with analgesic potency of 0.7 compared with morphine) using a patient-controlled analgesia (PCA) pump. The time to the first analgesic request, the amount of postoperative piritramide via PCA and pain intensity on a 100-mm visual analogue scale (VAS-100) were used to evaluate postoperative analgesia. Intraoperative anesthetic requirement, incidence of analgesia-related side effects, inflammation parameters and success of patients' blinding were also recorded. Fifty-four patients (29 AA and 25 controls) completed the study. Piritramide requirement during 36 h after surgery in AA group was lower than in control: 37+/-18 vs. 54+/-21 mg; mean+/-SD; P=0.004. Pain intensity on VAS-100 and incidence of analgesia-related side effects were similar in both groups. The differences between the groups as regard patients' opinions concerning success of blinding were not significant. Findings from our study demonstrate that AA could be used to reduce postoperative analgesic requirement.

PMID: 15777857 DOI: [10.1016/j.pain.2004.08.021](https://doi.org/10.1016/j.pain.2004.08.021)



REVIEW ARTICLE

Auricular acupuncture for postoperative pain control: a systematic review of randomised clinical trials

T. I. Usichenko,¹ Ch. Lehmann² and E. Ernst³

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[Anaesthesia](#). 2008 Dec;63(12):1343-8. doi: 10.1111/j.1365-2044.2008.05632.x.

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Abstract

The number of publications on the peri-operative use of auricular acupuncture has rapidly increased within the last decade. The aim was to evaluate clinical evidence on the efficacy of auricular acupuncture for postoperative pain control. Electronic databases: Medline, MedPilot, DARE, Clinical Resource, Scopus and Biological Abstracts were searched from their inception to September 2007. All randomised clinical trials on the treatment of postoperative pain with auricular acupuncture were considered and their quality was evaluated using the Jadad scale. Pain intensity and analgesic requirements were defined as the primary outcome measures. Of 23 articles, nine fulfilled the inclusion criteria. Meta-analytic approach was not possible because of the heterogeneity of the primary studies. In eight of the trials, auricular acupuncture was superior to control conditions. Seven randomised clinical trials scored three or more points on the Jadad scale but none of them reached the maximum of 5 points. The evidence that auricular acupuncture reduces postoperative pain is promising but not compelling.

PMID: 19032304 DOI: [10.1111/j.1365-2044.2008.05632.x](#)



First author (year)	Surgery	No. of patients	Verum procedure (no. of patients)	Control procedure (no. of patients)	Primary outcome	Results	Jadad scale
Wang 1988 [12]	Thoracotomy	36	EAA (19)	Standard therapy (17)	Pain intensity Opioid requirement Pulmonary function	EAA better than control for all measured parameters	1
Lewis 1990 [13]	Burns	11	EAA (11)	Placebo pill (11)	Pain intensity	EAA sessions reduced pain intensity	3
Mann 1999 [14]	THA	100	AA (50)	ST (50)	Analgesic requirement, pain intensity	Pain intensity & analgesic requirement decreased in AA vs ST	2
Usichenko 2005 [15]	AKA	20	AA (11)	SA (9)	Ibuprofen requirement	Ibuprofen requirement decreased in verum vs sham	3
Usichenko 2005 [17]	THA	61	AA (31)	SA (30)	Opioid requirement	Opioid requirement decreased in verum vs sham	4
Sator-Katzenschlager 2006 [18]	Oocyte aspiration	94	EAA (32) AA (32)	No acupuncture and no electrical stimulation (30)	Opioid requirement Pain intensity	Pain intensity & opioid requirement was highest in control (non-intervention) group	4
Michalek-Sauberer 2007 [19]	Molar extraction	149	EAA (76) AA (37)	No acupuncture and no electrical stimulation (36)	Opioid requirement Pain intensity	No differences among groups	4
Usichenko 2007 [16]	AKA	120	AA (61)	SA (59)	Ibuprofen requirement	Ibuprofen requirement decreased in verum vs sham	4
Likar 2007 [20]	LapNE	44	EAA (21)	AA without electrical stimulation (20)	Opioid requirement Pain intensity	Both parameters reduced in verum group vs sham group	3

AA, auricular acupuncture; EAA, electro auricular acupuncture; THA, total hip arthroplasty; ST, standard therapy; SA, sham acupuncture; LapCCE, laparoscopic cholecystectomy; AKA, ambulatory knee arthroscopy.

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REVIEW ARTICLE

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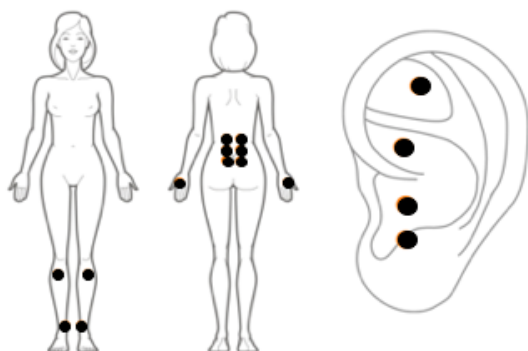
Acupuncture for postoperative analgesia after caesarian section

Usichenko *et al* (unpublished)



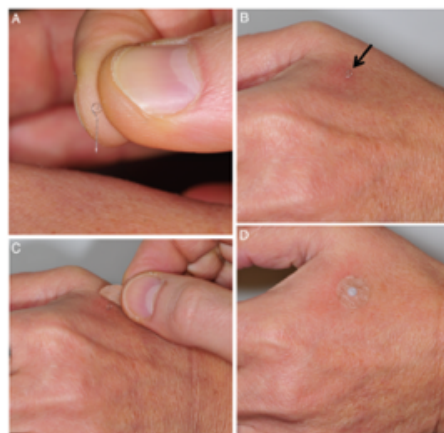
Intradermal needles (Spinex 6x0.14mm) and New Pyonex placebo needles used as adhesive tape at LI4

Following points were needled bilaterally



Body: LI4, ST36, SP6 and BL25-27

Ear: MA-SC, MA-TF1, MA-IC1 & MA-AT1



A: Intradermal Spinex needle over acupoint LI4

B: Only the tip of the needle is visible

C-D: Needle and tape (New Pyonex Placebo)

Pilot study: Heße *et al*. *Acupunct Med* 2016;34:14-9

[Acupunct Med](#). 2016 Feb;34(1):14-9. doi: 10.1136/acupmed-2015-010852. Epub 2015 Aug 25.

Acupuncture for pain control after Caesarean section: a prospective observational pilot study.

Hesse T¹, Henkel B¹, Zygmunt M², Mustea A², Usichenko T¹.

Author information

1 Department of Anaesthesiology, Intensive Care Medicine, Emergency Medicine and Pain Medicine, University Medicine of Greifswald, Greifswald, Germany. 2 Department of Gynaecology and Obstetrics, University Medicine of Greifswald, Greifswald, Germany.

Abstract

OBJECTIVE: Options for pharmacological analgesia in patients who have undergone Caesarean section (CS) are often restricted. Acupuncture is a promising tool for treating postoperative pain. We aimed to study the feasibility and acceptability of acupuncture as an additional method of analgesia in CS patients in a prospective observational pilot investigation.

METHODS: Twenty-two patients scheduled for elective CS under spinal anaesthesia were enrolled according to set inclusion criteria. Each patient received auricular and body acupuncture with 20 indwelling fixed needles according to previously validated protocols of acupuncture for postoperative analgesia. Pain intensity on an 11-point verbal rating scale (VRS-11, where 0=no pain and 10=maximal pain), analgesia-related side effects, time to mobilisation and Foley catheter removal after CS, and patients' compliance and satisfaction with treatment of pain on a 5-point VRS (VRS-5, where 1=excellent; 5=bad) were recorded.

RESULTS: Twenty patients were included in the final analysis. One patient was disturbed by paraesthesia at the site of needling. All other patients tolerated acupuncture well. Pain intensity on movement on the first postoperative day was 4.3 ± 2.4 (mean \pm SD; VRS-11) and decreased to 2.2 ± 1.2 on the day of discharge. Patient satisfaction was 1.9 ± 0.8 (mean \pm SD; VRS-5) and compliance (rated by their nurses) was 1.5 ± 0.5 (mean \pm SD; VRS-5).

CONCLUSIONS: Acupuncture for additional analgesia after CS was well accepted. The primary outcome measurement was feasible and allowed the sample size to be calculated for a future randomised controlled trial.

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KEYWORDS: ANAESTHETICS; OBSTETRICS

PMID: 26307554

DOI: [10.1136/acupmed-2015-010852](http://dx.doi.org/10.1136/acupmed-2015-010852)

An Overview of Acupuncture

...in pain management and prevention

Topics

- ✧ Mechanisms
- ✧ Chronic pain
- ✧ Acute pain treatment
- ✧ Acute pain prevention
- ✧ Prophylaxis
- ✧ Conclusions



Fritillaria imperialis
Royal Botanical Gardens
Kew

Fritillaria imperialis is a species of flowering plant in the lily family, native to a wide stretch from Kurdistan across the plateau of Turkey, Iraq and Iran to Afghanistan, Pakistan and the Himalayan foothills.

It grows to about 1m in height, and bears lance-shaped, glossy leaves at intervals along the stem. It bears a prominent whorl of downward facing flowers at the top of the stem, topped by a 'crown' of small leaves, hence the name. While the wild form is usually orange-red, various colours are found in cultivation, ranging from nearly a true scarlet through oranges to yellow. The pendulous flowers make a bold statement in the late spring garden; in the northern hemisphere, flowering takes place in late spring, accompanied by a distinctly foxy odour that repels mice, moles and other small animals.

Due to the way that the bulb is formed, with the stem emerging from a depression, it is best to plant it on its side, to prevent water causing rot at the top of the bulb.

This photo was taken at the Royal Botanical Gardens in Kew on 14 April 2018.

I placed the camera on the grass as an experiment to avoid including the crowds of admiring visitors.

Two black dots in the sky were captured by accident, as the shutter was on a 10 second delay. The fatter blob on the left is a bee flying over the flowers, and the thinner black object on the right is a commercial aircraft on a westerly approach to land at Heathrow airport.

Canon EOS 5D Mark III

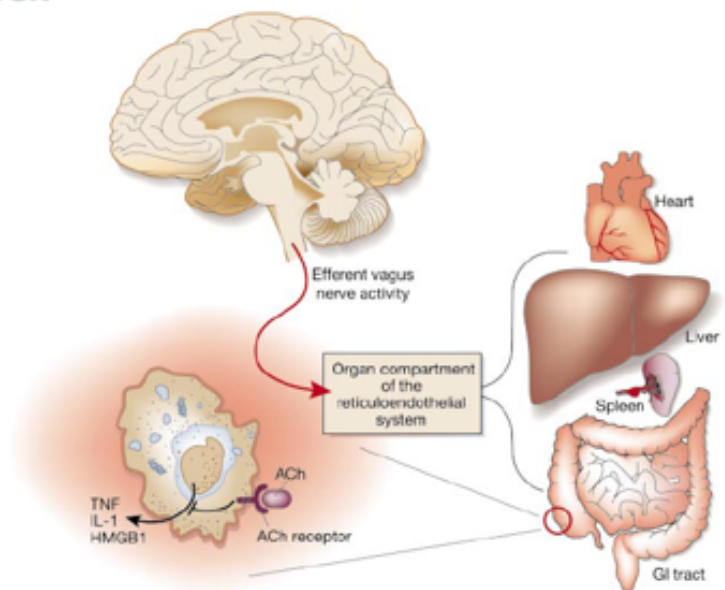
Canon EF24-70mm f/2.8L II USM

Taken at f/8.0 24mm 1/250 iso100

Acupuncture & Inflammation

Basic science

- MA & EA have measurable effects in models of inflammation
- Vagal stimulation & the $\alpha 7nAChR$
- EA at ST36 in septic shock



Tracey Nature 2002

[Nature](#). 2002 Dec 19-26;420(6917):853-9.

The inflammatory reflex.

[Tracey KJ](#)1.

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1 Laboratory of Biomedical Science, North Shore-LIJ Research Institute, Manhasset, New York 11030, USA.
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Abstract
Inflammation is a local, protective response to microbial invasion or injury. It must be fine-tuned and regulated precisely, because deficiencies or excesses of the inflammatory response cause morbidity and shorten lifespan. The discovery that cholinergic neurons inhibit acute inflammation has qualitatively expanded our understanding of how the nervous system modulates immune responses. The nervous system reflexively regulates the inflammatory response in real time, just as it controls heart rate and other vital functions. The opportunity now exists to apply this insight to the treatment of inflammation through selective and reversible 'hard-wired' neural systems.

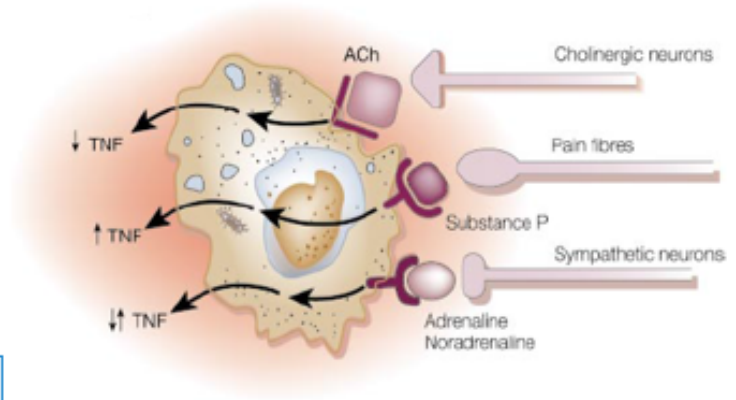
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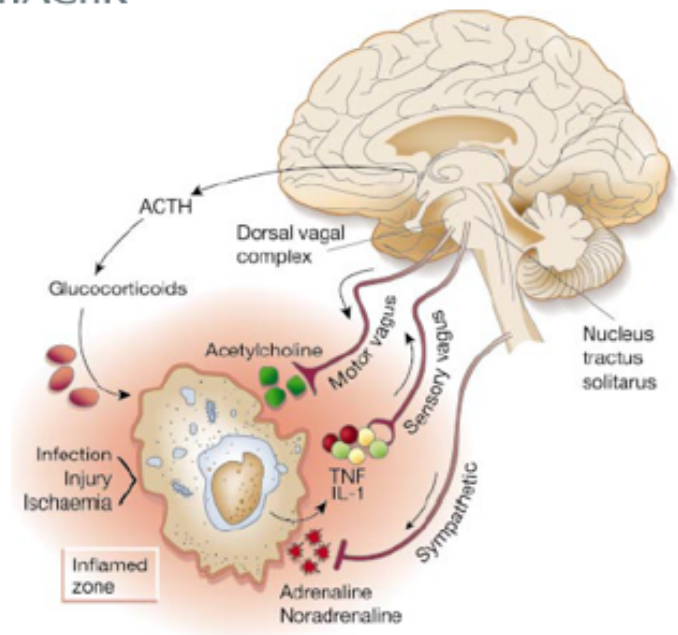
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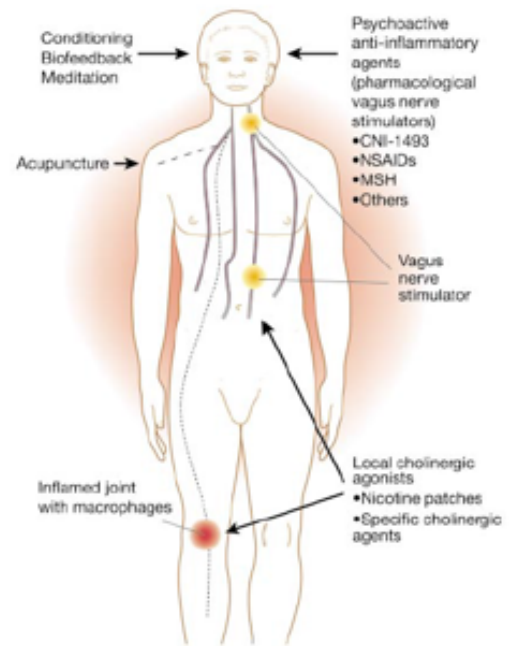
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Conclusions

- acupuncture in pain management and prevention:
 - ◇ acupuncture has well described neurophysiological mechanisms
 - ◇ acupuncture has clinically relevant effects in chronic pain
 - and can reduce the rate of long-term use of opioids
 - see <https://bmas.blog> on 25th September 2019
 - ◇ acupuncture can have a useful role in drug resistant acute pain
 - ◇ acupuncture can be used as an adjunct in post-operative pain
 - reducing the need for supplementary opioids
 - providing an alternative where strong analgesics are best avoided
 - ◇ electroacupuncture can be used to modulate systemic inflammation
 - and probably reduce acute exacerbations in inflammatory diseases

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Thank you for listening

Dr Mike Cummings
Medical Director BMAS

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LinkedIn: Mike Cummings
Google+: Mike Cummings
Biography: goo.gl/6XQeXv