High volume acupuncture clinic (HVAC) for chronic knee pain – audit of a possible model for delivery of acupuncture in the National Health Service

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Abstract

Recent research has established the efficacy, effectiveness and cost effectiveness of acupuncture for some forms of chronic musculoskeletal pain. However, there are practical problems with delivery which currently prevent its large scale implementation in the National Health Service. We have developed a delivery model at our hospital, a 'high volume' acupuncture clinic (HVAC) in which patients are treated in a group setting for single conditions using standardised or semi-standardised electroacupuncture protocols by practitioners with basic training. We discuss our experiences using this model for chronic knee pain and present an outcome audit for the first 77 patients, demonstrating satisfactory initial (eight week) clinical results. Longer term (one year) data are currently being collected and the model should next be tested in primary care to confirm its feasibility.

Keywords

Acupuncture, service delivery, chronic knee pain, cost effectiveness.

Introduction

Recent evidence, from large randomised controlled clinical trials and systematic reviews of acupuncture for chronic knee pain, has established its efficacy (compared to 'sham' acupuncture),[1] effectiveness (compared to best standard care),[2] and cost effectiveness (at least in the German healthcare system).[2] Acupuncture has been shown to be a very safe intervention in the hands of adequately trained practitioners,[3] and is acceptable to patients. Consequently it ought to become recommended in national guidelines. However, there are practical problems with delivery, and these may prevent large scale implementation in the National Health Service. Such problems include the lack of full time practitioners, the large number of patients with chronic musculoskeletal conditions, the need for frequent and relatively time consuming treatments, and paradoxically, acupuncture's popularity, which some practitioners fear may overwhelm them with demand. Many general practitioners and physiotherapists who have acupuncture training use it only on a limited basis for these reasons. These problems must be addressed if acupuncture is to be integrated in any meaningful way into the management of musculoskeletal conditions.

To address some of these problems, we have developed 'high volume' acupuncture clinics (HVACs) at our hospital in which patients are treated in a group setting (up to six at a time) for single conditions using standardised or semi-standardised acupuncture protocols by practitioners with BMAS foundation acupuncture training. This may allow large numbers of patients to be treated, and thus overcome the problems of providing frequent treatments for the initial course, and then long term maintenance treatments, as is necessary for the best clinical effect. This will also reduce waiting times for new patients and improve cost effectiveness compared to treatment given individually. We present our experiences and the results of an initial outcome audit, and discuss the prospects for the widespread adoption of this model.

Description of the service

The service began operating in January 2006. Patients referred by their GP or by hospital colleagues were assessed individually in advance by a consultant

physician to determine suitability. At this appointment the diagnosis of chronic knee pain was confirmed by history and examination, and patients with other treatable conditions were excluded. Radiological diagnosis of osteoarthritis of the knee, while available for most patients, was not considered mandatory. Written informed consent for acupuncture was obtained after checking for the normal contraindications; written and verbal information about the HVAC was given, and a five minute 'test dose' of manual acupuncture without stimulation at ST36 was given to confirm patient acceptance and assess any immediate reaction. Initial outcome audit forms were given out to be completed and returned at the first HVAC. Suitable patients were referred to the group clinic to begin definitive treatment, usually within a week.

The HVAC was staffed by one practitioner whose sole function was to insert needles. This was initially SB, a consultant physician, but from October 2006 this was a staff nurse with foundation acupuncture training, CP or RI. A non-acupuncturist assistant removed and disposed of needles, attached and removed electroacupuncture machines, and dealt with administrative tasks such as audit forms and appointment making.

Patients were treated in a large room with six couches. They were asked to wear loose trousers or a skirt to allow rapid exposure to mid-thigh. For patients concerned about this degree of physical exposure, mobile screens were available. Four acupuncture needles (Seirin®, 40mm x 0.25mm) were placed around each knee to be treated, at positions ST34, ST36, SP9 and SP10, to a depth of at least 20mm (SP10 and ST34 to the level of bone). These were connected in pairs ST34–ST36 and SP9–SP10 using a Cefar® Acus4 electroacupuncture device with an alternating 2Hz/80Hz programme for 30 minutes per session. We chose this acupuncture method based on meta-analysis of acupuncture studies in OA knee,[4] because of the large effect size observed in the trial by Vas et al,[5] which used electroacupuncture to local points in muscle around the knee.[6] At each appointment, prospective outcome audit was carried out as described below. An initial phase of eight treatments over twelve weeks (four sessions at weekly intervals, then four sessions at fortnightly intervals) was followed by a maintenance phase of monthly sessions for up to one year. The

decision to continue treatment into the second phase was made jointly by patient and practitioner with the audit results used as supporting information.

Outcome audit
Methods
Before the first appointment, patients completed the WOMAC (Western Ontario and McMaster Osteoarthritis Index) assessment, a standardised and validated symptom and function questionnaire for chronic lower limb pain,[7] and visual analogue scores (VAS) for average knee pain and stiffness in the previous week, consisting of a 100mm line with one end labelled 'none' and the other 'worst imaginable'. At each subsequent appointment they completed the VAS and at the eighth appointment (the last of the initial phase), they completed a global assessment score. This was a seven point categorical (Likert) scale, in response to the question: 'Compared to before you had acupuncture treatment, is your arthritis:' with the available options 'substantially worse', 'moderately worse (enough to affect your quality of life)', 'slightly worse', 'no change', 'slightly improved', 'moderately improved (enough to affect your quality of life)', or 'substantially improved'. From October 2006, patients also completed the WOMAC at the eighth appointment. (We had initially planned to repeat the WOMAC only after a year but later decided to obtain it after eight appointments in case patients dropped out before completing the maintenance phase.) At one year, WOMAC and a further global assessment score were completed. Immediate adverse events were recorded at the time, and patients were asked at the next appointment about delayed adverse events.

Results
Eighty seven patients were assessed and treated from January 2006 until the time of the audit in January 2008. Fifty seven completed the initial eight sessions, a completion rate of 66%. Data were analysed if patients attended four or more sessions of acupuncture (n=77), using their last available observation carried forward as their final observation. This resulted in the exclusion of 10 patients who had undergone less than four acupuncture sessions. Thus, 77 patients were available for analysis (Figure 1), 69 female and eight male. Mean age was 64.4 years (range 44–86 years). Results are presented for the
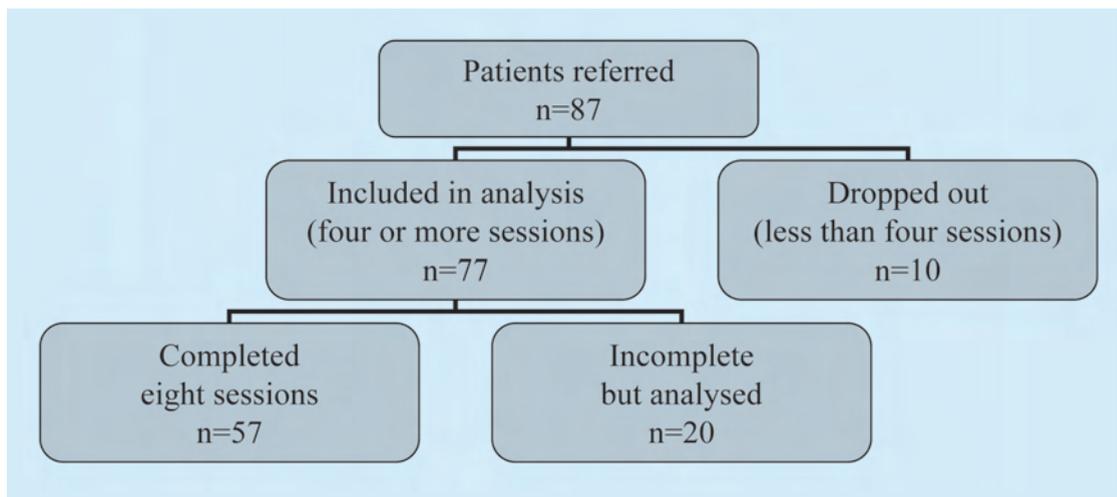
Figure 1 Flow chart of audit.

Table 1 **Pain VAS scores (mm) in 77 patients receiving acupuncture for chronic knee pain**

	Mean (range, SD)
Initial score	62.3 (5–100, 22.3)
Final score (after 8 treatments)	41.6 (1–98, 26.0)
Change (range, SD)	20.7 (-40–95, 26.8)
Responder rates	n (%)
40% or greater improvement (MCII)	37 (48)
20mm or greater improvement (MCII)	41 (53)
Final VAS <32.3mm (PASS)	32 (42)

SD – standard deviation; MCII – minimal clinically important improvement;[8] PASS – patient acceptable symptom score.[9]

initial phase of treatment (eight sessions), since as yet, not enough patients have completed a year's treatment to make analysis meaningful.

Results for pain VAS are presented in Table 1. The results for stiffness were broadly similar, but are not presented here. They are available from the first author (SB) on request. Of 77 patients treated, 61 improved, 14 worsened and 2 were unchanged. As well as the absolute change in scores, the results are also presented in terms of a possibly more clinically meaningful 'responder rate' calculated by two versions of the minimal clinically important improvement (MCII),[8] and Patient Acceptable Symptom Score (PASS).[9]

Global outcome assessment scores were available for 58 patients (75%). Patient-completed global outcome assessment scores are presented in Figure 2. The proportion of patients with a 'moderate' or 'substantial' improvement, enough to affect the quality of life (+2 or +3 on a -3 to +3 scale), was 39/58 (67%).

WOMAC scores are presented in Table 2. For reasons already outlined above, only 26 patients had WOMAC scores for both the first and eighth appointment, too few for a meaningful analysis. However, baseline data suggest that this population is similar to that included in the recent meta-analysis by White et al.[1]

Over 400 treatment sessions were performed by trained practitioners. There were no serious adverse events, but minor adverse events were common, including minor bleeding and bruising in 5% of treatments, and transient exacerbation of chronic knee pain (less than 48 hours) after 1% of treatments. This is consistent with large scale safety studies of acupuncture.[3]

Discussion

Our aim in setting up this service was to provide a delivery method that makes acupuncture a large scale practical proposition for the NHS. Our experience so far is promising. The clinic is popular with patients and the group setting provides positive opportunities for social interaction. The possible disadvantages of a relative lack of individual attention and use of a standardised treatment protocol with only local points did not seem to prevent satisfactory outcomes. The use of screens for patients requesting privacy seemed acceptable to them, and dropouts were not related to this issue. The dropout rate is acceptable, given that we set up the service in secondary care, treating relatively severely affected patients referred because of failure of, dissatisfaction
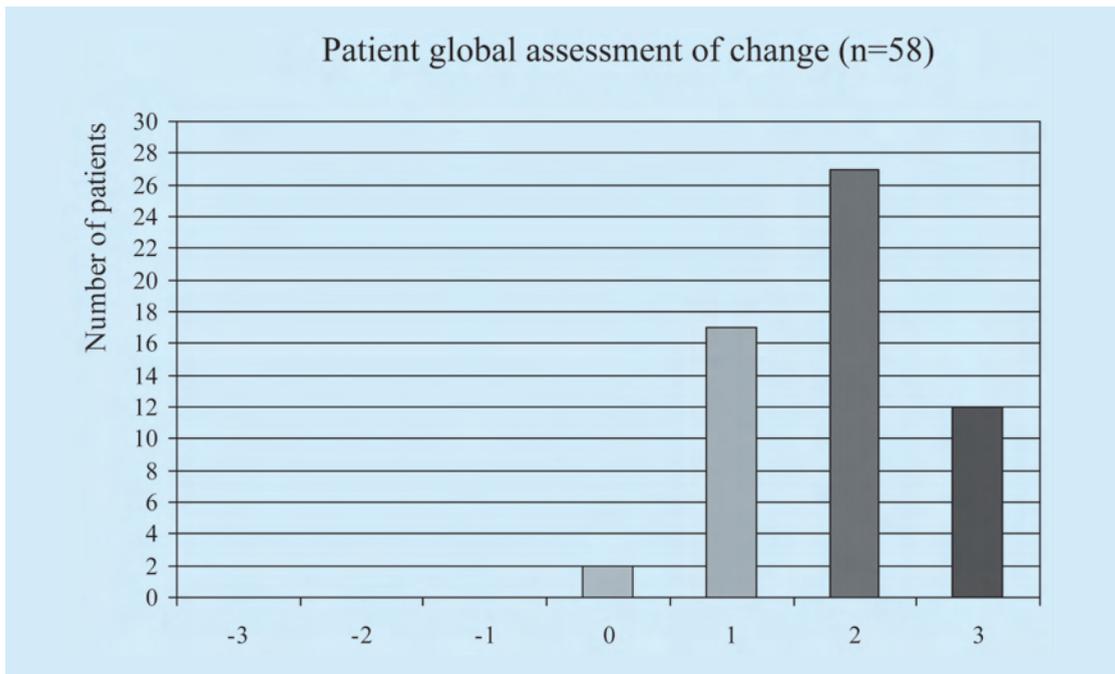
Figure 2 The global change scores show that the proportion of patients with significant improvement was 39/58 (67%).

Table 2 **Results for WOMAC total and subscale scores (n=26)**

Mean WOMAC score	Total (max score 96)	Pain (max score 20)	Stiffness (max score 8)	Function (max score 68)
Initial	52.0	10.9	4.7	36.8
(range, SD)	(19–75, 14.9)	(2–17, 3.7)	(0–8, 1.8)	(11–53, 10.6)
Final	41.3	8.0	3.8	29.8
(range, SD)	(6–81, 19.7)	(1–19, 4.5)	(1–7, 1.6)	(3–55, 14.6)
Change	10.9	2.9	0.9	7
(range, SD)	(-17–39, 14.5)	(-3–14, 3.8)	(-2–4, 1.7)	(-23–24, 11.2)

SD – standard deviation

with, or contraindication to orthodox treatment. In addition, some patients had to travel relatively long distances to attend. We think it likely that, if the service were to be offered locally in primary care, for instance in large practices or polyclinics, the dropout rate would be smaller. Our outcome audit appears to demonstrate that acupuncture given for chronic knee pain in a high volume setting appears to have modest effectiveness.

As a comparison, our outcomes can be compared to those from a recent meta-analysis of clinical trials of acupuncture in knee pain. This reported a mean improvement of 3.4 points for WOMAC pain score and 11.7 for WOMAC function. Our analysis, admittedly with a small sample size (n=26), shows a mean improvement of 2.9 for pain and 7 for function.

It is possible that our outcomes were exaggerated by selection bias, since patients attending our hospital express a strong preference for complementary medicine. It is also possible that patients, anxious to please the practitioner or continue treatment for other reasons than effectiveness, overstated the benefits. Strenuous efforts were made by practitioners to avoid bias in data collection: for example patients were specifically instructed not to 'try and please' but to be totally honest, and filled in the audit forms unobserved. It is also possible that our secondary care patients represent a group that is relatively more treatment resistant than that typically recruited to clinical trials. However this audit has the limits of any observational study and is intended to supplement research, not replace it.

HVACs are a source of potentially useful large scale outcome data for everyday practice. For instance, it should be possible to compare outcomes of electroacupuncture with standard acupuncture to determine the difference in benefit, or compare different types of acupuncture, for instance local intramuscular acupuncture with 'periosteal pecking' or the addition of trigger points.

Conclusion

We have demonstrated that a high volume clinic is a feasible and promising delivery method for NHS acupuncture in chronic knee pain, given current and likely future service constraints. Initial outcome assessment reveals modest but satisfactory response rates and acceptable completion rates. Future aims are to improve efficiency of data collection, particularly for the WOMAC index, to analyse our long term (1 year) data, to pilot the approach in a community setting to demonstrate its wider applicability, and to determine whether it is cost effective.

Acknowledgements

Conflict of Interest
None declared.

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