

Acupuncture for chronic neck pain - a cohort study in an NHS pain clinic

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Abstract

The study investigates the outcome of acupuncture for chronic neck pain in a cohort of patients referred to an NHS chronic pain clinic. One hundred and seventy two patients were selected for acupuncture over a period of 6.5 years. Treatment was given by a single acupuncturist and consisted of a course of needle acupuncture for an average of seven sessions per patient. Treatment outcome was measured by an oral rating scale of improvement at the end of treatment and at follow up six months and one year after treatment. Nineteen patients were withdrawn from treatment for various reasons, two for adverse events. One hundred and fifty three patients were evaluated, of whom 68% had a successful outcome from acupuncture, reporting an improvement in pain of at least 50%. The success rate was higher in patients with a short duration of pain: 85% in patients with pain for up to three months and 78% with pain for up to six months. Long-term follow up showed that 49% of the patients who completed treatment had maintained the benefit after six months, and 40% at one year. The results indicate that acupuncture can be an effective treatment for selected patients with chronic neck pain.

Keywords

Acupuncture, chronic neck pain, cohort study, pain clinic.

Introduction

Neck pain is a common complaint with a lifetime prevalence from 30% to 50%.¹ Often symptoms persist and lead to the development of chronic neck pain.¹ Chronic neck pain carries significant morbidity leading to secondary care referral,² and also frequently results in inability to work.^{1,3,4} Standard treatments for neck pain include analgesic drugs, manual therapies, massage, physiotherapy and exercise, injections and patient education;^{2,5} the efficacy of these treatments however is questionable.^{5,6} Acupuncture is one of the most common complementary treatments for neck pain in Europe and is also widely used in the UK.^{7,8} At present there is a lack of evidence for the efficacy of acupuncture for chronic neck pain.^{9,10} A systematic review of acupuncture studies for chronic pain found limited evidence for the clinical effectiveness of acupuncture compared to no treatment and inconclusive evidence that acupuncture is more effective than placebo, sham acupuncture or standard care.¹¹ Most studies of acupuncture for the treatment of neck pain evaluated the benefit of acupuncture shortly after

treatment,⁹ and only a few studies have been published with follow up results showing the outcome of acupuncture six months or more after treatment.¹²⁻¹⁴ The lack of evidence for a specific effect of acupuncture in the treatment of chronic pain does not seem to discourage clinicians working in chronic pain clinics. A survey estimated that acupuncture is used in 84% of NHS chronic pain clinics.¹⁵ Little is known, however, about the clinical effectiveness of the acupuncture treatments given in these settings, and the author has failed to find any published data for the outcome of acupuncture for neck pain in secondary care.

The author works in an NHS chronic pain clinic with a back pain service, which receives about 1000 new referrals per year of patients with chronic musculoskeletal pain, the majority of whom have had various treatments and have been seen by several clinicians. When the author joined the service in 1997 he established an acupuncture clinic once a week for patients with musculoskeletal pains and headaches. The majority of the patients treated in his acupuncture

clinic have chronic neck pain of long duration. The author has been practising acupuncture since 1992 and has found over the years that neck pain seems to respond better than other musculoskeletal conditions. As acupuncture is not an officially recognised treatment offered by the NHS, the author considered it important to study the clinical effectiveness of acupuncture and especially to examine whether it provided sufficient long-term benefit to justify the cost.

Methods

Patients

One hundred and seventy two consecutive patients were selected for acupuncture from all those referred to the chronic pain clinic with neck pain over a period of 6.5 years from 1997 to 2003. The patients who were not offered acupuncture were offered one or several other treatments including specialist physiotherapy, stress management advice, TENS, relaxation therapy, and analgesic management. Referrals were received predominantly from GPs, with some also from orthopaedic surgeons and physiotherapists. All patients had received other treatments prior to being referred to the pain clinic including one or several of the following: analgesic medication; physiotherapy; TENS; acupuncture elsewhere; complementary treatments – chiropractic, osteopathy, reflexology, massage, aromatherapy; injections; surgery; manipulation under anaesthesia.

Patient selection

No formal inclusion or exclusion criteria were applied and the patients were offered acupuncture by the author if he felt that they were likely to respond. This was a choice made according to subjective criteria informed by his experience. Patients with the following features were not offered acupuncture: widespread pain problem (eg fibromyalgia); major psychosocial problems; poor stress management; malignant pain; neuropathic pain due to nerve root compression.

Treatment

Patients who were established on ongoing treatment, such as analgesic medication and TENS, but had insufficient pain relief, received acupuncture as an additional treatment with no

alteration made to the ongoing treatments. No patient received acupuncture at the same time as having physiotherapy or other physical therapies. No pain assessment was carried out before starting acupuncture. All treatments were given by the same acupuncturist (the author).

Acupuncture treatment was not standardised, but customised to the individual patient. The acupuncture technique evolved and was refined over the years as the experience of the acupuncturist grew. Over the first two years the author 'experimented' with various combinations of classical Chinese points, segmental points, trigger points, 'areas' described by Felix Mann and auricular points, until he established a selection of core points which seemed to produce reliable results. For each individual treatment those points within the selection of core points were chosen which were found to be tender on palpation.

The following points were included in the core points:

1. Paravertebral points (1cm lateral to spinous process) along the cervical and upper thoracic spine from C2 to T3.
2. Trapezius-occiput area.¹⁶
3. GB21, TE15 and SI14: these points were not located according to the exact Chinese description, but those trigger points in trapezius (GB21, TE15) and levator scapulae (SI14) were chosen which corresponded most closely with these three traditional points.

In addition to these core points, GV20 and LR3 were used in most patients, and other points were also added occasionally. The depth of needle insertion depended on the acupuncturist's subjective assessment of patient sensitivity and ranged from superficial insertion to deep periosteal needling. This was based on the author's observation that sensitive patients respond to superficial needling and can experience aggravation of their symptoms with deeper needling whereas less sensitive patients respond better to deep needling and show no or minimal response to superficial needling. After insertion, during which *de qi* was not actively sought, the needles were not stimulated either manually or electrically, and they were kept in place for 15 to

30 minutes for convenience of clinic flow.

Treatments were given on a weekly basis wherever possible; occasionally the interval between treatments increased to two or three weeks for the convenience of the patient or due to absence of the acupuncturist. If patients reported no benefit from treatment after three sessions then acupuncture therapy was discontinued and the treatment was counted as a failure. Patients who responded to treatment continued with acupuncture until no further improvement occurred. This was usually the case after six to ten sessions.

Outcome assessment

Outcome was assessed at the end of treatment by means of an oral rating scale of improvement presented by the author. The patients were asked the following question: ‘Compared to how your pain was before the start of treatment, how much has it improved after the treatment on a percentage scale from 0 to 100, where 0% would mean the pain is still the same and 100% that the pain is completely gone?’ The percentage of improvement reported by the patient was taken as an outcome measure. The patients who rated an improvement of 50% or greater were counted as indicating successful treatment, and those with less than 50% as failed treatment.

Follow up

The patients who reported 50% or more benefit were given review appointments at six months after completion of treatment, and asked the following question: ‘Compared to how your pain was at the end of acupuncture treatment how is it now? Is it the same, has it improved further, has it got worse or has it relapsed to what it had been before you started acupuncture?’ The patients who had maintained the treatment benefit or had gained further improvement were then given another review appointment at 12 months (after completion of treatment) where the same questions were asked again. All follow up assessments were carried out by the author.

Results

One hundred and seventy two patients started acupuncture treatment and were initially included in the audit. Of these, 26% were male and 74%

female. The average age was 50 years and the age distribution is shown in Table 1.

Table 1 Age distribution of 172 patients entered in audit

Age bands	Number of patients
20-29 years	10
30-39 years	29
40-49 years	46
50-59 years	49
60-70 years	24
>70 years	14

Characteristics of pain

Of these patients, 34% had pain confined to the neck, and 68% had neck pain which radiated to the head, shoulder or arm or to a combination of these areas. The cause of pain was undiagnosed in 51% of patients, and in 32% the pain was caused by soft-tissue injury (whiplash and other injuries). In 17% of patients other physical explanations for the pain could be identified, such as occupational strain, previous surgery, scoliosis, cervical spine pathology, Parkinson’s disease or rheumatoid arthritis.

Table 2 shows that most patients had chronic pain of long duration, only 18 patients having pain of less than six months’ duration. The average duration was 38 months (range 0.5 to 360 months).

Table 2 Duration of pain of 172 patients entered in audit

Duration of pain	Number of patients
< 6 months	18
6-12 months	39
1-3 years	52
3-5 years	29
5-10 years	26
> 10 years	8

Patient flow

Nineteen patients dropped out within the first few sessions and were therefore excluded from evaluation. Eleven patients stopped attending and could not be contacted to discover why. Three patients wished to discontinue acupuncture; one patient had got better with massage treatment, one patient had needle phobia and the third one did not give a reason. Three patients were found to have major psychological problems which had not been obvious before the beginning of treatment; the

acupuncture therapy was therefore discontinued by the acupuncturist. Two patients suffered complications: one patient with psoriasis developed a skin reaction and the other had a severe migraine attack following one acupuncture session. Thus 153 patients remained for further evaluation.

Acupuncture sessions

The average number of treatment sessions received by these 153 patients was 7.3 (range 1-13). fifty two percent had 7-10 sessions, 29% had 4-6 sessions, 11% had 1-3 sessions and 8% had >10 sessions.

Table 3 Outcomes of acupuncture treatment

Outcome category	Number	Percent
Overall success*	104/153	68%
50 – 74% improvement	27/153	18%
75 – 99% improvement	63/153	41%
painfree	14/153	9%
No response	49/153	32%

* improvement scored at 50% or more counted as success

Treatment outcome

One hundred and four patients scored their improvement as $\geq 50\%$, so the overall success rate was 68% (Table 3). Patients who had pain for six months or less showed an improved success rate compared to the overall average (Table 4). The success rate was 18% (2/11) for patients with unresolved litigation.

Sixty five patients out of the 104 who responded to treatment were reassessed six months after the end of treatment. Of these, 47 (72%) reported that

Table 4 Successful outcomes for patients with different durations of pain

Duration of pain	Success rate	Percent
≤ 3 months	11/13	85%
≤ 6 months	25/32	78%
≤ 12 months	50/69	72%
≤ 24 months	65/92	70%
Any duration	104/153	68%

Table 5 Duration of benefit

	Number of patients assessed	Number of patients with sustained benefit	Percent
End of treatment	153	104	68%
After 6 months	65	47	72%
After 12 months	36	29	81%

the benefit was maintained or further improved compared to the initial outcome assessment (Table 5). Sixteen (28%) reported feeling worse or had relapsed. These 47 responders were invited for further follow up at 12 months after the end of treatment. Thirty-six patients attended, of whom 29 (81%) reported maintained benefit or further improvement compared to the initial outcome assessment and seven (19%) reported they felt worse or had relapsed. Thus there was evidence of long term benefit from acupuncture. To calculate the long-term success rates over time among the 153 patients who completed treatment, the assumption was made that the success rates at follow up assessments would have been the same if all patients had turned up. After six months, 75 patients would still benefit (a 49% success rate), and after 12 months, 61 patients would still benefit (a 40% success rate).

Discussion

In this study, 68% of patients with chronic neck pain who completed acupuncture treatment gained significant benefit; the results show that acupuncture can be an effective treatment for selected patients with chronic neck pain. This study is strengthened by the large number of patients included, but it is limited by relying on patient recall for assessment. One could argue that the results could reflect the natural course of neck pain as there was no control group; this is however highly unlikely in chronic pain of long duration. It would be more reasonable to suggest that the results demonstrate the overall clinical effectiveness of the treatment which is likely to comprise effects related to the therapist-patient interaction, non-specific needling effects and possibly specific acupuncture effects. It will be the domain of large RCTs to provide conclusive evidence for or against the hypothesis that acupuncture has a specific physiological effect leading to pain relief and does not merely

represent a powerful placebo effect. It is difficult to conduct high quality acupuncture research which satisfies the rigorous scientific criteria of randomised controlled trials due to problems with double-blinding, finding an appropriate placebo treatment and standardisation of treatment.^{17,18} The author believes that while rigorous evidence for the efficacy of acupuncture for neck pain is awaited the available evidence that patients with neck pain get better with acupuncture treatment can support the justification for its use within the NHS. Two studies in general practice showed that 67%-76% of patients with neck pain were much better or cured following acupuncture,^{19,20} and acupuncture in general practice can be cost effective.²¹ Whereas most patients presenting with neck pain in primary care will have pain of short duration (24 hours to three months in Ross's study),²⁰ patients attending a secondary care clinic usually suffer chronic pain and the pain clinic is often the last resort for patients who have tried and failed to respond to the usual treatments.

Alexander reported that 50% (9/18) of patients with neck pain of long duration (median three years) achieved 50% pain reduction following acupuncture in a rheumatology department.²² To the above the results of this study compare favourably showing an overall 68% success rate in patients with a three year average duration of neck pain. It is likely that the success rate is dependent on careful patient selection.

Other studies have shown that patients with pronounced psychological problems did not respond well to acupuncture.^{12,13} This is also the experience of the author who has therefore excluded patients with obvious psychological problems. He found, too, that patients with unresolved litigation achieve poor results with acupuncture (success rate 18%, two out of 11 patients). The results of the study also suggest that the success rate depends on the duration of pain; there is a significantly higher success rate for patients who have had their neck pain for less than six months. So far this has not been reported in other studies. An important factor in assessing the value of acupuncture for neck pain is the rate of long term benefit. If acupuncture were only to provide short-term benefit then a cost-benefit analysis would be unlikely to be favourable. The

long term results of this study suggest that around 40% of patients who are able to complete their course of acupuncture still have pain relief one year after treatment. This is a significant result considering the chronicity of the pain. There are no equivalent studies to compare these results with. There is great variation in long term pain relief reported in other studies; Carlsson reported that 23% of patients with nociceptive pain still reported pain relief after six months.¹³ Lundeberg treated 43 patients with suboccipital and cervical musculoskeletal pain with 10 sessions of acupuncture. Twenty four patients who benefited commenced long term treatment and 50% of these became pain free over a period of 3 to 24 months.¹² David compared acupuncture and physiotherapy and reported that six months after treatment 22 out of 29 patients (76%) with neck pain still had lower VAS pain scores compared to baseline.¹⁴ Irnich et al compared acupuncture with conventional massage and sham laser acupuncture and found significantly greater improvement in motion related neck pain after acupuncture (57%) compared to massage (25%); three months after treatment this difference was no longer significant. It is difficult to interpret these results, as acupuncture was limited to five sessions in this study.²³ More studies are needed to determine the long term effects of acupuncture.

In conclusion, this study suggests that acupuncture for neck pain is a clinically effective treatment and merits consideration as a first line treatment in view of the fact that there is no better evidence for any of the standard treatments for neck pain. Acupuncture for neck pain should ideally be used within primary care where the patients present first as the success rate seems to be higher with pain of shorter duration. This may prevent neck pain in some cases from becoming a chronic condition with its considerable socio-economic consequences.^{1,4}

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