

Is Acupuncture for Pain Relief in General Practice Cost-Effective?

Steven Lindall

This paper was presented at the BMAS Autumn Meeting in London in October 1999

Summary

Sixty-five selected patients with pain, mainly of musculo-skeletal origin, were offered treatment by a qualified medical acupuncturist in his general practice surgery as an alternative to hospital out-patient referral. The patients assessed their own outcomes on a digital scale: there were 46 successful treatments and 14 failures, with 5 being lost to follow up. The cost of acupuncture treatment was compared to that of the referral that would have been made if acupuncture had not been offered. The acupuncture was found to have cost £10,943 against a minimum likely cost for hospital referrals of £26,783. A minimum total saving for all 60 patients of £13,916 was determined, giving an average saving per patient of £232. Additional hidden savings through avoiding further hospital procedures and expenditure on medication were not taken into account. It is concluded that acupuncture in selected patients and when used by an appropriately qualified practitioner appears to be a cost-effective therapy for use in general practice, reducing the need for more expensive hospital referrals.

Key words

Acupuncture, Cost comparison, General practice, Hospital referrals, National Health Service, Pain relief.

Introduction

Acupuncture when used for the relief of pain is relatively straightforward to administer. Virtually no equipment is required other than a supply of sterile, disposable acupuncture needles which are relatively inexpensive, generally costing no more than 10p per needle; thus the main cost is the therapist's time. However, the economic evaluation of acupuncture (1) has proved difficult, although there have been various reports of savings made, both in hospital and general practice (2-6).

The aim of this study, carried out in a British

National Health Service (NHS) fundholding (responsible for its own budget) general practice surgery over an eighteen month period, was to compare the cost of acupuncture performed in the surgery with the referral costs that would otherwise have been incurred. This was assessed in two ways: first including all patients who received NHS acupuncture at the surgery, and second excluding those who were not requesting a new hospital referral. Most of the patients involved in the study had come to their general practitioner (GP) seeking referral, usually to an orthopaedic surgeon, having had insufficient relief from the usual therapies available in general practice. They were offered acupuncture treatment instead, on the understanding that the requested referral would be arranged if they were dissatisfied with the outcome.

The acupuncturist (the author) is a full-time GP principal, and has been practising acupuncture for 10 years in an NHS surgery. He holds the Diploma in Medical Acupuncture and Certificate of Accreditation from the British Medical Acupuncture Society, and has been approved by his local health authority to perform acupuncture as a *secondary care provider in the primary care setting*.

Method

Patients were selected for this cost-comparative survey by the author. Many patients were not offered the option of acupuncture and some that requested it, but were not felt by the practitioner to be suitable, were refused. There were no specific parameters set for this selection, rather it was based on the author's clinical experience. All NHS patients receiving acupuncture from the author at his general practice surgery during the period May 1997 to January 1999 were included in the survey. Those selected as being suitable for acupuncture were assessed and then treated, mostly by trigger-point acupuncture with additional use in some cases of distal traditional Chinese points (usually LI.4 and LR.3) and one very successful use of superficial needling for scar pain. The response was rated by the patients themselves on a numeric scale of 0-10 with 10 being perfectly

normal and 0 being their starting condition prior to treatment. The question asked (verbally) of all patients was "On a scale of 0-10, if 0 is the state you were in before I started acupuncture, and 10 is perfectly normal, where would you say you are now?". For the purpose of assessing cost-effectiveness, a final score of 7 or more was taken as being successful, and 6 or less as failure. Additionally, if a referral to hospital was required by the patient after acupuncture, this was taken as failure irrespective of score. However, one case where the score was given as 5 but the patient claimed to be satisfied and no longer wanted referral was taken as successful.

Acupuncture costs were based simply on the charge to the practice fund by the acupuncturist, being £43 per attendance for the fund year 1997-8 and £46 per attendance for 1998-9. This was compared with the fundholder referral cost charged by the practice's usual provider unit for the appropriate speciality. However, because of the inherent delay between referral and the resulting hospital visit, an approximation in calculating the hospital referral costs has been necessary. Due to the operation of waiting lists, some patients referred in the 1997-8 year will have been seen in that financial year, but most would not have had an outpatient appointment until the 1998-9 year. Similarly many patients referred in 1998-9 had not yet been seen at the time of writing this paper, and the cost of referral for 1999-2000 is unknown due to the cessation of fundholding. As it is relatively safe to assume that this cost would be at least equal to, and more likely greater than, the cost in 1998-9, all hospital costs have been calculated on the 1998-9 figures, as this was felt to be an acceptable average of the 3 financial years concerned.

The neurology provider produced invoices on a cost per attendance basis with an additional fee for the use of the MRI scanner, so the assessment has been based on previous experience of how many attendances a patient requires, and whether an MRI scan would have been requested. The other providers all produced invoices on a cost per referral basis.

Patients who were offered acupuncture but had either not made a request for referral to a hospital department or had already been referred and were awaiting surgery were included in the survey as a cost, since they had received acupuncture during the relevant period, but no referral saving was recorded since none was made. However, if a planned procedure (e.g. surgery or injection) was avoided through the use of acupuncture, this was counted as a saving.

Results

A total of 65 patients (average age 48.9 years) were originally treated. This included 5 that were lost to follow up, having left the practice. Of the 60 remaining in the study, 12 were male and 48 female, with an average age of 50.3 years. There were 46 successful courses of acupuncture treatment (including the patient with a score of 5 referred to above) and 14 failures, giving a 76.6% success rate. The average number of invoiced treatments per patient was 4.1, including visits for final assessment at some of which no further therapy was thought advisable. The average response rating as measured by the patient scale was 7.6. The total acupuncture cost was £10,943 and the total cost of presumed referrals was £26,783. The average acupuncture cost was £182 per patient and the average expected referral cost was £446. When the cost of actual referrals required for the acupuncture failures and others was added to the cost of the acupuncture, a minimum total saving for all 60 patients of £13,916 was determined, giving an average saving per patient of £232 (Table 1). These figures include savings on an estimate of £5,858 for one booked knee replacement that was cancelled at the patient's request following improvement with acupuncture.

If we consider only those patients specifically asking for a referral, thus ignoring those to whom acupuncture was offered without request or in whom it was used for palliation, including the patient who was saved a knee replacement (patients number 3,5,7,30,32,37,43 and 47, shown in Table 1 in italics): this gives 52 patients treated, 44 successfully (84.6%). The average number of treatments is marginally reduced to 4.1 and the average success as measured by the patient scale improves to 8.1. The total acupuncture cost is £9,417 with an almost identical average cost per patient of £181. The total projected cost of the requested referrals is £20,444 giving an average of £393. The total saving is then £9,103 with the average per patient being £175.

Discussion

Two facts need to be emphasised when considering the results. First: this is not a controlled trial, but a cost comparison through gross financial analysis of each case. The projected referral costs are those that would have been incurred had the author been unable to offer acupuncture treatment. It is quite possible that other GPs might have recommended other treatments or referrals, however the author has stated his own, preferred, course of action in each case, so that the individual saving is real.

Table 1

DETAILS OF PATIENTS TREATED WITH ACUPUNCTURE AND ESTIMATE OF SAVINGS MADE

No	Sex	Age	Condition	History	Rating	Sessions	Acup Cost	Requested referral	Estimate	Saving
1	F	89	Daily headache	1y	5	4	£172	Neurology (iv)	£200	£28
2	F	79	Cervical spond	3y	10	3	£129	Orthopaedic	£481	£352
3	F	78	Severe OA knees	10y	3	3	£129	(iii)	£0	-£129
4	F	76	Back + arm Pain	2y	5	3	£138	Physio (vi)	£90	-£48
5	M	74	Severe OA knees	10y	3	4	£172	(iii)	£0	-£172
6	M	71	OA shoulder	1y	9	5	£215	Orthopaedic	£481	£266
7	F	71	OA shoulder	2y	0	5	£215	(iii)	£0	-£215
8	F	71	OA thumb	3y	8	6	£258	Rheumatology	£350	£92
9	F	71	OA knee	5y	9	5	£215	Ortho knee replacement	£481	£266
10	F	68	OA shoulder	3m	4	3	£129	Physio (vi)	£90	-£39
11	F	65	Shoulder pain	18m	7	5	£230	Rheumatology	£350	£120
12	F	65	Shoulder pain	18m	9	6	£276	Rheumatology	£350	£74
13	F	62	Shoulder capsulitis	2w	10	4	£184	Rheumatology	£350	£166
14	M	60	Neck pain	6m	9	4	£172	Orthopaedic	£481	£309
15	M	58	Neck + arm pain	3m	0	3	£138	referred Ortho (vii)	£481	-£138
16	F	57	Low back pain	8m	10	3	£138	Orthopaedic	£481	£343
17	F	57	Low back pain	8m	8	2	£92	recurrence (see 16)	£0	-£92
18	F	56	Cervical spond	2m	9	6	£258	Orthopaedic	£481	£223
19	F	56	Stiff neck	2m	10	1	£43	Physio	£90	£47
20	F	56	Tennis elbow	3m	7	4	£172	Rheumatol Injection	£350	£178
21	F	53	Lumbar spine OA	6m	10	4	£172	Orthopaedic	£481	£309
22	F	52	Neck pain/headache	4w	10	4	£184	Physio	£90	-£94
23	M	51	Cervical spond	10y	10	1	£43	Orthopaedic	£481	£438
24	F	51	Shoulder capsulitis	6m	6	3	£129	referred Ortho (vii)	£481	-£129
25	M	51	Muscular shoulder pain	3m	10	2	£86	Physio	£90	£4
26	F	50	OA shoulder	2y	7	3	£138	Rheumatology	£350	£212
27	F	49	Frozen shoulder	1y	7	9	£387	Rheumatol injection	£725	£338
28	F	49	Frozen shoulder	6m	8	6	£258	Injection cancelled	£375	£117
29	F	49	Severe back pain	10y	10	6	£258	Orthopaedic	£481	£223
30	F	49	Severe back pain	10y	5	6	£258	(iii, v)	£0	-£258
31	F	48	Daily headache	1y	10	13	£559	Neurology	£700	£141
32	F	48	Severe OA knee	5y	9	7	£322	Knee replacement	£5,858	£5,536
33	F	47	Elbow tendinitis	6m	7	6	£258	Physio	£90	-£168
34	F	47	Elbow tendinitis	2m	8	5	£230	Rheumatology	£350	£120
35	M	47	Biceps tendinitis	1y	5	3	£129	Rheumatol injection	£350	£221
36	F	46	Cervical spond	2y	10	3	£138	Orthopaedic	£481	£343
37	F	46	Awaiting spinal fusion	5y	5	6	£258	Not relevant (iii)	£0	-£258
38	F	45	Cx spond/OA shoulder	4y	10	4	£184	Rheumatology	£350	£166
39	F	44	Cervical spond	2y	7	3	£129	Orthopaedic	£481	£352
40	F	40	Painful shoulder	1y	8	4	£172	Rheumatology	£350	£178
41	F	40	Recurrent headache	18m	9	5	£215	Neurology	£700	£485
42	F	40	Caesarian scar pain	2w	10	3	£138	Scar revision	£772	£634
43	M	40	Injured shoulder	6m	1	3	£129	Orthopaedic (iii)	£481	£352
44	F	40	Golfers elbow	1m	10	2	£92	Rheumatology	£350	£258
45	F	40	Shoulder capsulitis	1m	10	3	£138	Rheumatology	£350	£212
46	M	39	Frozen shoulder	4m	10	4	£172	Rheumatol injection	£350	£178
47	F	38	Pain in side	3y	8	1	£43	Not relevant (ii,iii)	£0	-£43
48	F	37	Cervical spond	9y	5	3	£138	referred Ortho (vii)	£481	-£138
49	F	37	Daily headache	5y	10	4	£172	Neurology	£400	£228
50	F	37	Tennis elbow	6m	9	4	£172	Rheumatology	£350	£178
51	F	37	Scar pain	3m	8	3	£138	Scar revision (i)	£772	£634
52	F	36	Whiplash/headache	6m	9	3	£138	Orthopaedic	£481	£343
53	F	35	Migraine	15y	10	2	£86	Neurology	£300	£214
54	F	35	Back/headache	5y	0	5	£230	referred Ortho (vii)	£481	-£230
55	M	34	Neck + shoulder pain	6m	8	3	£129	Physio	£90	-£39
56	F	33	Painful wrist	8m	0	1	£46	Rheumatology (vi)	£350	£304
57	M	32	Whiplash	3w	10	4	£172	Orthopaedic	£481	£309
58	M	32	Low back pain	2m	10	4	£184	Orthopaedic	£481	£297
59	F	29	Shoulder + back pain	6m	9	9	£414	Orthopaedic	£481	£67
60	F	27	Whiplash	6m	10	5	£230	Orthopaedic	£481	£251
Totals							£10,943		£26,783	£13,916
Average		50.3			7.6	4.1	£182		£446	£232
SD		14.2			3.0	2.1	£90		£739	£727
Median		49			9	4	£172		£350	£178
IQ Range		18			3	2	£101		£206	£344

i. "Surround the dragon" technique used.

ii. Single temporary pain relief for splenomegaly due to sarcoidosis.

iii. Referral not requested prior to acupuncture being offered.

iv. Counted as success as patient satisfied with result.

v. Ceased therapy mid-course due to family problems.

vi. Decided against referral following acupuncture.

vii. Referral still required after acupuncture.

Italic listing = acupuncture for palliation or not requested.

Secondly: the patients were highly selected, as he offered acupuncture only to those patients he felt would benefit, and not all of them accepted the offer. No figures are quoted for those not offered acupuncture or declining it, as there was no cost implication for these patients.

Some assumptions have had to be made when working out the costing. It is not usually possible to assess whether an orthopaedic or rheumatological referral would have led to any treatment procedure such as joint injection, manipulation, or even joint replacement, therefore no allowance has been made for these, neither has allowance been made for any subsequent consultant referral to physiotherapy. Thus there are likely to be further, hidden savings beyond those documented. Similarly no attempt has been made to deduce savings, either present or future, of anti-inflammatory or analgesic prescriptions. Neither has there been any attempt to calculate cost consequences resulting from the acupuncture treatment being available almost immediately rather than patients being placed on usually long, hospital out-patient waiting lists.

It will be noted from *Table 1* that the savings made are not equal to the difference between estimated referral cost and acupuncture cost, since in some cases there is a negative figure in the *Saving* column. The reasons for this are that patients who had had acupuncture that proved ineffective were then offered the referral they had originally requested and would have had if acupuncture had not been available. The acupuncture was therefore a cost additional to the referral, and appears in the table as a net cost. Also, two patients (numbers 37 and 47) had acupuncture for palliation of symptoms prior to pre-booked surgery, and in four cases acupuncture was offered when referral had not been requested: hence in all these cases the acupuncture has been counted as an expense not balanced by a referral saving.

Considerable savings were made from one patient (number 32), being the only one for whom a procedure saving has been claimed. Following her acupuncture treatment she was taken off the waiting list for a total knee replacement at her own request, and at the time of writing, nine months later, has not asked for reinstatement, although she has consulted on a number of occasions regarding other health matters. No referral saving has been made for this patient, as she was already under the care of the orthopaedic surgeons. Additionally, patient number 9 would almost certainly have had a total knee replacement had she been referred instead of receiving acupuncture, but as she had not previously been put on the waiting list for this it

could not be claimed as a saving without specialist confirmation.

In the *Results* section two sets of figures have been computed, one for all patients treated with acupuncture over the period surveyed, and a second excluding those who had not requested referral or who were receiving palliative treatment while awaiting surgery. The author regards the former as giving the definitive figures for this study as it demonstrates accurately what actually happened in his general practice surgery.

Conclusion

Medical acupuncture given by an appropriately qualified practitioner appears to be a cost-effective treatment for pain (especially that of musculo-skeletal problems) for selected patients in general practice: specifically when analgesic and non-steroidal anti-inflammatory drugs have not proved sufficiently effective and the patient is requesting hospital referral. In this review of 65 patients from one practice a minimum of £13,916 was saved in a little over 18 months, with probable additional hidden savings.

Steven Lindall MB BS DCH

*Penrhyn Surgery, 2a Penrhyn Avenue
Walthamstow, London E17 5DB (UK)*

Email: stevenlindall@doctors.org.uk

References

1. White A. Economic evaluation of acupuncture. *Acupuncture in Medicine* 1996; **14**(2): 109-13.
2. Myers CP. Acupuncture in general practice: effect on drug expenditure. *Acupuncture in Medicine* 1991; **9**(2): 71-2.
3. Christensen BV, Iuhl IU, Vilbek H, Bulow H-H, Dreijer NC, Rasmussen HF. Acupuncture treatment of severe knee osteoarthritis: a long term study. *Acta Anaesthesiologica Scandinavica* 1992; **36**: 519-25.
4. Chilton SA. Low cost treatment of leg ulcers. *Acupuncture in Medicine* 1993; **11**(1): 48-9.
5. Downey PO. Acupuncture in the normal general practice consultation: an assessment of clinical and cost effectiveness. *Acupuncture in Medicine* 1995; **13**(1): 45-7.
6. Johansson BB. Acupuncture in stroke rehabilitation. *Acupuncture in Medicine* 1995; **13**(2): 81-4.



The BMAS runs Basic Acupuncture Courses for

DENTISTS

*Covering Practical and Theoretical aspects of
the Dental use of Acupuncture*

The Introductory Courses will be held twice a year.

Those for the forthcoming year will be in:

London: March 25th - 26th 2000

Sheffield: September 30th - October 1st 2000

Details from: BMAS Administrator,

Newton House, Newton Lane, Lower Whitley, Warrington, Cheshire WA4 4JA

Telephone 01925 730727 Fax 01925 730492

E-mail: Bmasadmin@aol.com Web: www.medical-acupuncture.co.uk