

Does acupuncture improve symptoms in patients with osteoarthritis who are awaiting knee replacement surgery?

Original article Williamson L *et al.* (2007) Severe knee osteoarthritis: a randomized controlled trial of acupuncture, physiotherapy (supervised exercise) and standard management for patients awaiting knee replacement. *Rheumatology (Oxford)* 46: 1445–1449

SYNOPSIS

KEYWORDS acupuncture, joint replacement, knee pain, osteoarthritis, physiotherapy

BACKGROUND

Preoperative therapy for pain and function can improve postoperative outcomes for patients with knee osteoarthritis (OA).

OBJECTIVE

To compare the effects of acupuncture and physiotherapy on function and pain in patients with severe osteoarthritic knee pain awaiting knee replacement surgery.

DESIGN AND INTERVENTION

This UK-based, blind-assessment, three-arm, randomized controlled trial took place between September 2004 and March 2006. Patients on the waiting list for knee surgery, including patients with OA, patients with unilateral or bilateral knee pain, and patients experiencing pain for more than 3 months, were invited to take part in the study. Patients were excluded if they had rheumatoid arthritis, ipsilateral OA of the hip, back pain associated with referred leg pain, psoriasis or other skin disease in the region of the knee; patients were also excluded if they were taking anticoagulants, had received an intra-articular steroid injection <2 months before enrolment or if they had undergone acupuncture or physiotherapy treatment during the previous year. Nonstratified, computerized block randomization was used to allocate patients into acupuncture, physiotherapy and standard management groups. The physiotherapy and acupuncture groups attended their respective treatment sessions once a week for 6 weeks. The control group was standardized by following advice from a

home exercise leaflet. Patients were assessed at baseline, week 7, week 12 and 3 months after knee arthroplasty.

OUTCOME MEASURES

The main outcome measures were the Oxford Knee Score (OKS) questionnaire, 50 m timed walk and postoperative length of hospital stay.

RESULTS

A total of 181 patients awaiting knee arthroplasty were included in the study; 61 were allocated to the standard management (control) group, and 60 patients apiece were assigned to the physiotherapy and acupuncture groups. BMI, sex ratio and age were similar at baseline for all three groups. Assessments at week 7 and week 12 were performed in 161 (89%) and 120 (66%) patients respectively. Participant dropout during this period was attributed to social or medical reasons preventing patient attendance ($n=20$) or patients being unhappy with their treatment allocation ($n=23$). Assessments at 3 months postoperatively were performed in 69 (38%) of patients. Surgery withdrawal or delay, patient nonattendance owing to other hospital appointments, and inability to contact some patients accounted for the large number of dropouts at this stage. At week 7, mean OKS was lower in patients receiving acupuncture than in patients receiving physiotherapy (36.8 ± 7.20 versus 39.2 ± 8.22), and significantly lower than the control group (36.8 ± 7.20 versus 40.3 ± 8.48 , $P=0.0497$). At 12 weeks the differences in OKS were no longer significant ($P=0.156$). Mean postoperative hospital stay was 1 day shorter for the physiotherapy group compared with the acupuncture group (6.5 days versus 7.77 days), although this was not statistically significant.

CONCLUSION

Short-term reduction in OKS for patients with knee OA awaiting joint replacement surgery can be achieved with acupuncture therapy.

COMMENTARY

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Current estimates indicate that 26.9 million adults have clinical OA.¹ Joint replacement surgery is considered for adults with knee OA when pain and disability persist, despite maximal conservative management.² Williamson and colleagues have reported that acupuncture resulted in significant improvements in pain and function in adults aged 60–80 years awaiting knee replacement surgery when added to conventional management. The results imply that acupuncture should be considered as a part of conventional OA management for patients with the most severe form of disease. Although of modest benefit, which is also often observed with sham treatment in other studies, existing literature suggests that pain relief can be achieved safely with acupuncture, when practiced by licensed acupuncturists using clean technique and disposable needles.³ The therapeutic gains observed with sham treatment in other studies are worthy of discussion. Specifically, an understanding of the mechanisms by which these benefits are achieved warrant further study to resolve definitively whether acupuncture's benefits are grounded in neurophysiology or merely a "powerful placebo" effect.³ The preoperative and perioperative setting seems to be ideal for conducting such studies, since preoperative pain and function are critical determinants of recovery following joint replacement.² The importance of effective preoperative therapeutics cannot be overemphasized.

Contrary to predictions, several studies, including this one, have found no benefits associated with preoperative physiotherapy. That patients such as those included in the Williamson study might have difficulty participating in physiotherapy to the extent required to benefit from this intervention is unsurprising. Unfortunately, preoperative combination therapy of acupuncture and physiotherapy was not examined in this study; future studies should address whether this combination, administered either concomitantly or with physiotherapy after the initiation of acupuncture, is of benefit to patients with OA who are awaiting knee replacement surgery.

It is time to translate findings such as these into clinical practice, thereby fostering the practice of evidence-based OA management and assessing the clinical effectiveness of new interventions.

First, we should clearly define which interventions should be considered for which patients. The participants in the Williamson study were 60–80 years of age and considered to be "surgical candidates". The patients in this study are assumed to have endured disabling symptoms despite maximal management, but were also healthy enough to be considered for elective surgery. Criteria for OA severity and surgical candidacy should be clearly defined.⁴ Although potentially useful, the findings of this study should not be generalized to older and more medically complex patients with disabling OA; the associated risks make elective knee replacement surgery untenable for these patients. Second, we should clearly define response criteria. Most of the standardized measures that are recommended by the Osteoarthritis Research Society International standing committee⁵ and used in clinical trials provide clinically relevant information on pain, function and patient's global assessment; these standardized measures could be integrated into patient management schemas. Third, we should systematically assess comorbid illnesses that might complicate medical and rehabilitative management and increase surgical risks.⁶ Easy and free access to these described assessment tools could be available through internet-based systems, which could also lead to the development of regional, national and international registries and databases amenable to analysis for clinical and cost-based assessments.

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Competing interests

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PRACTICE POINT

When added to conventional management, acupuncture can improve pain and function in patients with osteoarthritis awaiting knee replacement surgery