Complementary Therapies in Medicine (2013) 21, 535—556

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Acupuncture for lumbar spinal stenosis: A systematic review and meta-analysis☆

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Received 23 February 2013 ; received in revised form 13 July 2013; accepted 11 August 2013
Available online 20 August 2013

KEYWORDS
Acupuncture;
Lumbar spinal stenosis;
Systematic review;
Complementary and alternative medicine

Summary
Objectives: Lumbar spinal stenosis (LSS) negatively affects patients' quality of life. No systematic review evaluating the effects and safety of acupuncture for this population is available. We aimed to evaluate evidence indicating the effectiveness and safety of acupuncture for LSS.
Methods: We searched five English-language databases (EMBASE, MEDLINE, CENTRAL, CINAHL, and AMED) and one Chinese database (CAJ) for randomised controlled trials (RCTs) and non-randomised controlled clinical trials (CCTs) of needle acupuncture for LSS. CCTs were analyzed only in terms of safety and intervention-related information.
Results: Six RCTs ($n = 582$) and six CCTs, which were all from China and reported in Chinese, were included. High or uncertain risk of bias and clinical heterogeneity due to different acupuncture techniques were observed. All RCTs compared different combinations or techniques of acupuncture. None of the included studies mentioned safety issues. Acupuncture combined with other interventions and/or with additional stimulation increased the number of improved patients compared with acupuncture alone or relatively simpler stimulation ($n = 582$; relative risk, 1.16; 95% confidence interval 1.08—1.25). Pain intensity, overall symptoms, and functional outcomes related to LSS and quality of life showed significantly favourable improvement in the treatment group compared with the control group, which lasted for up to 6 months post-treatment.

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0965-2299/$ — see front matter
http://dx.doi.org/10.1016/j.ctim.2013.08.007

Conclusions: We found no conclusive evidence of the effectiveness and safety of acupuncture for LSS because of high or uncertain risk of bias and the limited generalisability of the included studies. Future trials using rigorous methodology, appropriate comparisons and clinically relevant outcomes should be conducted.

Contents

Introduction

Degenerative lumbar spinal stenosis (LSS) is a chronic condition characterised by anatomical narrowing of the spinal canal, debilitating symptoms (pain and/or numbness in the back and legs, neurogenic claudication, postural exacerbation or palliation of pain/numbness), limited daily function, and impaired quality of life.[1,2] LSS is considered to be the leading cause of spinal surgery among elderly patients over 65 in the U.S.[3] A recent population-based study revealed that diagnosed LSS is associated with a substantial burden of illness and that there is a need to manage the associated pain and ambulation deficits experienced by patients with LSS.[4]

A series of conservative treatments for LSS, including non-steroidal anti-inflammatory drugs (NSAIDs), physical treatments, exercises, and epidural steroid injections, is available. However, the long-term use of NSAIDs, which are often present in the management of LSS patients, may be associated with an increased risk of cardiovascular and gastrointestinal events. Frequent local steroid injection at epidural, deep paravertebral, and facet joints may increase risk of infection.[2] Overall, most conservative treatments are not founded on firm clinical evidence and have their own adverse effects, despite the treatments' prioritised role in the non-surgical management of patients with LSS.[2,5,6] When conservative treatments over 3–6 months do not work well in symptomatic LSS, surgical interventions can be considered as a feasible treatment option.[7] However, in one study, patient satisfaction between surgical and non-surgical interventions were similar at a 10-year follow-up, suggesting shared decision-making and the incorporation of individual patients' preferences when deciding treatment intervention.[8]

Acupuncture is commonly used for managing low back pain or other chronic pain.[9–11] One small survey revealed that acupuncture was one of the most preferred treatment options of physical therapists for LSS in Canada.[12] The willingness of patients with low back pain to continue acupuncture treatments has been observed, which may reflect a possible preference for acupuncture in patients with spinal disorders.[13,14] However, little reliable information regarding the role of acupuncture in managing patients with LSS is available. Given the patients' possible preference for acupuncture to treat spinal disorders, assessing the evidence of acupuncture for patients with LSS may be timely and relevant. Therefore, this study aimed to systematically evaluate current evidence of the effects and safety of acupuncture in patients with LSS.

Materials and methods

Search and study selection

An electronic search was conducted in five English-language databases and a Chinese database (see Table 1 for searched databases and search terms). There were no language restrictions in the study. We did not confine the search term to randomised controlled trials (RCTs) due to an expected scarcity of studies related to this topic. Clinical trials that had a comparator group but did not randomise patient