

Acupuncture for low back pain

Health technology description

Acupuncture is among the most popular of all complementary or alternative therapies. Acupuncture has been used to refer to a variety of different procedures and techniques which involve the stimulation of anatomical points on the body¹. For this Evidence Note, it is defined as the insertion of solid needles into the body for therapy or maintenance of health. Two main streams of acupuncture are practised in the UK: traditional Chinese acupuncture and Western medical acupuncture². Traditional Chinese acupuncture is based on a theory that any manifestation of disease is a sign of disturbance or imbalance between the Yin and Yang forces within the body. After a Chinese medicine assessment and diagnosis, needles are inserted in specific acupuncture points which lie under the skin on invisible channels called meridians, to alter the energy flow (known as 'qi') and restore balance². Western medical acupuncture is based on Western style diagnosis². The locations of needling are selected according to principles of neurophysiology and these need not be the points defined in the traditional model.

A typical acupuncture session lasts 20-40 minutes. The number of needles inserted and the time they are kept in place vary between individual patients and practitioners. Needles are usually stimulated by hand during the session¹. Adjuncts such as electrical acupuncture (connecting an electrical stimulator to the needle) and moxibustion (burning mugwort herb at the end of needles or near acupuncture points) are used by some practitioners¹. The practice of acupuncture is not statutorily regulated in the UK, although regulation through the Health Professions Council by 2011 has been suggested³. Major organisations that currently accredit and/or provide training courses and maintain registration of qualified practitioners are listed in an information pack on complementary medicine published by the UK Department of Health².

Key points

- There is insufficient evidence to conclude whether acupuncture is effective or cost-effective for acute low back pain (LBP).
- Acupuncture is more effective than no treatment and sham acupuncture in the short-term for pain relief in chronic LBP.
- Adding acupuncture to usual care (or specific treatment) is more effective than usual care (or specific treatment) alone for chronic LBP.
- Two economic evaluations suggest adding acupuncture to usual care is cost-effective compared to usual care alone for subacute and chronic LBP.
- Evidence directly comparing the effectiveness of acupuncture to other therapies in chronic LBP is limited and evidence for their relative cost-effectiveness is lacking.

Epidemiology

Low back pain (LBP) is defined as pain and discomfort, localised between the coastal margin (bottom of ribs) and above the inferior gluteal folds (top of legs), with or without related leg pain⁴. It is a major health problem and cause of medical expenses, absenteeism and disability⁵. In 1998 40% of the adult population in Britain experienced back pain lasting more than one day in the previous 12 months⁶. A 2001 survey in Scotland reported a similar figure⁷. Point prevalence of LBP in the UK adult population is 14-19% and lifetime prevalence is approximately 60%⁸. LBP is classified as acute (lasting less than 6 weeks), subacute (between 6 weeks to 3 months) and chronic (longer than 3 months)⁷. However, the actual time-course of the condition has been described as '*an untidy pattern of grumbling*'

*symptoms and periods of relative freedom from pain and disability interspersed with acute episodes, exacerbations, and recurrence*⁹.

After a first episode, about 62% of patients still experience pain after 12 months and about 33% have relapse of work absence¹⁰. LBP is also classified as 'specific' (those with specific causes such as infections, rheumatic diseases, cancer or involving nerve root) and 'non-specific' (not attributable to specific pathology)¹¹. The latter, which constitutes the vast majority of LBP, is the focus of this Note.

The European Commission launched the COST B13 program in 1999 to formulate evidence-based guidelines for the prevention, diagnosis, and treatment of non-specific LBP⁴. Acupuncture was not considered in the guidelines for acute LBP¹¹. The guidelines for chronic LBP (search up to 2004) stated acupuncture '*cannot be recommended*' due to conflicting findings and limited high quality evidence⁴. The National Institute for Health and Clinical Excellence is currently developing guidelines for the management of chronic non-specific LBP (due May 2009).

Clinical effectiveness

Many systematic reviews on this topic have been published. This section summarises findings from the most recent reviews that have adopted sound methodology, supplemented by key evidence from randomised controlled trials (RCTs) subsequently published or in progress.

Acupuncture for acute LBP was assessed in two systematic reviews^{12,13}. Both concluded that no firm conclusion can be drawn due to the relative small sample size of the trials, different controls used and low methodological quality for some of the studies^{12,13}. One ongoing trial was identified¹⁴.

Acupuncture for chronic LBP was assessed in three systematic reviews (search to July 2006 in the latest review)^{1,12,13}. All three reviews used criteria recommended by the Cochrane Back Review Group to assess the quality of individual RCTs. Only findings confirmed by at least one high quality RCT are presented below.

Multiple RCTs suggested that acupuncture is more effective than no treatment for immediate (up to one week after the end of treatment sessions) and short-term (one week to three months) pain relief, and immediate functional

improvement^{1,12,13}. Many RCTs used sham acupuncture as a comparator, which usually involved inserting needles at sites inappropriate to the condition being treated and/or at inadequate depth¹³. These trials attempted to separate out specific effects of needling acupuncture points from a placebo effect and/or possible physiological effects of penetrating non-specific points of skin by needles¹³. Some results showed better outcomes with acupuncture compared to sham acupuncture, whilst others showed no difference between them¹. When results from different trials were combined, acupuncture was found to be more effective than sham acupuncture for pain relief in the short-term but not in the longer terms^{12,13}.

Multiple trials consistently showed that the addition of acupuncture to other interventions (including usual care, exercise, physiotherapy and orthopaedic) was more effective than the other interventions alone for pain relief and functional improvement up to intermediate term (three months to one year)¹. The most relevant was a high quality UK trial which randomised patients with subacute or chronic LBP recruited by general practitioners to receive up to ten sessions of traditional Chinese acupuncture delivered by private clinics or usual care only¹⁵. There was significant benefit in pain relief in favour of acupuncture plus usual care at two years. The benefit was however not significant at 12 months and no difference was found in other measures of general health or function throughout follow-up¹⁵. One ongoing trial is comparing the addition of individualised or standardised acupuncture to usual care¹⁶.

Overall the evidence directly comparing acupuncture to other specific treatment is limited and inconclusive^{12,13}. Acupuncture and sham acupuncture were found to be more effective than a guideline-based multimodal treatment program in a recent large German trial in patients with chronic LBP (mean duration eight years)¹⁷. Other trials have found no difference against self-care education; inconsistent results against transcutaneous electrical nerve stimulation (TENS); and to be less effective against spinal manipulation and massage^{1,12,13}. The generalisability of the results of these studies may be limited by selection of specific subgroups of chronic LBP, non-UK settings and/or other methodological issues.

Safety

Minor adverse effects reported in acupuncture trials of LBP include worsening of LBP, tiredness, drowsiness, lightheadedness, dizziness, local bleeding, and bruising¹. No adverse effects resulted in death, permanent disability or hospitalisation. Other systematic reviews and prospective studies (not specific to LBP) confirmed that adverse events associated with acupuncture are generally minor, but also highlighted that serious adverse events, albeit very rare, have been reported in the literature^{12,18}. These include puncture of the lung and other internal organs, spinal cord injury and hepatitis B, among others^{12,18}. The risk of transmitting infectious diseases is greatly reduced by the use of sterile, disposable needles.

Economic implications

Back pain is the fifth most common condition requiring primary care consultation in Scotland, with 6% of the population estimated to visit a GP in any one year¹⁹. In addition, it is estimated that during a year various proportions of patients suffering from back pain also visit outpatient clinics (10%), allied health professionals including physiotherapists (9%), osteopaths (5%), chiropractor (2%) and other specialists such as acupuncturists and occupational therapists⁵. The total NHS costs for back pain in the UK in 1998 were estimated at £974 million⁵.

A US trial compared patient choice of complementary therapies (massage, chiropractic or acupuncture) plus usual care to usual care alone in patients with acute LBP²⁰. It found that access to complementary therapies was associated with higher cost, greater patient satisfaction, but no significant symptomatic relief or functional improvement. The aforementioned UK trial for subacute and chronic LBP reported that traditional acupuncture service added to usual care was cost-effective compared to usual care at 24 months; the estimated cost per quality-adjusted life year gained from the NHS perspective was £4,241 (95% confidence interval £191 to £28,026) in primary analysis and the estimate appears to be robust in sensitivity analyses¹⁵. A German study of larger sample size and shorter duration reported similar findings²¹.

Equality & Diversity

NHS QIS is committed to equality and diversity in respect of the six equality groups defined by age, disability, gender, race, religion/belief and sexual orientation. The Evidence Note process has been assessed, and no adverse impact across any of these groups is expected. The completed equality and diversity checklist is available on www.nhshealthquality.org.

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