OBSTETRICS

Acupuncture for pelvic and back pain in pregnancy: a systematic review

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The objective of our study was to review the effectiveness of needle acupuncture in treating the common and disabling problem of pelvic and back pain in pregnancy. Two small trials on mixed pelvic/back pain and 1 large high-quality trial on pelvic pain met the inclusion criteria. Acupuncture, as an adjunct to standard treatment, was superior to standard treatment alone and physiotherapy in relieving mixed pelvic/back pain. Women with well-defined pelvic pain had greater relief of pain with a combination of acupuncture and standard treatment, compared to standard treatment alone or stabilizing exercises and standard treatment. We used a narrative synthesis due to significant clinical heterogeneity between trials. Few and minor adverse events were reported. We conclude that limited evidence supports acupuncture use in treating pregnancy-related pelvic and back pain. Additional high-quality trials are needed to test the existing promising evidence for this relatively safe and popular complementary therapy.

Key words: acupuncture, back pain, pelvic pain, pregnancy

Pelvic and back pain are among the most common "minor" complications in pregnancy.[1] Estimates of prevalence of pelvic and back pain in pregnancy range from 24-90%.[2] This difference is most probably due to the use of different definitions, and some experts advocate differentiating pelvic from back pain in pregnancy.[3]

The exact etiology remains unclear[4] and is thought to be related to the interaction between physiological changes in pregnancy and risk factors such as physical work and previous back or pelvic pain.[2,5] The pain can result in significant morbidity. Twenty-five percent of women with pelvic pain in pregnancy will seek medical help for their pain, 8% are severely disabled, and 7% continue to have pain beyond the pregnancy.[6] The majority of women with back pain in pregnancy report disturbed sleep from their pain.[7] Disability often involves simple activities of daily living[8] and can result in significant absenteeism.[9] Back pain in pregnancy also increases the risk of postpartum back pain.[5]

Provision of education, advice, and the prescription of exercise by a physiotherapist appear to be the standard recommendations for treatment.[10] Evidence for the benefits of physical therapies and support belts is inconclusive.[3,11,12] A Cochrane review found that water gymnastics helps reduce sick leave in pregnancy, a specially shaped pillow improves back pain and sleep in late pregnancy, and both acupuncture and physiotherapy may improve pain.[13] Several case reports and 1 retrospective case series have suggested that acupuncture may relieve pelvic and back pain in pregnancy.[14-17]

Complementary and alternative therapies are growing in popularity and are used by more than a third of the US population.[18] They continue to be used during pregnancy,[19] and 60% of women with lower back pain in pregnancy report that they would accept complementary therapies for treatment of their pain.[20]

Acupuncture is used by more than 2 million people in the US annually.[18] It involves stimulation of anatomical locations on the skin (acupoints) by various measures, most commonly by penetration of the skin by metallic needles (needle acupuncture). Acupuncture analgesia involves complex neurohumoral mechanisms involving endogenous opiates and monoamines,[21] with evidence of sustained depression of dorsal horn neurons in the spinal cord.[22] Adverse events are reported to be minimal,[23] and life-threatening events such as pneumothorax are considered rare in the hands of a trained practitioner.[24]

Our aim in this review was to determine whether acupuncture is more effective than "standard treatment," no additional treatment, placebo acupuncture, "sham" acupuncture, or other treatments in the management of pain and disability due to pregnancy-related pelvic and back pain. We chose to include both pelvic and back pain in our review, as many investigators do, because of the ongoing debate and uncertainty regarding etiology and treatment of this problem.

Materials and Methods

We searched the following electronic databases from their inception until July 2006:

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The Cochrane Central Register of Controlled Trials (CENTRAL), National Library for Health Complementary and Alternative Medicine Specialist Library, CINAHL, EMBASE, AMED, and Acubriefs. We searched MEDLINE from its inception until November 2006. Due to funding limitations, we only searched for trials written in or translated into English.

We based our MEDLINE search strategy on the Cochrane highly sensitive search strategy[25] and combined this with specific intervention and disease identifiers. The key MeSH terms and keywords used were "acupuncture," "acupuncture therapy," "electroacupuncture," "Medicine, Chinese traditional," "pregnancy complications," "pregnancy," "peripartum," "prenatal care," "pelvic pain," "back pain," "low back pain," "lumbar back pain," "sacroiliac joint pain," and "symphysis pubis pain."

We attempted to identify unpublished trials by contacting prominent acupuncture researchers in the US, UK, Europe, Australia, and Sweden and by searching reference lists of identified trials. We also searched Computer Retrieval of Information on Scientific Projects (CRISP) and Current Controlled Trials (CCT) for ongoing trials.

Two reviewers independently assessed study eligibility. Our inclusion criteria were randomized controlled trials comparing acupuncture therapy against a control group for pelvic and back pain in pregnancy. We defined acupuncture as needle insertion into acupoints, whether the acupuncture was described as "traditional" Chinese acupuncture, "Western"/segmental/tender point acupuncture, or other. Comparison interventions could be placebo/"sham" acupuncture, no additional treatment, "standard treatment," or any other treatment. Our accepted outcome measures were pain, disability, overall improvement, analgesic use, time off work, and adverse events. We included unpublished trials.

We excluded trials that were quasi-randomized. If the trial had a crossover design, we intended to analyze only the data prior to the crossover. We excluded trials that enrolled women who may have had a nonmusculoskeletal cause for their pain (eg, malignancy, urinary tract infection, obstetric complication). Trials using laser therapy alone without the use of needles were excluded from our review. We included auricular acupuncture trials, but only if this was combined with body acupuncture, and intended to perform a separate analysis for such trials. We postulated that the neurohumoral mechanisms involved in these other therapies may differ from those involved in needle acupuncture; in addition, we noted that most experts would agree that acupuncture by definition involves insertion of needles into the skin.[26,27]

Two reviewers independently extracted data from eligible trials as defined above. We used a modified version of a data extraction spreadsheet that was previously used.[28] Where possible, we extracted baseline, end-of-treatment, and interval data.

We extracted participant data regarding diagnosis, age, gestation, and parity. We also extracted details of acupuncture treatment, including type of acupuncture (Chinese/"Western"/or mixed), acupoints used, frequency and duration of treatment, number of sessions, type of stimulation, and whether or not de qi was obtained (De qi, literally meaning "arrival of energy," is a term used in acupuncture and refers to a sensation of numbness or distension sometimes generated by stimulating acupuncture needles. According to acupuncture theory, activation of de qi may be one indication that acupuncture is exerting its beneficial effects). Details of the control group intervention and cointerventions were also extracted. We attempted to contact the chief investigators for missing trial data.

Trial quality was assessed by 2 independent reviewers according to 2 scales. The first scale used was a modified Jadad scale assessing adequacy and reporting of the randomization method, participant blinding, testing of participant blinding after treatment, and reporting of dropouts and withdrawals. We regarded a score of 2 points or less out of a total of 5 points as indicating a poor quality trial.

The second scale used was modified from Cochrane Back Review Group criteria[29] (Table 1). We added criteria for adequate acupuncture treatment[30] and adequate sample size calculation. Both reviewers are practicing acupuncturists. We regarded a score of 5 or less out of a total of 12 points as indicating a poor quality trial.

We intended to combine data, if sufficient data were available, in a metaanalysis using Cochrane Review Manager software (RevMan software, version 4.2, Nordic Cochrane Centre, Copenhagen, Denmark), first performing chi-square testing to assess heterogeneity. We intended to use a random effects model if significant statistical heterogeneity ($P < .1$) was found. Alternatively, we planned to use a narrative synthesis if significant

TABLE 1
Modified Cochrane Back Review Group (BRG) criteria for methodological quality assessment of randomized, controlled trials

1. Was the method of randomization adequate?
2. Was allocation concealment adequate?
3. Was an appropriate sample size calculation used to ensure adequate power to detect significant differences due to treatment?
4. Were participants blinded to intervention?
5. Were caregivers blinded to intervention?
6. Were cointerventions avoided or similar?
7. Were cointerventions reported for each group separately?
8. Was the acupuncture treatment adequate?
9. Was the withdrawal and dropout rate described and acceptable?
10. Did the analysis include an intention-to-treat analysis?
11. Was the outcome assessor blinded to the intervention received?
12. Was the timing of outcome assessment in both groups similar?

Details of operationalization available from the authors upon request.

Ee. Acupuncture in treating pelvic and back pain in pregnancy. Am J Obstet Gynecol 2008.