



Acupressure for inducing labour for nulliparous women with post-dates pregnancy



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ABSTRACT

Objective: To compare the efficacy of acupressure for induction of labour for nulliparous women with a post-dates pregnancy.

Design: A single-blind randomised trial.

Setting: Antenatal and labour ward of a UK district general hospital.

Participants: One hundred and thirty two women requiring induction of labour with a post-dates pregnancy (>41 weeks gestation) with no significant medical, obstetric or fetal condition.

Method: Acupressure: 20 intermittent presses to stimulate each pair of acupressure points; (Large Intestine 4, followed by Spleen 6) or 'Sham' treatment: 20 intermittent presses to the patella and then to the olecranon.

Main outcome measures: Treatment-to-commencement of labour interval.

Secondary outcome measures: Requirements for oxytocin, mode of delivery, duration of labour, requirement for pre-labour Caesarean section, presence of meconium, neonatal intensive care admission, 5 min Apgar scores, and evaluation of maternal satisfaction.

Results: There were no significant differences between the two groups in treatment-to-commencement of labour interval, requirements for oxytocin or mode of delivery. Fewer inductions of labour were required in the sham treatment group ($p = 0.004$ CI 1–35). The incidence of meconium-stained liquor, and neonatal outcomes were similar for both groups.

Conclusions: Acupressure performed at 41 weeks gestation in nulliparous women does not appear to be effective for inducing labour for post-dates pregnancy.

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1. Introduction

1.1. Background

Induction of labour is a common procedure that is performed in around 20% of pregnancies in developed countries [1]. It is indicated when interrupting the pregnancy is thought to be advantageous for the mother or baby and is often carried out for post-date pregnancies (>41 completed weeks of pregnancy), where it has been shown to decrease perinatal mortality and morbidity [2]. Induction of labour is not without risks and carries an increased prevalence of

other interventions which impact upon both maternal and fetal morbidity, such as an increased rate of Caesarean section, increased incidence of operative delivery and increased use of epidural analgesia [3]. It can also have a negative impact on the birth experience of women, especially as a labour that is induced is generally perceived as being more painful than spontaneous labour.

During the last decade, many women have resorted to using natural methods such as complementary therapies and herbal remedies in an effort to reduce medical intervention [4]. Unfortunately, most therapies have little robust evidence-base to prove efficacy or safety, although this is slowly changing as the interest in complementary medicine grows. However, acupressure and acupuncture have been found to have some possible limited efficacy for managing pain in labour and birth [5,6] and some midwives and women believe it may also have some application for inducing labour in post-term pregnancy [7], which could

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potentially avoid the use of pharmacological or mechanical means.

Acupuncture and acupressure are components of traditional Chinese medicine, in which it is believed that the human body has a complex series of channels (meridians) running throughout the body. These channels carry the individual's energy or "life force", connecting one part to another to make the whole. When the person is in optimum health, energy flows along the channels without any impediment, but disease, disorder, stress or physiological changes (such as pregnancy and birth) may interfere with the energy, causing blockages, deficiencies or excesses at certain points. Acupuncture (needling) or acupressure (thumb pressure) are intended to apply the necessary stimulation or sedation to correct these energy imbalances.

Certain specific acupressure points are considered to be contraindicated during pregnancy as they are known to trigger uterine contractions when stimulated and should not be used prior to 37 weeks' gestation. Spleen 6 (Sp6) is a point located on the medial aspect of the lower leg, approximately three finger-breadths above the medial malleolus, in a depression just behind the tibia. Its general function is to promote wellbeing of the stomach and spleen, to regulate the uterus and to promote cervical ripening towards the end of pregnancy. Spleen 6 stimulation can also be used to aid progress in labour and for retained placenta. The Large Intestine 4 (LI4) acupressure point is found on the dorsum of the hand, between the first and second metacarpal bones, at the mid-point of the second metacarpal bone, close to the border of the radius. The function of LI4 is to aid circulation and the flow of the energy along the channels, and to re-balance the energies throughout the body. In Chinese medicine, Sp6 and LI4 are often used to stimulate labour contractions, although several other points may be added to the treatment, depending on the wellbeing of the individual mother. The intention is to aid cervical ripening, ease maternal anxiety and fear so that oxytocin levels can normalise and some points are used to aid descent of the fetal head into the bony pelvis. In the UK, many acupuncturists and midwife-acupuncturists advocate an initial treatment by the practitioner, followed by self-administration of acupressure stimulation to selected points by the mother at home.

An extensive literature search found limited quality western research in mainstream healthcare journals or databases relating to acupuncture/acupressure stimulation for labour induction. It is known that there are more papers available in acupuncture research and Chinese medicine databases but it was not possible to access these for the purpose of this review. There are anecdotal reports of apparently successful acupuncture inductions, including several in non-English language journals, and general papers on post-dates pregnancy often cite acupuncture, acupressure or shiatsu as effective means of triggering labour onset [8,9].

There is, however, little standardisation of methodology between the studies found. Papers from the 1970s are merely extended case studies [10–12]. Most of the more recent studies are randomised controlled trials but the nature of the control intervention varies from normal care to sham acupuncture [13–15]. This may be either needling of false points [16] or, more commonly, false needling of the appropriate points [17–19]. One study used acupuncture in combination with oxytocin versus an oxytocin-only control group [20] and another compared acupuncture with misoprostol²¹.

The gestation at which acupuncture point stimulation was applied varied from 41 or more weeks [19], to 40 weeks [18,22] and even 38 weeks [16,17], the earlier treatment intended as a means of aiding cervical ripening. Others used acupuncture only in cases of spontaneous membrane rupture with no contractions [23,24], or in the event of a Bishop's score of more than 7 [21].

Most formal studies have focused on stimulation by needling

(acupuncture). Only one study, undertaken by midwives, used thumb pressure on the points, in the form of shiatsu (a modern Japanese therapy similar to acupressure) [25]. Older studies added extra stimulation in the form of electro-acupuncture [10–12], or transcutaneous electrical nerve stimulation applied to the relevant points [19].

The points stimulated also varied between studies, although this may reflect the formulaic approach of western acupuncture versus the more individualised treatment advocated in traditional Chinese medicine. Large Intestine (LI4) and Spleen 6 (SP6) are the most commonly-used points thought to trigger contractions, however some studies have added other points, including Gall Bladder 21 [25], Bladder 67 a point intended to cause downwards movement of the fetal head [12,16] additional Bladder channel points 31,32 and/or 56 [13,14] or Liver 3 [19] and Kidney 1, which may reduce stress hormones to facilitate optimum oxytocin release.

Results have been generally disappointing. Excluding the pre-2000s studies [19,10–12] in which the methodology was not as robust as more recent investigations, only two studies showed statistically significant effectiveness for stimulation of acupuncture points in initiating contractions [18,23], a fact supported by the Cochrane systematic review of acupuncture for inducing labour⁷. It is concluded that evidence at present is limited and that further investigation is required to assess these techniques for clinical meaningful outcomes.

2. Method

A single blinded randomised-controlled study was set up to test the following null hypotheses:

- (1) There is no significant difference in efficacy of acupressure for shortening treatment-to-commencement of labour interval (defined as the onset of regular painful contractions increasing in strength) with a post-term pregnancy (41 completed weeks of pregnancy), compared to placebo acupressure treatment.
- (2) There is no significant difference in clinical outcomes when acupressure is used for shortening treatment-to-commencement of labour interval with a post-dates pregnancy compared to placebo acupressure treatment, including incidence of operative delivery, meconium-stained liquor, Apgar scores at 5 min and admission to the neonatal unit.

Midwives were trained by a midwifery lecturer specialising in complementary medicine to locate and correctly apply pressure stimulation to the two designated acupressure points, Large Intestine 4 (LI4 on the hand) and Spleen 6 (SP6 on the inner lower leg), Midwives delivering treatment were then assessed by the lecturer for competence in locating and stimulating the points.

2.1. Sample size

The sample size was calculated based on showing a difference between the two groups in terms of time to onset of labour from the time of treatment. It is estimated that this outcome will have a standard deviation of 1.75 days, and a difference between groups of 1 day would be of clinical importance. With a 5% significance level and 90% power it was calculated that 65 women per group would be required for the study, a total of 130 women.

The study took place at Maidstone Birth Centre, Maidstone and Tunbridge Wells NHS Trust between July 2012 and September 2014. Approval for the study was obtained from the local Research Ethics Committee.

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