Pre-Labor Acupuncture for Delivery Preparation in Multiparous Women Past Age 40

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ABSTRACT

Background: Pregnancies in women over age 40 have higher risk factors for both the mothers and their babies. Rates of cesarean sections are also increased. Acupuncture has been reported as a treatment that has beneficial effects on pregnancy and delivery. This article describes 2 patients older than age 40, who were pregnant and receiving pre-labor acupuncture treatment to prepare for childbirth at a primary health care clinic that provides basic medical services.

Cases: The first case was a pregnant woman, age 43, who commenced acupuncture treatment at 36 weeks' gestation. The second case was a pregnant woman, age 42, who commenced acupuncture treatment at 39 weeks' gestation. Prior to labor commencing spontaneously, the first woman received acupuncture 6 times and the second woman received acupuncture 2 times. The acupuncture involved manually inserting needles at the LI 4, ST 36, and SP 6 acupoints.

Results: Both patients commenced labor spontaneously and had natural vaginal births at term. The infants were in normal weight ranges and were healthy.

Conclusions: Acupuncture treatment prior to labor was safe and resulted in spontaneous natural vaginal births for 2 women who were more than 40 years old. Further research is required to examine the potential of pre-labor acupuncture to help women achieve natural vaginal births when maternal age is considered a risk factor.

Keywords: pre-labor, acupuncture, delivery, pregnancy over age 40

INTRODUCTION

NORMAL LABOR is an unassisted vaginal birth without induction, an epidural, or general anesthesia.¹ In preparing for normal childbirth, there are a number of things, including maternal factors such as the size of the mother's pelvis, strength of contractions, and psychologic well-being of the mother, and infant factors, such as the position, weight, and general condition of the baby. According to the World Health Organization, ~70%–80% of low-risk women will experience normal labor.²

Biologically, the best age for pregnancy and childbirth is within the age range of 20–30, when a woman's fertility and

health condition are optimal.³ However, currently, the number of women who become pregnant at a later age are increasing. There are various reasons why women become pregnant at more advanced ages, such as; delaying pregnancy due to work or career, divorce, economic uncertainty, fertility care, and having new partners.^{3,4} In Indonesia, 4.1% of total births are included in a single high-risk category, because the ages of the mothers during childbirth was younger than 18. Yet, as many as 3.8% of total births fall into another single high-risk category because the ages of the mothers during childbirth is older than 34.

As maternal age increases, both mothers and babies have increased risks of pregnancy-related complications and

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health problems. Risk factors may occur during pregnancy, labor, and delivery processes.⁵ The risks during pregnancy include diabetes, chronic hypertension, premature rupture of membranes, and fetal deaths. The labor factors are induction, stimulation of birth-augmentation, precipitous childbirth, dysfunctional labor, and excessive bleeding during delivery. The cesarean-section rate is also higher in pregnant women over age 40.^{6,7} Babies also have a higher risk for congenital abnormalities, such as Down's syndrome, and women over age 40 have an increased risk of mild pre-eclampsia, with their fetuses experiencing distress and poor growth.⁸

Acupuncture is a complementary therapy that is used to confer beneficial effects on pregnancy and delivery. For pregnancy, there is some evidence that acupuncture has positive effects, including easing nausea and vomiting,⁹ relieving back pain,¹⁰ reducing insomnia,¹¹ and ameliorating depression.¹² In childbirth and delivery, acupuncture has been reported to be beneficial for inducing labor,¹³ shortening the time of labor,^{13,14} avoiding post-term dates, and reducing postpartum bleeding.^{14,15} Acupuncture has also been cited as an effective tool for cervical ripening and induction of labor.¹⁵ However, the most recent systematic review on the use of acupuncture for induction did not support a beneficial effect for labor induction, although there was some promising evidence related to cervical ripening.¹⁶

Pre-labor acupuncture is the use of acupuncture at 36 weeks' gestation to encourage beneficial preparation for a normal labor.¹⁷ In Indonesia, pregnancies in women older than 40 are considered to be high risk; thus, it is recommended to deliver the baby in a hospital. However, some patients prefer to give birth at a primary health care clinic and express a desire to avoid surgery, such as cesarean section. This article describes pre-labor acupuncture in 2 multiparous pregnant patients older than age 40, both of whom had with previous normal labors at the authors' primary health care clinic, which provides basic medical services.

CASES

Case 1

The patient was a 43-year-old female who was gravida 4, para 2, alive 1. She visited the primary health clinic at 20 weeks' gestation. Her previous labors were normal. The last delivery was 5 years ago. She had no complaints on presentation at the clinic. She had only come because her midwife told her that she had a high-risk pregnancy. This patient expected a spontaneous delivery for her current pregnancy.

Based on anamnesis, physical examination, abdominal examination, and fetus assessment, there were no complications detected. She was advised to have acupuncture as part of her pregnancy management.

Beginning at the 36th week of gestation, acupuncture was applied to ST 36, LI 4, and SP 6. Sterilized stainless-steel needles of 25 mm in length and 0.2 mm in diameter were used. Neither electrostimulation nor ear acupuncture was used. Six needles were utilized. The needles were inserted and twirled manually until De Qi was obtained, which meant that the patient felt a combination of numbness, heaviness, slight soreness, and distension. The treatment was given with the woman in a resting side position, with the needles left in place for ~20 minutes.

One week later, she received this treatment again. She had no complaints; while she had experienced uterus contractions following the first treatment, this had not disturbed her. She also had no problem with sleeping and reported feeling more fresh than before the treatment.

At her 38th week of gestation, acupuncture was given at the same acupoints, twice per week, until 40 weeks' gestation was reached. At this timepoint, the patient's labor commenced. She presented to the clinic reporting uterine contractions together with secretion of her mucous plug or "show."

Obstetric examination showed that her cervix dilatation was 5 cm, and that she was in the active phase of labor. The process was followed by examining her uterine contractions and conducting fetal monitoring every 2 hours. Stage 2 occurred ~3 hours later, and, 10 minutes later, the baby was born spontaneously, crying, weighing 2700 g, with Apgar scores of 8, 10, and 10. This was followed by a complete spontaneous expulsion of the placenta 5 minutes later. The perineum remained intact. The patient's bleeding loss was ~200 mL. No excessive bleeding occurred postpartum.

The mother and baby were moved to room care and, the next day, they were allowed to go home.

Case 2

A 42-year-old woman, gravida 3, para 2, alive 1, visited the clinic at 39 weeks' gestation seeking acupuncture therapy to prepare for her delivery. She had previously had a natural vaginal birth with her last delivery 7 years ago. She asked for acupuncture following a recommendation from her sister who had received acupuncture. This patient expressed a wish that her childbirth would remain normal and comfortable.

Based on anamnesis, physical examination, abdominal examination, and fetus assessment, it was concluded that this patient was healthy and did not have any significant problems with her pregnancy. Her only complaints were that she often felt tired, experienced some back pain, and sometimes had difficulty sleeping.

Acupuncture was used manually at ST 36, SP 6, LI 4, and LV 3 as detailed in the first case, twice per week until this second woman's labor commenced.

Three days after her first treatment, the patient came back for a second treatment. She reported that she felt better, had

slept well, and felt more fresh, compared with before receiving acupuncture. Physical examination of vital signs and her abdomen were within normal range. For this second treatment, acupuncture was applied to ST 36, SP 6, and LI 4.

Three days later, at a gestation age of at 40 weeks and 2 days, the patient presented complaining that her abdomen felt tight and that she had observed secretion of her mucous plug or "show." Obstetric examination revealed that her cervix dilatation was 3 cm and that she was in the active phase of labor.

The process was followed by examining her uterine contractions and conducting fetal monitoring every 2 hours. Stage 2 occurred ~6 hours later. Ten minutes later after that, the baby was born spontaneously, crying, weighing 3200 g, with Apgar scores of 8, 10, and 10. This was followed by complete spontaneous expulsion of the placenta 7 minutes later. The perineum was intact. Her bleeding loss was ~150 mL. No excessive bleeding was observed postpartum.

The mother and baby were moved to room care and, the next day, they were allowed to go home.

RESULTS

As noted in each of these cases, the patients commenced labor spontaneously and had natural vaginal births at term. Both women produced breast milk without any difficulties. The infants were in normal weight ranges and were healthy.

DISCUSSION

Pregnancy and delivery in women over age 40 have higher risk factors; however, with regular prenatal checkups, medical monitoring, and healthy lifestyle management of any pre-existing medical problems, it may be possible for these women to give birth at a perinatal center.⁷ This report documented 2 pregnant women older than age 40 with previous normal deliveries and histories of previous deliveries more than 5 years prior. These women received pre-labor acupuncture between 36 and 39 weeks of gestation until labor commenced spontaneously. The women received therapy either for 2 or 6 times. Eventually, both women gave birth spontaneously, at or near term, to healthy babies, as indicated by their Apgar scores. In additionally, these women had short recovery times, did not experience excessive bleeding, and produced breast milk without any problems.

Pre-labor acupuncture refers to a series of treatments given to help pregnant women prepare for childbirth. In these 2 cases, treatment began at the 36th week of gestation, once per week; treatment frequency was increased to twice per week at the 38th week of gestation until the end of the pregnancies. Treatment involved use of manual acupuncture to SP 6, LI 4, and ST 36.

SP 6 is located on the medial side of the leg, ~4 fingers above the ankle in the depression under the tibia. According to Traditional Chinese Medicine, SP 6 is the meeting point of the 3 Yin channels of the legs (Spleen, Liver, and Kidney). These 3 Yin leg channels dominate menstruation, conception, pregnancy, leucorrhea, and the external genitalia. SP 6 is also an important point for encouraging labor, assisting in cases of transverse presentation, and reducing pain during childbirth.^{14,18} LI 4 is located on the highest spot of the muscle when the thumb and index fingers are brought close together. This point produces strong actions to promote labor too. Because of these strong actions to induce labor, and even promote the expulsion of a dead fetus, LI 4 is considered to have an indication for labor induction.^{14,18} ST 36 is located 1 *cun* lateral to the inferior border of the tibial tuberosity ~1.5 *cun* below the surface of the skin. This point is said to improve circulation in the pelvic organs.¹⁹

As reported here, 2 women over age 40 gave birth vaginally on the day of term or near-term and experienced labor times of ~5–7 hours. The effect of acupuncture on these women cannot be confirmed. However, some researchers have reported that acupuncture can reduce the duration of delivery effectively and strengthen uterine contractions.^{20,21} The mechanism of acupuncture in inducing labor is not clear. It is assumed that needle stimulation at the acupuncture point might activate afferent nerve fibers and affect hormonal changes, and then increase the release of chemical mediators, such as β -endorphin and neurotransmitters from the thalamus, hypothalamus, and anterior pituitary gland.

In other research, a group who received acupuncture therapy needed less oxytocin to stimulate uterine contractions during labor.¹⁴ In addition, acupuncture increases uterine contractility without affecting local active factors, either by central oxytocin or by uterine parasympathetic stimulation. It seems that, when pregnancy approaches term, stimulation of the parasympathetic nervous system will stimulate the uterus, while sympathetic stimulation is stimulating or inhibiting.^{9,14,22}

The clinical process of cervical ripening is characterized by intense changes in the connective tissue of the cervix. After increasing vascularity, water withdrawal, the content of collagen, proteoglycans, and heparin sulfate in connective tissue during pregnancy, the onset of cervical dilation is characterized by enzymatic degradation of the connective tissue of the cervix. This is partially mediated by neutrophil granulocytes that accumulate in the cervix due to interleukin-8 (IL-8) chemotaxis activity. The cervix has the ability to produce large amounts of IL-8. In an experiment, it has been proven that injection of IL-8 locally will cause cervical dilatation.¹⁴ Other factors involved in ripening of the cervix are prostaglandins and β -endorphin. Prostaglandins will continue to increase during labor and play a key role in the initiation and regulation of uterine activity during the birth process. Meanwhile, β -endorphins—secreted

by the pituitary gland, placenta, and various other organs—will increase along with progressive cervical dilation.⁹

Luke and Brown noted that older mothers have increased risks for excessive bleeding.⁵ The 2 current patients gave birth with normal bleeding.

Both women birthed a healthy infants as shown by their Apgar scores. In one study, labor at age 40 had adverse birth outcomes, with lower Apgar scores in the first 5 minutes after birth of <7.²³ That study showed that multiparity over age 40 had the risk of infant complications, requiring intensive care.²³

The 2 women in the current case report also experienced rapid maternal recovery. The day after giving birth, both women were allowed to go home. When returning home, the mothers could take baths unaided and were ready to breastfeed. This is in contrast to a finding from Dietl et al. that reported older women required prolonged stays in hospitals, irrespective of whether delivery was by cesarean section (> 7 days) or by vaginal birth (> 4 days).⁷

This case report had a limitation. The very nature of case reports is that the clinical experiences of only a few patients are presented; this report described 2 cases. It makes the capacity to link cause and effect weak, compared to the ability of a randomized controlled trial. However, case histories are useful for reporting observations and descriptions of clinical practices with patients.

CONCLUSIONS

Although, this report could not be used to conclude that acupuncture helps expedite the process of normal delivery in women older than 40, at least, the report indicated that acupuncture might be safe and cost-efficient. Further research is needed to investigate if pre-labor acupuncture can help women achieve natural vaginal births when maternal age is considered to be a risk factor.

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