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Acupuncture Conversion of Fetal Breech Presentation

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Key Words

Fetal breech presentation · Acupuncture · Perinatal outcome

Abstract

Aim: The aim of this study was to assess the value of acupuncture (AP) in the conversion of fetal breech presentation into vertex presentation. ***Patients and Methods:*** A randomized prospective controlled clinical study included 67 pregnant women with fetal breech presentation: 34 women with singleton pregnancies treated with manual AP (urinary bladder 67, Zhiyin*)* and a control group which included 33 women with singleton pregnancies without AP treatment. The AP treatment lasted 30 min a day, and was conducted during and after 34 weeks of pregnancy with simultaneous cardiotocography. ***Results:*** The success rate of the AP correction of fetal breech presentation is 76.4% (26 women), and spontaneous conversion without AP in vertex presentation is observed in 15 women (45.4%; $p < 0.001$). ***Conclusions:*** We believe that AP correction of fetal malpresentation is a relatively simple, efficacious and inexpensive method associated with a lower percentage of operatively completed deliveries, which definitely reflects in improved parameters of vital and perinatal statistics.

Introduction

Acupuncture (AP), belonging to the traditional Chinese medicine, has also been accepted as a method of healing by the World Health Organization, the National Institutes of Health of the USA, and the British Medical Association [1, 2]. The mechanism of AP in acute and chronic pain syndromes, allergies, addiction and psychosomatic disorders can be explained by the role of central neurotransmitters and modulatory systems that are activated via acupoints (opioid, nonopioid and central sympathetic inhibitory mechanisms). The transmitter or 'information' substances for which research data have established a connection with AP include α-endorphin and β-endorphin, leuenkephalin and metenkephalin, dynorphin A and B, substance P, serotonin, noradrenaline, dopamine, epinephrine, acetylcholine, adrenocorticotropic hormone, glycine, glutamic acid, prostaglandins, and cyclic AMP and GMP [3, 4]. Recent data obtained by the use of functional magnetic resonance imaging suggest that AP has regionally specific, quantifiable effects on relevant brain structures [4].

Clinical indications for AP in obstetrics include prepartal nausea, emesis and hyperemesis gravidarum, correction of fetal malpresentation, prepartal priming, AP tocolysis, peripartal analgosedation, cervical dystocia,

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protracted delivery, postpartal uterine subinvolution, hypogalactia, puerperal obstipation, and atonic urinary bladder [3–6]. Contraindications for AP in obstetrics are intrauterine growth retardation, oligohydramnios of unknown genesis, placenta previa, and abnormal fetal weight [3, 6].

The methods of correction of fetal breech presentation described in recent textbooks include external version, AP, moxibustion, fetal acoustic stimulation, and various unconventional methods such as homeopathy, haptonomy, or yoga [2, 3, 6–8].

The aim of the present study was to assess the value of AP in the conversion of fetal breech presentation into vertex presentation, and to prove that AP reduces the rate of breech presentation at term, and thus the rate of cesarean section required.

Subjects and Methods

A randomized prospective controlled clinical study included 67 pregnant women with ultrasonographically verified fetal breech presentation, who were free from other complications of pregnancy (such as oligohydramnios, intrauterine growth retardation, fetal macrosomia, gestosis, or gestational diabetes), treated at the Department of Gynecology and Obstetrics, Bjelovar Health Center, and at the Department of Obstetrics and Gynecology, Gospić General Hospital, Croatia. The study (AP) group included 34 women with singleton pregnancies treated with manual AP [urinary bladder 67 (UB 67), Zhiyin] points with 'de qi' effect (positive AP phenomenon, i.e. colored skin, and local and general sensation). The control group included 33 women with singleton pregnancies and breech presentation without AP treatment.

AP treatment was performed in semisitting or lateral position, with simultaneous cardiotocography (CTG) recording during the procedure. CTG recording was performed twice daily throughout the hospital stay, i.e. during and after AP treatment at a 12-hour interval.

AP treatment was carried out for 30 min a day, during and after 34 weeks of pregnancy (twice a week). It was discontinued if conversion to vertex presentation was not achieved by week 38 of gestation, or if breech presentation conversion to vertex presentation was achieved irrespective of the week of hospitalization or AP application (34th–37th week of gestation), which was verified by ultrasonography.

During the initial orientation and interview, each woman completed a patient history form containing questions on demography, medical and gynecologic history, psychological make-up, and prior AP treatment. All the women gave their consent for AP treatment after they had been thoroughly informed about the mechanism of AP action, indications, contraindications, and side effects of AP in pregnancy. Acupoints were identified by anatomic palpation according to their classic description. The UB 67 acupoint is located on the lateral side of the little toe, about 0.1 cm posteriorly towards the corner of the nail [9, 10], on both feet. AP treatment was performed by a gynecologist by inserting thin solid sterilized stainless needles until the local 'de qi' effect was obtained. In each woman, AP treatment was always carried out by the same gynecologist.

Perinatal outcome was evaluated as good, poor or lethal on the basis of CTG abnormalities during pregnancy and/or at birth (normal, prepathologic, pathologic); vitality according to the 5-min Apgar score (0–4 = serious asphyxia; 5–7 = asphyxia; 8–10 = normal finding); umbilical arterial blood pH (pH $<$ 7.20 acidosis); necessity of cesarean section, and subsequent requirement of treatment of the newborn at the intensive care unit. Perinatal outcome was considered poor if at least three of these variables were pathologic (pathologic CTG, pH $<$ 7.20, and 5-min Apgar score $<$ 7).

Statistical data analysis was done by MANOVA, whereby the probability values $<$ 0.05 were considered statistically significant.

Results

Maternal demographic and medical data are presented in table 1. The mean age of pregnant women included in the AP and control group was 22 ± 3.1 and 23 ± 1.3 years, respectively. A mean of six AP sessions were used. There were no complications related to conversion to vertex presentation and initiation of AP application (premature rupture of membranes, placental abruption, or bleeding). In the AP group, 22 deliveries were performed by vaginal route. Cesarean section was performed in 12 (35.2%) of the AP group and in 16 (48.4%) of the control group ($p < 0.001$).

The success rate was 76.4% (n = 26) for AP conversion and 45.4% (n = 15) for spontaneous conversion of breech presentation to vertex presentation ($p < 0.001$). No complications were observed during or after the procedure. In the AP group, good perinatal outcome was recorded in 31 (91.1%), and adaptation period followed by normal neuromotor development in 3 (8.8%) neonates. In the control group, good perinatal outcome was recorded in 26 (78.7%) and poor perinatal outcome in 7 (21.2%) neonates. Six of these 7 neonates showed a prolonged adaptation period with normal neuromotor development, whereas 1 newborn suffered from periventricular hemorrhage during perinatal asphyxia, followed by retarded neuromotor development.

Discussion

Successful correction of fetal breech presentation by using auriculoacupuncture, conventional AP, or moxibustion has recently been described by many authors [3, 7–14] with a success rate ranging from 60–70 [11] to 83.3% [10]. Li and Wang [10] report on a success rate of 81.3% with a mean of 1.41 AP sessions, whereby electroacupunc-

Table 1. Usefulness of AP correction of fetal breech presentation

	AP UB 67	Without AP	p value
Cases	34	33	
Maternal age[1], years	22 ± 3.1	23 ± 1.3	
Parity			
0	14	10	
1	9	12	
2	11	11	>0.1
Gestational age at the first AP treatment[1]	34 ± 1.3	34 ± 2.1	
Gestational age at delivery[1]	40 ± 1.2	39 ± 0.9	
AP applications[1]	6 ± 0.5		
Complications of AP	none		
Conversion in vertex presentation	26 (76.4%)	15 (45.4%)	<0.001
Delivery			
Vaginal	22	17	
Cesarean section	12 (35.2%)	16 (48.4%)	<0.001
Perinatal outcome			
Good	31 (91.1%)	26 (78.7%)	
Bad	3 (8.8%)	7 (21.2%)	
Lethal			<0.01

[1] Mean.

ture yielded better results. Ewies and Olah [9] report on an 84.6% success rate of breech presentation conversion by moxibustion after 34 weeks of gestation. The mean number of successful sessions was lower for electroacupuncture and moxibustion [11, 12], whereas in our population, it amounted to 6 sessions. Thus, considering the literature data available and our own experience, moxibustion should be preferred as the method of choice for AP point stimulation in this situation. The puncture or moxibustion at the VU 67 point appears to enhance fetal activity, which then probably leads to spontaneous conversion of the fetal position. Spontaneous correction of ultrasonographically diagnosed breech presentation by moxibustion applied at the VU 67 point for 7 days was evaluated in 130 primigravidae in the 33rd week of uncomplicated pregnancy and compared with pregnancy outcomes in a group of women with fetal breech presentation without correction. Study results revealed a statistically significant increase in the rate of fetal movements in the former group. During the 35th week of gestation, conversion of breech presentation to cephalic presentation occurred in 7.54 and 47.7% of fetuses in the group treated with moxibustion and in the control group, respectively. The difference was statistically significant. These authors recommend moxibustion in the management of breech presentation during the 35th week of gestation [11]. However, Engel et al. [13] describe fetomaternal macrotransfusion following correction of breech presentation into cephalic presentation by using moxibustion. The procedure was successful; however, signs of acute fetal hypoxia (silent CTG with decelerations) developed due to abruptio placentae. The neonate delivered by cesarean section was asphyctic, had Apgar scores 5/7/7, pH 7.26, and was 3,250 g/52 cm; thus, the authors point to possible complications that may occur on correction of fetal malpresentation.

In the study of Neri et al. [7], acute application of AP plus moxibustion did not cause fetal distress as assessed by either fetal heart rate decelerations or changes in either short- or long-term variability. In their opinion, modifications in fetal movements and heart rate occurred only by AP, so those changes are related with the effect of AP stimulation.

In our study, the rate of successful AP conversion to vertex presentation was 76.4%, which is consistent with literature data. Conversion of fetal position failed to occur in 8 women because of inadequate number of fetal movements, although there was no additional gestational pathology such as gestosis or chronic fetal hypoxia. No adverse fetomaternal events were observed during AP treatment, and the women were very satisfied with the results achieved. Generally, a more favorable perinatal outcome was recorded in the AP group than in the control group of women ($p < 0.01$).

AP treatment, like any other procedure in late pregnancy (e.g. external version), requires hospitalization and intensive antenatal monitoring (CTG recording during and after the procedure), in order to prevent possible complications, some of them being reported in the literature.

The initial results obtained by AP correction of fetal malpresentation show it to be a relatively simple, efficacious and inexpensive method associated with a lower percentage of operatively completed deliveries, which definitely reflects in improved parameters of vital and perinatal statistics. However, the value of AP in a clinical setting and in obstetrics in particular should be confirmed in large multicenter studies.

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