



**Pregnant Women with no associated Pathology can use  
Acupuncture to Induce Labor**

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Received: 04 September 2024

Published: 25 October 2024

DOI: <https://doi.org/10.5281/zenodo.13837164>

## ***Abstract***

***Introduction*** : In recent years, in several Gynecological-Obstetric hospitals throughout the country, the effect of acupuncture in the stimulation of labor in full-term pregnant women has been evidenced. ***Purpose*** : To evaluate the effectiveness of acupuncture in the induction of labor in full-term pregnant women without associated pathology. ***Method*** : Descriptive, observational, cross-sectional study, in the period from January 2020 to January 2023, of full-term pregnant women without associated pathology who underwent the acupuncture method for the induction of labor at the Gynecological-Obstetric Teaching Hospital of Matanzas "Dr. José Ramón López Tabranes". ***Results*** : A higher frequency of patients in the age group of 20-24 years, primiparous women, who required an acupuncture session, with contractile response in the period of up to 12 hours, labor of up to six hours, eutocic delivery and without induction with oxytocin was identified; in some age groups the risk of adverse events, instrumental delivery and perinatal asphyxia was increased; the contractile response in 21-36 hours increased the risk of cesarean section, induction, bleeding and maternal sepsis. ***Conclusions*** : The results of the application of acupuncture are satisfactory, the variable contractile response in the period of 21-36 hours should be followed up and continue to delve into the research topic.

***Keywords***: Induction of labor, acupuncture.

## **INTRODUCTION**

Obstetric management during pregnancy has been analyzed in multiple studies over the last few years, however, it remains controversial. Induction of labor for whatever reason is associated with an increase in cesarean births, and inductions are associated with increased complications compared to spontaneous labor, and this may simply be due to the uterus being less prepared for labor, examples being an immature cervix or a myometrium unable to achieve effective synchronized contractions. <sup>(1)</sup> Induction is indicated when the benefits to the mother and fetus outweigh those of continuing the pregnancy. Common indications include premature rupture of membranes without spontaneous onset of labor, maternal hypertension, compromised fetal well-being, and prolonged pregnancy. <sup>(1,2)</sup>

A quantifiable method to predict successful induction of labor is described by Bishop which includes cervical length, cervical consistency, dilatation, cervical position, and degree of descent of the presentation. Active induction of labor is usually successful with a score greater than 7. <sup>(3-5)</sup>

This has been a challenge for obstetrics, and over the years different methods have been used, ranging from artificial rupture of the ovular membranes and their detachment, the use of vaginal douches, enemas, the use of intra-amniotic solutions, prostaglandins, intravenous infusion of oxytocin and more recently the use of acupuncture. <sup>(1,5)</sup>

Natural and traditional medicine is currently called bioenergetic medicine, which is essentially based on Asian natural medicine, which includes two large therapeutic fields, external medicine and internal medicine. The selection of the technique to be used depends only on the patient's clinic. <sup>(6)</sup> Acupuncture is an inexpensive therapeutic method that is almost harmless when applied correctly, does not require medication, is easy to apply and is effective in those where pain is the fundamental symptom, also in psychosomatic disorders that are influenced by psychosocial factors, and clinical existence has shown satisfactory results in the treatment of symptoms, diseases and health problems that appear in the therapeutic indexes and forms of other specialties. <sup>(7-9)</sup>

The essence of this technique takes as its starting point a concept of health that is something more than the absence of disease. The state of equilibrium between the different elements of the body, as well as the environment, therefore, this type of medicine emphasizes prevention that explains the maintenance of this state of equilibrium and when a break in this occurs, the application of different techniques must have as its objective its recovery through the stimulation or activity of the mechanisms of the body itself rather than the war against the agents that produce the imbalance. <sup>(10)</sup>

For a better understanding and application of this bioenergetic technique, the knowledge provided by basic science is of great help. Mainly the surface anatomy, especially the external anatomy of the human body, which serves as a reference to locate the acupuncture points and also the vessels and nerves close to the points so as not to damage them when applying the different techniques. <sup>(10,11)</sup>

The formation and development of Acupuncture has a long historical process . It was introduced in Europe in the 17th century. But it was not until the middle of the 20th century that it became known in the American continent. Mexico has a Society of Acupuncturist Doctors. In Nicaragua, acupuncture was practiced for the first time by a Cuban doctor and from there its development began in that country. Argentina was the first

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country to learn about acupuncture in the American continent in 1948 by Rebuelto <sup>(10,11)</sup>

In the 1970s, acupuncture was already practiced in several institutions in the country and its use increased in the 1990s during the so-called Special Period due to the need to find other alternative ways in public health to try to solve the lack of medicines and the convenience of incorporating this therapeutic method into the medical arsenal of Cuba due to the advantage it represents. This is why it is sometimes called alternative medicine and can combine Eastern and Western medicine. <sup>(9-11)</sup>

In recent years, Gynecological-Obstetric Hospitals throughout the country, such as the Tamara Bunke Hospital in Santiago de Cuba; the " Justo León " Hospital in the province of Pinar del Rio and several hospitals in the capital such as the " América Arias " and " Eusebio Hernández " , as well as the " Comandante Manuel Fajardo " Hospital in Mayabeque, have demonstrated the effect that acupuncture has on stimulating labor in full-term pregnant women . <sup>(16)</sup>

At the Provincial Gynecological-Obstetric Teaching Hospital of Matanzas, several investigations have been carried out regarding the use of acupuncture as a stimulant for the onset of labor and to improve cervical conditions, such as the research work carried out by Molina <sup>(16)</sup> , Espinosa <sup>(17)</sup> , Suárez Cuello <sup>(18)</sup> and more recently Martell Rodríguez <sup>(19)</sup> in full-term patients, generally obtaining satisfactory results.

From a practical point of view, acupuncture and pharmacological methods are used to induce labor, with the latter leading to a high rate of cesarean sections and there is no updated information available to assess the effectiveness of acupuncture.

Based on the aspects described above, the author defines the following question as a scientific problem: What are the results of acupuncture treatment in the induction of labor in full-term pregnant women without additional pathologies, at the Provincial Gynecological-Obstetric Teaching Hospital of Matanzas "Dr. José Ramón López Tabrane" during the period from January 2018 to January 2020 ?

Despite its widespread use, research on this topic is still lacking. The limited observational studies conducted to date suggest that acupuncture for labor induction has no known adverse effects on the fetus and may be effective, provided it is applied by experienced practitioners. However, evidence on the clinical effectiveness of this technique is limited. This research will be the first at the institution to address the effectiveness of using acupuncture treatment in labor induction in all full-term pregnant women without associated pathology.

In order to have updated information on the subject addressed and to have evidence that supports the safety and effectiveness of this alternative for the start of labor in a physiological way, this study was carried out with the aim of identifying the results of acupuncture in the induction of labor in full-term pregnant women without associated pathology at the Gynecological-Obstetric Teaching Hospital of Matanzas "Dr. José Ramón López Tabrane", in the period from January 2018 to January 2020.

## **METHOD**

A descriptive, observational, cross-sectional study was conducted, covering the period from January 2020 to January 2023, in full-term pregnant women without associated pathology to whom the acupuncture method was applied for the induction of labor.

The universe consisted of all pregnant women over 19 years of age, full-term and without associated pathology to whom the acupuncture method was applied in the aforementioned hospital center during the period studied.

### Inclusion criteria

- Pregnant women over 19 years of age, without associated pathology.
- Patients with satisfactory fetal well-being test results.

### Exclusion criteria

- Patients with previous adverse reactions to acupuncture.
- Patients with dermatological lesions in the puncture area.
- Other situations that contraindicate the induction of labor through acupuncture.
- Patients who did not give their consent to take part in the research.

Based on the criteria outlined above, the study population consisted of a total of 157 pregnant women.

Chinese-made needles were used, made of stainless steel, 0.32 mm in diameter and 40 mm long; previously sterilized. After asepticizing the area to be punctured with cotton and alcohol, the needles were inserted perpendicularly with the tip in the direction of the pregnant uterus until the patient experienced the acupuncture sensation (tingling, cramps, electric shocks).

Once the anatomical reference points were located, VC3, VC4, VC5, VC6, E25 and E29 were manually stimulated every 10 minutes until completing 1 hour in each session and obtaining the expected result, a maximum of 3 sessions were carried out.

The order and characteristics of puncture were as follows:

- VC3 (1 cun above the upper border of the pubis), VC4 (2 cun above the pubis) and E29 (2 cun outside of VC3) stimulate contractions.
- VC6 (1.5 cun below the navel), VC5 (2 cun below the navel) and E25 (2 cun outside the navel) also stimulate uterine contractions and help cervical ripening.

The study was conducted in accordance with Cuban Good Clinical Practices and the Declaration of Helsinki in its 2000 version and was approved by the Scientific Council of the Provincial Gynecological-Obstetric Teaching Hospital “Dr. José Ramón López Tabrane” of Matanzas and the corresponding Medical Ethics Commission. The acupuncture procedure and the objective of the research were explained to the patients, and each one was asked for informed consent.

The researcher guaranteed that the study did not pose a risk to the health of the patients and that the results obtained would be used only for scientific purposes.

## RESULTS

Table 1. Parity of pregnant women who underwent acupuncture.

Parity	Fa.	Fr. (%)
Primipara	95	60.51
Secondary parous	44	28.03
≥Tercipara	18	11.46
Total	157	100,00

Source: Medical History.

60.51% of the patients who received acupuncture were primiparous. 11.46% had had 3 or more full-term pregnancies.

**Table 2.** Behavior of the contractile response according to acupuncture sessions.

Contractile response (hours)	Acupuncture sessions						Total	
	1		2		3			
	Fa.	Fr. (%)	Fa.	Fr. (%)	Fa.	Fr. (%)	Fa.	Fr. (%)
≤ 12	81	51.59	30	19,11	21	13.38	132	84.08
13-20	10	6,37	2	1,27	4	2,55	16	10,19
21-36	2	1,27	1	0,64	4	2,55	7	4,46
>36	0	0,00	1	0,64	1	0,64	2	1,27
Total	93	59,24	34	21,66	30	19,11	157	100,00

Source: Medical History.

Analysis of the contractile response behavior, according to the number of acupuncture sessions, showed that in 132 patients (84.08%) it was less than or equal to 12 hours; of them, 81 (51.59% of the total) received only one session, 30 (19.11%) received two sessions and 21 (13.38%) three sessions. In a total of 16 cases (10.19%) the contractile response occurred between 13-20 hours. Of these, 10 (6.37%) received one session, 2 (1.27%) two and 4 (2.55%).

In 7 cases the response was within a period of 21-36 hours, with a higher frequency of cases with three sessions. Only 2 patients (1.27%) had a response greater than 36 hours; with 2 and 3 sessions respectively.

59.24% needed only one session, 21.66% two and 19.11% three.

**Table 3.** Adverse events caused by acupuncture and intensity.

Adverse events	Intensity				Total	
	Mild		Moderate			
	Fa.	Fr.(%)*	Fa.	Fr.(%)*	Fa.	Fr.(%)*
Pain at puncture site	8	5.10	0	0.00	8	5.10
Hyperemia	3	1.91	2	1.27	5	3.18
Dry mouth	0	0.00	1	0.64	1	0.64
Increased sweating	1	0.64	0	0.00	1	0.64
Total	12	7.64	3	1.91	15	9.55

\* According to the population analyzed (157)

Source: Medical History.

A total of four adverse events occurred, none of which were severe or serious. Only 15 patients (9.55%) developed adverse events, the most frequent of which were pain at the puncture site (5.10%) and hyperemia (3.18%). In 15 cases (7.64%) the intensity was mild and in 3 (1.91%) it was moderate.

**Table 4.** Duration of labor in patients with acupuncture.

Duration of labor (hours)	Fa.	Fr. (%)
≤ 6	75	47.77
7-12	58	36.94
13-18	16	10.19
19-24	7	4.46



> 24	1	0.64
Total	157	100,00

Source: Medical History.

The results obtained showed a higher frequency of patients with labor less than or equal to 6 hours (47.77) and only 1 exceeded 24 hours.

Table 5. Type of delivery and induction requirement.

Type of delivery	Induction				Total	
	Yeah		No			
	Fa.	Fr. (%)	Fa.	Fr. (%)	Fa.	Fr. (%)
Eutocic	17	10.83	111	70,70	128	81.53
Instrumented	2	1.27	4	2.55	6	3.82
Caesarean section	13	8.28	10	6.37	23	14.65
Total	32	20.38	125	79.62	157	100,00

Source: Medical History.

The table above shows that 128 cases (81.53%) had an eutocic delivery, 6 (3.82%) required instrumental delivery and 23 (14.65%) required cesarean section. According to the type of delivery, 111 patients with eutocic delivery did not require induction, 4 required instrumental delivery and 10 underwent cesarean section.

**Table 6.** Maternal and neonatal complications in patients with acupuncture.

Complications		Fa.	Fr (%)
Maternal	Bleeding	2	1.27
	Sepsis	2	1.27
	Tear	14	8.92
	No complications	139	88.54
Neonatal	Perinatal asphyxia	2	1.27
	Moderate depression at birth	6	3.82
	Meconium aspiration syndrome	1	0.64
	Respiratory distress	1	0.64
	No complications	149	93.63

Source: Medical history.

There was a higher frequency of maternal and neonatal complications without complications, 88.54% and 93.63% respectively. Among maternal complications, the most frequent was tearing 14 (8.92%); followed by bleeding and sepsis, both with 2 (1.27%). Among neonatal complications, 6 (3.82%) presented moderate depression at birth, 2 (1.27%) perinatal asphyxia and 1 newborn had aspiration of meconium amniotic fluid and respiratory distress.

## DISCUSSION

In studies carried out by other authors, they showed results similar to the present study,<sup>(16)</sup> where the highest percentage of patients completed the pregnancy with a eutocic vaginal delivery with the need to instrument only one case due to rotation dystocia.

In the reviewed literature, it was noted that the number of sessions and the points stimulated differed from one study to another. The procedure used also differed, the sample size was much smaller and the number of sessions was higher. Despite this, in general, the frequency of vaginal birth was higher. This is consistent with the present research.

When referring to the use of acupuncture for the induction of labor, Velghe<sup>(17)</sup> referred to the existence of a high variability in relation to the size of the samples studied and the number of sessions applied, aspects that coincide with those stated by Cáncer Villacampa, et al,<sup>(16)</sup> Zavaleta and Arranz,<sup>(18)</sup> Handayani and Balgis;<sup>(19)</sup>

The results obtained in this research coincide with those previously stated.

Based on these results, the authors considered the hypothesis that acupuncture decreases the need for oxytocin needed during this period to be affirmative.

The authors concluded that acupuncture may be a good alternative or complement to pharmacological methods in the effort to facilitate childbirth and provide a normal delivery to full-term pregnant women.<sup>(20)</sup>

**Review article published by Schlaeger et al.,<sup>(21)</sup> refers that acupuncture could increase the degree of cervical ripening but does not reduce the amount of oxytocin .**

The results obtained in the present investigation showed that 79.62% did not require induction, which can be considered a positive but not conclusive result since this requires a case-control study.

**In the present study, a low frequency of adverse events during acupuncture was observed, all of mild or moderate intensity. Tearing and moderate depression at birth were the most frequent maternal and neonatal complications, but no significant statistical association was identified between these and the number of acupuncture sessions, contractile response time, age and parity. Therefore, the authors consider acupuncture to be a safe procedure.**

The literature highlights studies in which only manual stimulation was used in low-risk patients, with 99.36% of births within 24 hours and 85.35% of vaginal births. Unlike the studies published in China, most of the aforementioned studies focus on outcomes and not on clinical practice.

The results obtained by Neri et al. showed a significant difference in the induction rate between the acupuncture group and the observation group (19.6% vs 38%;  $p < 0.01$ ), and therefore less prolongation of pregnancy (5.3% vs 10.1%;  $p < 0.01$ ). The rate of oxytocin infusion was lower in the acupuncture group. The

authors suggested that acupuncture applied at the end of pregnancy seems to be effective in reducing the rate of labor induction performed for prolonged pregnancy; it could also reduce the use of oxytocin and the adverse effects that result from it. <sup>(22)</sup>

The authors concluded that Chinese medicine induction methods, whether or not combined with conventional methods, are an important and effective tool in their ability to reduce the extent of intervention throughout the labor process and also to reduce labor termination interventions. <sup>(23)</sup>

We consider these results to be important because they would imply less physical exhaustion for the mother, a reduction in labor times and a lower socio-economic cost by avoiding cesarean section, its complications and reducing hospital stay.

It has been observed that there is a diversity of criteria worldwide in the definition of the points to be stimulated, the number of sessions and the variables analyzed in the different referenced studies. Diversity was also observed in relation to the inclusion criteria and the sample size. In the opinion of the authors, this shows the lack of a standard methodology for its application and evaluation of effectiveness.

Several studies have addressed the topic of research at the national level. Hernandez and Ruiz <sup>(24)</sup> have shown that if the cervix is immature (Bishop score  $\leq 6$ ), an inefficient response to the inductive procedure has been demonstrated, generating long hours of duration of the procedure, high rates of cesarean section (generally with a diagnosis of failed induction), as well as maternal and perinatal complications. For this reason, the medical community dedicated to maternal-fetal medicine has introduced multiple alternatives with the aim of improving the state of the cervix, such as: local and systemic estrogens, relaxin, acupuncture, homeopathy (caulophyllum) and others.

The lack of a standardized and comprehensive approach to assessing effectiveness prevailed in the referenced literature. Therefore, most of the literature reviews conclude that a greater number of high-quality studies are still required.

The referenced bibliography allowed us to observe that the use of acupuncture for labor stimulation is widely accepted and although the present research had a descriptive observational character, it showed that acupuncture is a safe method that reduces the risk of prolonged pregnancy and the consequences that arise from it. The patients who required only one acupuncture session and the onset of the contractile response in the period of up to 12 hours prevailed.

Adverse events were not significant, most were mild, with pain at the puncture site predominating. There

was a higher frequency of patients with labor lasting up to six hours, eutocic delivery, and who did not require induction with oxytocin. In most cases, there were no maternal or neonatal complications.

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