

## The effect of Hugo point pressure on postpartum pain in multiparous women

SHAHLA AFRAVI<sup>1, A, B, F</sup>, ZAHRA ABBASPOOR<sup>2, A, D-F</sup>, SIMIN MONTAZERI<sup>2, A, D</sup>,

ORCID ID: 0000-0001-8095-096X

BAHMAN CHERAGHIAN<sup>3, C</sup><sup>1</sup> Midwifery Department, Ahvaz, Jundishapur University of Medical Sciences, Ahvaz, Iran<sup>2</sup> Midwifery Department, Health Promotion Research Center, Ahvaz, Jundishapur University of Medical Sciences, Ahvaz, Iran<sup>3</sup> Department of Epidemiology and Biostatistics, School of Public Health, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

A – Study Design, B – Data Collection, C – Statistical Analysis, D – Data Interpretation, E – Manuscript Preparation, F – Literature Search, G – Funds Collection

**Summary Background.** In midwifery, Hugo point pressure is one of several effective, non-pharmacological approaches to decreasing pain.**Objectives.** The main objective of this study was to investigate the effect of Hugo point on postpartum pain in multiparous women.**Material and methods.** This study was a randomized controlled trial conducted on 62 pregnant women in two groups: 31 women in the case-study (Hugo point pressure) and 31 women in the control-group (non-Hugo point pressure) groups. The block random sampling method was used. Data were collected by way of a questionnaire requesting information of delivery process, as well as a Visual Analogue Scale (VAS) for measuring pain intensity. In the postpartum ward and at least 2–24 hrs after the delivery, pain intensity and duration was measured before and 2, 4, 6 and 8 hours after intervention. Data was analyzed through independent *t*-test and RMANOVA tests.**Results.** The intensity of pain for both groups in the first two hours after delivery was significant ( $p = 0.005$ ), but 4, 6 and 8 hours post-delivery, despite a pain reduction in the intervention group more than in the control group, the difference was not significant. Moreover, no significant difference was observed between the two groups at 2, 4, 6 and 8 hours after delivery in terms of pain duration. Via the chi-square test, the frequency of painkiller use showed no significant difference statistically between the two groups.**Conclusions.** Hugo point pressure is a simple and cost-effective, harmless and easily applicable analgesic method for after-pain reduction – especially in the early hours of the postpartum period.**Key words:** parturition, labor pain, obstetrics.Afravi S, Abbaspoor Z, Montazeri S, Cheraghian B. The effect of Hugo point pressure on postpartum pain in multiparous women. *Fam Med Prim Care Rev* 2019; 21(1): 7–11, doi: <https://doi.org/10.5114/fmPCR.2019.82971>.

### Background

Pain is a universal and public human experience and the medical science is always trying to reduce or eliminate it [1]. Post-partum pains can stop oxytocin hormone deliverance and generate dysfunction in breastfeeding, in addition to bringing about distress and pain in the mother [2]. Of note, breastfeeding can intensify such pains and as a result, post-partum pains can postpone premature breast-feeding.

The main advantages of premature breastfeeding after the delivery for the mother are rapid return of the uterus to normal size and reduced postpartum hemorrhage (in primiparous women, the uterus remains usually constricted after delivery, while in multiparous women, the uterus is severely contracted at intervals [2–4]). Other advantages include loss of excess weight, and reduced risk of osteoporosis and ovarian and breast cancer in the later life years. The benefits for the infant are reduced allergies and infections, reduced chronic diseases such as asthma, reduced sudden infant death syndrome and increased intelligence quotient [5, 6].

Physiologic stress caused by pain while breastfeeding can lead to minimal or no breastfeeding and reduction of attention of the mother to the infant, hence, dysfunction in the mother-baby relationship [5]. Moreover, it can lead to refusing breast-

feeding immediately after delivery and can lead to prevention of breast milk flow in the mother. To reduce the postpartum pain, various ways have been recommended. For example, new mothers are encouraged take warm water showers several times or lay on their stomachs or place a pillow under the stomach, or empty the bladder repetitively [6].

Several medicines are being used nowadays for this purpose, including edible painkillers (like acetaminophen and codeine) and non-steroidal anti-inflammatory drugs to reduce to medium intensity, severe postpartum pain [7]. Along with pharmaceutical methods of relieving pain, there are also several non-pharmacological methods. These include massage therapy, acupressure, relaxation, cold therapy, skin irritation and aromatherapy [8].

Acupressure is a branch of traditional medicine and is widely used in China [9]. The application points of acupuncture are stimulated by pressure of the fingers or arm. According to the Hormonal Nerve Theory, acupressure can lead to the secretion of enkephalins such as endorphins and serotonin and reduce pain [10]. One of the main application points for reducing pain is the Hugo point. This is one of the compressive points associated with the energy channel of the long intestine (LI 4) and is located on the skin curtain between the index finger and thumb [11].

Chung et al. have conducted a study on the effects of LI 4 and BL 67 acupressure on labor pain and uterine contractions in



the first stage of labor and have shown that application brings about a considerable reduction of pain [12]. Qu and Zhou has also conducted a study (under the title of “Electro-acupuncture in relieving labor pain”) and has found that acupuncture is effective in reducing labor pain when applied at the Hugo point or at the 6-spleen points [13]. Moreover, Waters and Raisler have studied the effect of Ice massage on the Hugo point (L-4) for the reduction of labor pain and the results showed positive [14].

Postpartum management is one of the most important roles of midwives, and with reduction of pain duration after labor, complications involving mother and infant could be reduced [15]. Being non-pharmacological, acupressure and acupuncture leave no complications on breastfeeding and are also simple, cost effective and safe [16].

## Objectives

To assess the effectiveness of Hugo point pressure as a safe and effective method of countering uterine contractions and reducing postpartum pain in multiparous mothers.

## Material and methods

### Study design

This was a randomized controlled trial study.

### Participants

In the present study, multiparous women (from 2<sup>th</sup> to 4<sup>th</sup> child birth) with gestational age 37–42 weeks, natural vaginal delivery in hospital and complaining of medium to severe postpartum pain were included. Exclusion criteria were, among others: hard and prolonged delivery, maternal addiction to drugs, previous cesarean section, intra-abdominal surgery and history of postpartum hemorrhage. The sample size was determined as 62 women; 31 women in case (Hugo point pressure) and 31 women in control (non-Hugo point pressure) groups.

### Sampling method

All mothers who were moved to the postpartum ward after normal delivery, participated in the study in the case of gaining their written consent and having had explanation of research objectives. Demographic information was then collected, as was history of midwifery through the interview. Selection then occurred, and members were allocated randomly to each group via lottery. The patients included into the study were assessed by the authors every 2 hours from the time of hospitalization in the postpartum ward – and at least 2–24 hours after the delivery. Pain measurement was done in both groups before taking any intervention. In both control and intervention groups, when patients were complaining of pain, their pain was coded from 0 to 10 using the VAS ruler. Of note, the VAS ruler criterion is a standard way for assessing the severity of pain, and its validity and reliability has been proven in previous studies [17].

The pain intensity was recorded on the checklist. In case of medium to severe pain, in the case group, the Hugo point pressure procedure and in the control group, pressure was applied to another pressure point on the same hand. In the post-partum ward, all patients routinely received mefenamic acid (500 mg) or acetaminophen (325 mg) (based on its availability) 4 and 10 hours after delivery. In the intervention group, the Hugo point was lightly pressed for 30 sec and the pressure was increased gradually to reach intense pressure and then it was fixed on the point for 1 min, so that one third of the thumb was whitened and subsequently, the pressure was reduced and the point was left for 30 sec. Total time of intervention was 20 min. After this time, the postpartum pain intensity was measured and recorded

in both groups. In the control group, a similar process was used – with the difference that the pressure was applied on a different point on the hand and the patients were asked to express the duration of the reduction of their pain per minute after the end of each 20 min intervention. In the early 10 hours after delivery, based on the postpartum ward routine, the mothers received painkillers and also were allowed to use extra painkillers if they requested. The amount of painkiller was compared between intervention and control groups.

### Ethical consideration

The protocol of this study was approved by the Ethics Committee of Ahvaz Jundishapur University of Medical Sciences (Ref No: IR.AJUMS.REC.1395.432). The protocol was also registered in the Iranian registry for randomized controlled trials (Ref No: IRCT201611232167002) and conducted after obtaining the permission of Deputy of Jundishapur University of Medical Sciences and head of the Abadan University of Medical Sciences and head of the 17-Shahrivar Hospital in Abadan.

### Statistical analysis

Data analyzed using  $\chi^2$ , independent *t*-test and RMANOVA tests.

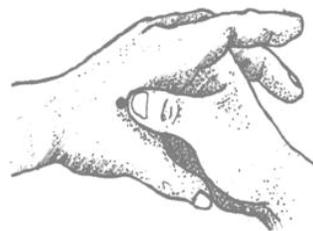


Figure 1. Hugo point pressure

## Results

In this study, 62 mothers with postpartum pain were allocated into two groups of intervention ( $n = 31$ ) and control ( $n = 31$ ). The results obtained from this study showed that no significant difference is observed between the two groups in terms of education level, living place, job and ethnicity using chi-squared test, and mean age and BMI by using the independent *t*-test ( $p > 0.05$ ) (Table 1).

Table 2 shows the comparison of midwifery information of the two groups based on reproductive information. As it is probable that wanted or unwanted pregnancy could affect the expression of pain and the asking for painkillers, the author investigated the wanted or unwanted nature of pregnancy. The information in the table shows that the pregnancy of the majority of participants were wanted and chi-square test showed that both groups have no significant difference in this field ( $p = 0.13$ ). Moreover, the most frequency of beginning of pain in both groups was automatic and the chi-square test showed that both groups had no significant difference in this field ( $p = 0.21$ ). Type of delivery in both groups was determined in terms of vaginal labor with and without episiotomy. The frequency of labor without episiotomy in both groups was also equal to 80% and no significant difference was observed between two groups in this field based on chi-squared test ( $p = 1$ ). Moreover, among the six women who had an episiotomy, none of them received any analgesic for their episiotomy pain.

In this study, with regard to all women in the intervention and control groups, with respect to number of pregnancies of range 2–4, no significant difference was observed between the two groups based on chi-squared testing. Moreover, both groups showed no significant difference in terms of difficulty of labor ( $p > 0.05$ ). For pain, 6.6% of women used oxytocin and

**Table 1. Distribution and mean value of samples based on demographic information of participants in the case and control group**

Variable		Group	Intervention (n = 30)	Control (n = 30)	p
Age (year), Mean/*SD			27.9 ± 4.41	28.8 ± 4.67	0.41
BMI, Mean/SD			29.4 ± 5.59	29.1 ± 6.64	0.71
Education level, n (%)	primary		4 (33.3)	8 (66.8)	0.42
	secondary		16 (59.3)	11 (40.7)	
	high school		8 (44.4)	10 (55.6)	
	higher education		2 (66.7)	1 (33.3)	
Living place, n (%)	city		19 (54.3)	16 (45.7)	0.43
	village		11 (44)	14 (56)	
Job, n (%)	employed		6 (60)	4 (40)	0.41
	housewife		24 (48)	26 (52)	
Ethnicity, n (%)	Arab		20 (48.8)	21 (51.2)	0.73
	non-Arab		10 (52.6)	9 (47.4)	

\* SD = standard deviation.

**Table 2. Comparison and frequency distribution of samples based on midwifery information separated in the two intervention and control groups**

Variable		Group	Intervention	Control	p
		Frequency (%)			
Pregnancy status	wanted		24 (40)	28 (46.6)	0.13
	unwanted		6 (20)	2 (6.6)	
Number of pregnancies	2–4		30 (100%)	30 (100%)	0.07
Difficulty of labor	2–4		30 (0.100)	30 (0.100)	0.07
Use of oxytocin	yes		2 (6.6)	2 (6.6)	0.69
	no		28 (93.3)	28 (93.3)	
Labor pain start	inductive		6 (20)	10 (33.3)	0.21
	natural		24 (80)	20 (66.6)	
Delivery type	vaginal		24 (80)	24 (80)	1
	vaginal + episiotomy		6 (20)	6 (20)	

**Table 3. Comparing the pain intensity before and after intervention in the case and control groups**

Intervention times	Group		Intervention		p before and after intervention	Control		p before and after intervention	p between two groups
	Mean ± SD					Mean ± SD			
	Before	After	Before	After	Before	After			
2 hrs later	0.43 ± 0.253	0.41 ± 0.233	0.001		0.22 ± 0.303	0.22 ± 0.359	0.059	0.005	
4 hrs later	0.58 ± 0.195	0.55 ± 0.183		0.45 ± 0.323	0.46 ± 0.313				
6 hrs later	0.51 ± 0.206	0.49 ± 0.115		0.45 ± 0.264	0.47 ± 0.324				
8 hrs later	0.56 ± 0.623	0.53 ± 0.523		0.41 ± 0.349	0.42 ± 0.358				

**Table 4. The comparing mean value and SD of score of pain duration before and after intervention in case and control groups**

Intervention times	Group		Intervention		p before and after intervention	Control		p before and after intervention	p between the two groups
	Mean ± SD					Mean ± SD			
	Before	After	Before	After	Before	After			
2 hrs later	85.3 ± 50.4	82.4 ± 49.9	0.001		93.3 ± 64.4	94.0 ± 67.4	0.053	0.46	
4 hrs later	76.3 ± 48.6	72.3 ± 38.1		91.3 ± 69.1	92.3 ± 74.4				
6 hrs later	66.6 ± 39.8	65.6 ± 37.6		89.3 ± 41.4	87.6 ± 39.1				
8 hrs later	58.6 ± 32.4	56.3 ± 29.3		85.1 ± 37.8	86.3 ± 39.7				

93.3% of women did not use oxytocin and no significant difference was observed between the two groups based on chi-square test (Table 2).

According to the results, the pain level in both groups was significant in first 2 hours after delivery. At 4, 6 and 8 hours after delivery, the intensity of pain was not significantly different between the two groups as evidenced through independent *t*-test (Table 3).

As shown in Table 4, due to the *p*-value ( $p = 0.001$ ), the mean difference of pain duration between the two groups before and after the intervention is significant, while, according to *p*-value ( $p = 0.053$ ), the difference was insignificant in the control group before and after intervention. Moreover, comparing the mean duration of pain (painless duration) between two groups was insignificant through measurement in 4 turns (2, 4, 6 and 8 hours after delivery) as indicated via the RMANOVA test ( $p = 0.46$ ) (Table 4).

In painkiller use, the results showed that the frequency of using painkiller in the control and intervention groups showed no significant difference based on chi-squared testing. Moreover, most women in the two groups used mefenamic acid as painkiller.

## Discussion

Today, there are various methods and medicines available for eliminating or reducing labor pain. Acupressure is one of the most important non-pharmacological approaches in alternative and complementary medicine. One of the most common points used in this medicine is the Hugo point, which is found on both hands. Its stimulation appears to be effective for postpartum pain reduction. Moreover, applied pressure on the Hugo point is a safe and effective method that also affects uterine contractions and postpartum pain in mothers and can meet the needs of the breast-feeding mother [18, 19].

The results obtained from our study showed that the effect of Hugo point (acupressure) on the reduction of postpartum pain is significant. According to the relevant works, the pain threshold theory can explain the effect of pressure on reduction of postpartum pain in this study. With regard to pain intensity, the results showed that 2 hours post-delivery, the pain intensity is reduced due to Hugo point acupressure application and a significant difference was observed between the two groups ( $p < 0.001$ ). However, the intensity was reduced in both groups after 4, 6 and 8 hours after delivery and no significant difference was observed between the groups ( $p > 0.05$ ).

Lee et al. has studied the effect of acupressure on one point of acupuncture (SP-6). In this study conducted on 75 women, 36 women received acupressure on this point and for 39 women; only a touch was applied at this point. The acupressure on this point was taken for 30 minutes and the pain intensity was measured 30 and 60 min after end of intervention. The results of the study, similar to the results of the present study, showed less pain experienced in women receiving acupressure.

There is no exact known mechanism in acupressure on SP-6 reducing labor pain. This is also true for the effect mechanism of acupressure of the LI 4 point on labor pain reduction. It is likely that the labor pain reduction is made by reduction of anxiety level, and probably acupressure can cause release of internal opiates and as a result, pain reduction [11].

A study conducted by Abedi et al. with the aim of investigating the effect of ice massage and acupressure on labor pain intensity and duration in primiparous women in Egypt showed that in those receiving ice massage and acupressure, immediately and 30 min after intervention, considerable pain reduction was observed compared to control [20].

In the field of pain duration, the results obtained from this study demonstrated that on comparing average pain duration between the two intervention and control groups 2, 4, 6 and

8 hours after delivery using the RMANOVA test, no significant difference was seen between the two groups in the field of pain duration ( $p = 0.046$ ).

A study conducted by Salehian et al. on the effect of acupressure on pain intensity and duration in primiparous women revealed that significant difference is observed between case and control groups in terms of pain duration of step 1 and step 2 and these findings are not consistent with the results obtained from the present study. It is possible that the difference observed between these results is associated with the technique of stimulation of points and what points are stimulated. On the other hand, the effect of cultural beliefs and beliefs of patients in the said methods should not be neglected [1]. Moreover, the study conducted by Kaviani et al. on comparing the effectiveness of the two methods of acupressure and ice massage on pain intensity and duration in primiparous women showed that the average pain duration in all groups was significant – as based on Tukey statistical testing [15].

In fact, one of the reasons for this that is based on Control Theory is pain threshold. Herein, skin invigoration through pressure can stimulate large fibers transferring nervous impulses to the spinal cord and as a result, maintain pain transfer gates and reduce pain and pain duration in mothers. Indeed, investigations show that pain stimulates the sympathetic system and causes contraction of arteries and reduction of blood supply to tissues and this can cause pain and the need to use painkillers [18].

As long postpartum pain duration are major factors for fatigue, insomnia, anxiety and depression in mothers, reduction of pain duration can induce comfort and improvement of physical and mental conditions of both mother and baby [19].

In our study, mefenamic acid was used as a painkiller in the majority of patients in both groups. In this field, a study conducted by Lee et al. showed that there is no significant difference between two groups of pressure and touch in terms of using this painkiller [11], which is consistent with the findings of this study. However, in the study conducted by Samadi et al. with the aim of investigating the effect of acupressure applied upon the SP-6 point on the amount of painkiller used by women giving birth, it was found that there was a significant difference statistically between 3 studied groups [21]. This is not consistent with the findings of this study. Herein, the reason is difference in applied method and inclusion criteria.

## Limitations of the study

There was no possibility of comparing the difference between severity and duration of postpartum pain in primiparous and multi-parous women.

## Conclusions

The results obtained from this study showed that acupressure applied at the Hugo point can reduce postpartum pain in the first 2<sup>th</sup> hour, but 3 times later, despite pain reduction being more evident in the intervention group than in the control group, the difference was not significant statistically. What is more, pain duration was not significantly different between the two groups at 2, 4, 6 and 8 hours after delivery. Hence, Hugo point pressure as a simple and cost-effective method and as a non-pharmacologic and easily applicable analgesic method is effect for immediate post-partum pain reduction.

**Acknowledgments.** This paper was one part of the MSc thesis of Shahla Afravi and the research project with number: rhprc9304. The financial support was provided by the deputy vice-chancellor for research affairs of the Ahvaz Jundishapur University of Medical Sciences.

Source of funding: This work was funded from the authors' own resources.

Conflicts of interest: The authors declare no conflicts of interest.

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Received: 26.07.2018

Reviewed: 30.07.2018

Accepted: 29.08.2018

Address for correspondence:

Zahra Abbaspoor, PhD, Assoc. Prof.

Department of Midwifery

Reproductive Health Promotion Research Center

Ahvaz Jundishapur University of Medical Sciences

Ahvaz

Iran

Tel.: +98 33738331

E-mail: abbaspoor\_z762@yahoo.com