



## THE EFFECT OF ACUPRESSURE ON PAIN REDUCTION DURING FIRST STAGE OF LABOR: EVIDENCE-BASED CASE REPORT

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**Abstract, Background:** Pain that is felt varies with a person's pain response. Non-pharmacological intervention is given in the form of acupressure by applying pressure to the SP6 and GB21 points whose function is to block the pain nerves and reduce the pain during contractions that the mother feels. Acupressure is effective to do before labor.

**Methods:** Evidence base case report (EBCR) through a literature search in several articles, namely Pubmed and Google Scholar.

**Result And Discussion:** Pressing is done with a clockwise rotation with a maximum count of 30 massages at both GB21 and SP6 points, from the case report shows that acupressure reduces labor pain, as seen from the results of the pain scale assessment (Numeric Rating Scale) which decreases.

**Conclusion:** The application of acupressure at points SP6 and GB21 was carried out in laboring women in stage 1, carried out during contractions, and effective in reducing labor pain, especially in stage 1.

**Keywords:** acupressure, labor pain, first stage of labor

### Background

According to the WHO, up to 99% of maternal deaths are due to problems in labor or childbirth. <sup>1</sup> Labor is a physiological event that every woman experiences. The most distressing part of labor, especially in the first stage, is the pain that the mother feels. The pain is caused by regular uterine contractions that increase in intensity, the process of softening and opening of the birth canal, excessive stress, and a rapid increase in blood pressure and heart rate. <sup>2</sup> The Data Centre of the Association of Hospitals throughout Indonesia states that 15% of mothers in Indonesia experience labor complications and 21% report that the labor they experience is painful. <sup>3,4</sup>

If the woman cannot endure the pain and is left, the thing to worry about is that the concentration of the expectant mother in facing labor is disturbed and can be dangerous for both mother and baby, where this labor pain can cause stress which causes excessive hormones such as catecholamines and steroids. When the release of these hormones occurs excessively, it will cause uteroplacental circulation disorders so that fetal hypoxia occurs. One of the non-pharmacological methods that can be used to reduce pain, especially in the first stage of labor, is acupressure. <sup>5</sup>

Nonpharmacological methods can be used because they are easy to learn, inexpensive, and have minimal side effects. There are several nonpharmacological techniques, such as breathing techniques, movement and position changes,

massage, hydrotherapy, hot/cold therapy, music, guided imagery, acupressure, and aromatherapy. Some of these pharmacological techniques may increase maternal comfort during labor and influence effective coping with the labor experience. In this study, the authors used acupressure.<sup>6</sup>

Acupressure is a form of physical therapy that involves massage and stimulation at multiple points, or acupoints, on the body. In addition, acupressure is a healing method in which pressure is applied to multiple points with fingers and is performed gradually to stimulate the body's ability to heal itself naturally, usually on the patient's body, ears, or scalp to affect the body's bioenergy flow called qi. Qi flows in a meridian (channel), so the essence of this treatment is to restore the body's balance system (homeostasis), which is realized by the continuous and harmonious flow of qi in the meridians so that the patient is healthy again. By strengthening the qi, the body's resistance is improved and pain is reduced.<sup>5</sup> Several studies have shown that acupressure is effective in reducing the intensity of pain during labor and is often used as an analgesic.<sup>7,8</sup>

The case was taken at a private midwife clinic in Bandung. The client came on September 13, 2023, at 11:00 a.m. and said that heartburn was becoming more frequent the woman felt weak because she had not slept for 2 days, and no water had come out of the birth canal. This is her second pregnancy, the first child was 6 years old. The examination was performed at 8:00 p.m. WIB, the results of the examination using the Numeric Rating Scale showed an opening of 5-6 cm with a pain scale of 9. Based on the results of the evaluation, the data showed normal results. The diagnosis is G2P1A0 Parturient at term Period 1 active phase single live fetus, head presentation, with labor pain problem.

Based on the problems and cases, PICO can be formulated. The clinical question in this case is: Does acupressure have an effect on pain relief in the first stage of labor?

P: First stage of labor.

I: Acupressure

C : No other intervention

O: Reduction of labor pain

## Methods

Search for articles using Pubmed and Google Scholar databases with keywords used, namely words that represent the population, namely the first stage of labor OR labor AND acupressure AND pain reduction OR labor pain.

Journal articles obtained are then selected based on the inclusion criteria, namely publication in the last 5 years from 2018 to 2023, full text, with research design, randomized controlled trials, literature review or, systematic review, in English or Indonesian. There are 3 inclusion criteria, namely stage 1 labor, full text / RCT / SR / MA, and publication in the last 5 years. Exclusion criteria, mothers in stage 1 labor with complications or comorbidities The final selection results obtained 4 articles.

Based on the screening results, 4 articles were used in the literature review of this research. The four journal articles were then identified in terms of research design, validity, importance, and applicability.

Four articles met the search criteria, (1) Effect of acupressure on pain relief during the first stage of labor: A systematic review and meta-analysis. Written by Raana Haj Najafi, Fan Xiao-Nong. Published in Elsevier in 2020, with level of evidence 1A. (2) Acupressure for labor pain: a systematic review and meta-analysis of randomized controlled trials. Written by Yao Chen, Xiang-Yin Xiang, Kien Howe Robert Chin, Jing Gao, Junmei Wu, Lixing Lao, and Haiyong Chen. Published in

SAGE- Acupuncture in Medicine in 2020. (3) Effect of GB21 acupressure on pain intensity in the first stage of labor in primiparous women: A randomized controlled trial. Written by Hamideh Torkiyan, Sedigheh Sedigh Mobarakabadi, Reza Heshmat, Alireza Khajavi, and Giti Ozgoli. Published in *Complementary Therapies in Medicine-ELSEVIER* in 2021. (4) Effect of acupressure on labor pain and duration of labor when applied at SP6: A randomized clinical trial. Written by Hülya Türkmen, Esin Çeber Turfan. Published in *WILEY* in 2019.

## Results And Discussion

From the results of journal searches obtained 4 articles were used in the application of EBCR acupressure in reducing labor pain in stage 1 labor. Based on the article *The Effect of Acupressure on Pain Reduction during the First Stage of Labor: A Systematic Review and Meta-Analysis* shows that there is a decrease in the level of labor pain in stage 1 during the intervention. The application of acupressure is performed on points L14 and SP6. The effect of acupressure in reducing pain lasted for 60 minutes ( $p < 0.01$ ) compared to the control group.<sup>9</sup>

Based on the second article entitled *Acupressure for Labor Pain Management: A Systematic Review and Meta-Analysis of randomized controlled trials (Yao Chen, et al 2020)* The evaluation obtained shows that women who are given acupressure interventions tend to experience less labor pain compared to the control group and the effect lasts for 60 minutes ( $p < 0.01$ ) compared to the control group.

The third article, *The effect of GB21 acupressure on pain intensity in the first stage of labor in primiparous women: A randomized controlled trial*<sup>9</sup> provides acupressure intervention at point GB21. It was found that acupressure on these points was effective in relieving pain during the progression of the first stage of labor, but there were limitations because GB21 is located on the shoulder, while women in the first stage of labor tend to lie on their side.

The fourth article is entitled *The effect of acupressure on labor pain and duration of labor when applied to the SP6 point: A randomized clinical trial*<sup>10</sup>. This study showed that acupressure applied to the SP6 point was effective in reducing pain during contractions in active stage 1 labor compared to the control group. Acupressure was applied during labor pain.

The method used is a case study with an evidence-based midwifery care approach (evidence-based case report), on Mrs. R with G2P1A0 Parturien at term active phase of the first stage, live single fetus, head presentation. Mrs. R. felt pain during labor and weakness because she had not slept for 2 days.

Based on the assessment, the mother's condition was normal, although she looked pale due to weakness and low pain tolerance, so when the pain from the contractions occurred, the patient felt restless and even cried. When evaluated, this was a desired pregnancy, as the patient had not been pregnant for 4 years. Non-pharmacological measures given to Mrs. R to overcome labor pain in stage 1 are the application of acupressure. Acupressure is a massage technique applied to specific points. Acupressure can ease the process of labor by increasing the effectiveness of contractions in the uterus. Acupressure also helps produce endorphins, which help reduce pain.<sup>7</sup>

There are several things to keep in mind when doing acupressure, namely, (1) acupressure can be done by pressing, rotating, and sequencing along the meridians, (2) emphasis can be started after finding the right massage point, i.e., there is a reaction at the massage point in the form of pain or soreness, (3) Any stimulation of the acupressure point will cause a reaction in the area around the point, the area crossed by the meridian, and the organ that has a relationship with the point,

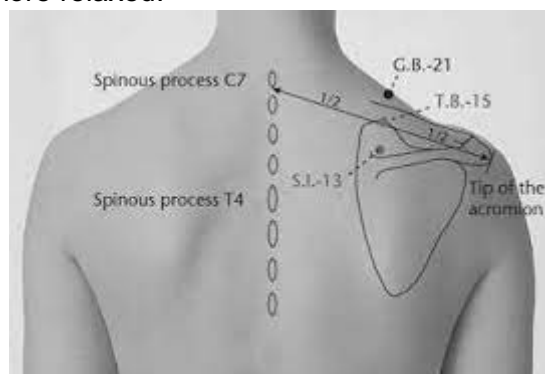
(4) Acupressure can use the therapist's fingers or other tools. When using fingers, negative pressure can be adjusted, massage pressure can be done with the tip of the thumb or index finger with a change in nail color from reddish to pale. (5) Contraindications, Acupressure is a support to overcome health problems so that disease management remains under the responsibility of physicians or other health professionals.

Conditions that cannot be treated with acupressure include medical emergencies, surgical cases, malignancies, sexually transmitted diseases, infectious diseases, use of blood-thinning medications (anticoagulation), blood clotting disorders, burns, ulcers, and new scars (less than one month).<sup>11</sup> Acupressure points often used to reduce labor pain in stage 1 are GB21 (Jian Jing) and SP6 (San Yin Ciao) points. It is said that GB is the name of the gallbladder, while SP is the name of the spleen.<sup>5</sup> Point SP6 (San Yin Jiao) is located three cun or four fingers above the inner ankle, near the shin bone or the inner side of the shin bone. This point is important for relieving the pain of labor in Stage 1.<sup>5</sup>



**Fig 2.** Accupressure point SP6

Point GB21 (Jian Jing) is located on the shoulder just below the ear, between two muscles, or midway between the projection of the neck bone (cervical 7) and the base of the upper arm. This point is useful for reducing pain in the first stage of labor so that it becomes more relaxed.<sup>5</sup>



**Fig 3.** Accupressure Point GB21

Point SP6 lies on the spleen, kidney, and liver meridians, while point GB21 lies on the gallbladder meridian. Acupressure on this point is believed to stimulate the release of the hormone oxytocin and the pituitary gland, which in turn stimulates uterine contractions to enhance the labor process or manage labor pain.<sup>1213</sup>

Pressing the GB21 point has the goal of relaxation and can be done with a clockwise rotation with a maximum count of 30 massages.<sup>14</sup> While the SP6 point is located four fingers above the inner ankle. A clockwise massage is performed 30

times to weaken and can be repeated for 6 cycles throughout the contraction.<sup>15</sup>

Assessment of pain scale using Numeric Rating Scale (NRS). From the results, it can be seen that before the application of acupressure, labor pain in phase 1 of the active phase was reduced from 9, and after the application of acupressure, labor pain was reduced to 5. This is consistent with previous research where pain reduction is significantly higher in the GB21 group compared to the sham or control group ( $P = 0.001$ ). In this study, GB21 acupressure was effective in relieving labor pain, so it is recommended as a practical, effective, inexpensive, and accessible method for labor pain management.<sup>16</sup> This is also consistent with previous research where acupressure was performed for 6 cycles and the results were reduced from pain with a score of 9 to 7 after acupressure massage at point SP6.<sup>15</sup>

In addition, research supporting the results that the level of labor pain is less and the duration of labor is shorter in the experimental group with the application of acupressure at the SP6 point, with the level of pain felt in the first stage of the active phase in the experimental group than the control group with the results ( $P = 0.0002$ ).

<sup>10</sup> Other studies discussing the application of GB21 acupressure found that pain reduction was significantly higher in the experimental group with the application of acupressure at the GB21 point than in the control group with the results ( $P = 0.0001$ ).  
<sup>16</sup>

The conclusion is that acupressure is effective in reducing labor pain in first-time women. Labor pain can be reduced by increasing the hormone  $\beta$ -endorphin. The hormone  $\beta$ -endorphin is an inhibitor of the delivery of pain stimuli to reduce the sensation of pain, and by acupressure, the hormone will increase and reduce labor pain.

## Conclusion

The application of acupressure on points SP6 and GB21 and performed on laboring women in stage 1, performed during contractions, and effective in reducing labor pain, especially in stage 1. Acupressure is a technique that is easy to apply independently, safe, and effective in reducing labor pain in first-stage laboring women.

This study recommends the use of labor pain assessment using the Pain Rating Scale and the application of acupressure at points SP6 and GB21 in obstetric labor services. Implementation of acupressure is based on standard operating procedures and applied as part of maternal care

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