

***“Effect of Acupressure Applied After  
Cesarean Section Under Spinal  
Anesthesia Postpone the Duration  
of Taking Analgesics and on The  
Gastrointestinal System: A  
Randomized Controlled Trial”***

***Abstract:***

**Objectives**

Cesarean deliveries are one of the primary conditions associated with postoperative decreased motility of the gastrointestinal system and are characterized by acute pain and distention. The aim of the present study was to investigate the application of acupressure and the administration of analgesics for women who underwent cesarean section under spinal anesthesia could be delayed and how spontaneous gastrointestinal system motility could be achieved in the postoperative period.

**Intervention**

This trial was conducted with 112 primipara pregnant women who delivered via cesarean section under spinal anesthesia and were randomly assigned into the acupressure (n=52) and control (n=60) groups. The participants in the acupressure group (n=52) were treated for 20 minutes. The participants in the control group (n=60) were treated per the hospital protocol (analgesics for pain, flatulation and defecation, no pharmacological or non-pharmacological application was performed).

**Results**

The time that elapsed for the administration of analgesics was significantly later in the acupressure group than in the control group (p <.001). The first occurrence of flatulation and defecation were significantly earlier in the acupressure group (19 and 23 hours, respectively) than in the control group (34 and 27 hours, respectively) (p <.001).

### **Conclusion**

Acupressure is an easy, non-invasive method that postpones the administration of analgesics in the postoperative period and prevents flatulence and constipation caused by the decreased motility of GIS.

### **Keywords**

acupressuregastrointestinal  
motilitypostoperative  
periodpostpones taking  
analgesicscesarean section

### **Introduction:**

Cesarean section is one of the most common surgical operations performed throughout the world.<sup>1,36</sup> The rate of cesarean section is 25% in England, 32.8% in the United States, 40% in Iran, 38.5% in China, and 48% in Turkey.<sup>2,8,19,31</sup> Complications that develop after various surgical operations, such as acute pain, decreased motility of the gastrointestinal system (e.g., flatulence, difficulty defecating, loss of

appetite, nausea, and vomiting), insomnia, and delayed healing of the wound site, also frequently occur in the postoperative period after cesarean section.<sup>3,20,22,28</sup> The degree of acute pain (superficial somatic pain in the subcutaneous tissues and deep somatic pain in the visceral muscles) in the postoperative period after cesarean section depends on the degree of the tissue trauma.<sup>18</sup> Cesarean delivery under spinal anesthesia has become preferred to general anesthesia delivery because the mother suffers less pain, has a more comfortable delivery process, and breastfeeds her baby earlier during the postpartum period.<sup>26,39</sup> Studies have shown that women suffer severe pain during the first 24 hours after a cesarean section.<sup>11,24</sup> The intensity of postpartum acute pain is reported to be 32.5% higher in women who delivered their babies by cesarean section than in women who had a vaginal delivery.<sup>22</sup> ...Today, despite advances in postoperative pain management, there is still inadequate postoperative pain reduction in some patients due to the

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varying individual pain thresholds and the side effects of [analgesic drugs](#) and techniques.[22](#)

Another problem that occurs after cesarean section is delayed gastrointestinal system (GIS) motility due to changes in the autonomic nervous system, which leads to common problems such as abdominal distension, pain, nausea, vomiting, difficulty with oral intake, bowel cramps, insufficient breastfeeding, and prolonged hospital stays. This causes both the mother and her baby to suffer discomfort and adversely affects mother–infant attachment during the postpartum period.[9,28,37,38,42](#)

Acupuncture, one of the oldest known medical therapies, has been extensively used in China for more than 3,000 years.[35](#) Whereas acupuncture involves the insertion of very thin needles into a person's skin, acupressure is a manipulative therapy art that ensures the proper functioning of the energy gates by

applying pressure to acupuncture points using the hands, fingers, palms, elbows, and knees.[16,23,27](#) The philosophy of acupressure is based on the fact that the human body can heal (repair) itself. Acupressure not only regulates blood circulation, it also unclogs the Qi energy necessary to heal the body. This supports the secretion of neurotransmitters, which decreases pain due to the increase in adrenocorticotrophic hormone released from the anterior pituitary. It activates the secretion of chemicals such as beta-endorphin, serotonin, dopamine, and noradrenaline into the bloodstream. Acupuncture achieves many actions throughout the body. As a result, the body maintains its normal functions.[12,35,48,49](#)

Acupressure is used to alleviate birthing pain, menstruation, muscular trauma, tissue trauma-induced pain, and GIS complaints.[5,23,28,29,33,34,43](#) For the last 15 years, researchers have been investigating the use of an endogenous opioid system to explain the pain relief mechanism, and they

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have found that the human body produces endorphins that cause interventional blockage in neural networks under pressure. Endorphins exert a pain-relieving effect. If an individual's skin is stimulated with acupressure at the moment endorphins are released, the spinal cord, midbrain (mesencephalon), and pituitary gland become active. This increases endorphin levels to block pain messages and ensures a balanced release of neurochemicals, such as serotonin and norepinephrine, into the bloodstream. Thus, acupressure causes the relaxation of muscles in various organs and reduces superficial and deep somatic pain and cramps.<sup>4,12,18,21,30...</sup>

The aim of this randomized controlled experimental study is to eliminate abdominal bloating and defecation difficulty due to gastrointestinal system immobility without drug administration, to postpone the use of analgesia, and to minimize the possible problems that the mother may experience in the postpartum period...

### **Methods:**

In line with the relevant literature,<sup>28,43</sup> it was decided to apply acupressure on the LI4 and ST36 points, which are frequently preferred to reduce [postoperative pain](#) and increase bowel motility. Acupressure was applied twice for a total of 20 minutes. It was applied to the LI4 and ST36 points for 10 minutes during the first application and only to the ST36 point for 10 minutes during the second application. For each point, 120 seconds of pressure and 30 seconds of rest were applied alternately. Acupressure was administered by the researcher, a certified specialist. The mean pressure applied was approximately 3 to 5 kg.<sup>44</sup> The time elapsed was measured by the researcher using a chronometer. The application was performed with such frequency as to achieve a calming effect and not to cause any discomfort or pain to the patient. The researcher used gloves during the procedure to prevent the transition of bioenergy.

The relevant acupressure points are:

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1. Stomach-36 point (ST36): This acupressure point is located four-finger widths over the lower border of the [patella](#) and one-finger width lateral to the anterior crest of the tibia.[12](#)

2. Hegu-4 point (LI4): This acupressure point is located on the dorsum (back) of the hand, between the first and second [metacarpal bones](#), approximately in the middle of the second metacarpal bone on the radial side.[12](#)

Acupressure was administered to participants who expressed verbally that they had pain 1.5 hours after the operation. Acupressure was applied once on the LI4 point to delay the time to administer analgesics. It was then applied to the ST36 point twice; the first application was performed 1.5 hours after the [postoperative period](#), and the second application was performed 6 hours after the first application. This was done in order to achieve flatulence and defecation as soon as possible without administering any medication by promoting [gastrointestinal system](#) motility. Acupressure was

administered only on the [day of surgery](#).

The patients in both the experimental and control groups were mobilized within 6 to 8 hours of the postoperative period. After the 2nd and 8th hour, the women were allowed to take drinks orally. Finally, the data about the women in the experimental and control groups were recorded by the researchers on the checklist containing the names of the patients and the envelopes they chose. The groups were then compared.

### **Results:**

...there was a statistically significant difference between the two groups in terms of the first flatulence and defecation times and the time that elapsed until the first administration of [analgesics](#) ( $p < .05$ , [Table 2](#)). The first flatulence and defecation times (19 and 23 hours after the operation, respectively) of the participants in the acupressure group were shorter than those in the control group (34 and 27 hours after the operation, respectively) ( $p < .001$ , [Table 2](#)).

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Whereas the time that elapsed until the first administration of analgesics ranged between the postoperative third and fifth hours in the acupressure group, all the participants in the control group were administered analgesics at the postoperative second hour ( $p < .001$ , [Table 2](#)).

### **Discussion:**

[Acupressure](#) is one of the oldest medical therapy methods.[35](#) In the literature, many studies have been conducted on how to reduce [postoperative pain](#) and increase [GIS](#) motility by administering acupressure.[3,5,28](#) ...

Based on the literature, acupressure was applied to two [acupuncture](#) points in the present study. The results of the present study demonstrated that the application of acupressure on the LI4 point for pain and on the ST36 point for gastrointestinal system motility postponed the administration of [analgesics](#) in the [postoperative period](#) by reducing the severity of acute pain and ensured early flatulence and

defecation by promoting gastrointestinal system motility ... In their study, Chen et al.[4](#) applied acupressure to the P6 point for 10 minutes (5 minutes for each arm) to reduce nausea, vomiting, anxiety, and acute pain during the postoperative period after [cesarean section](#) and found that after the acupressure application, the pain suffered during the first postoperative 8 hours statistically significantly decreased in the women in the experimental group compared to the women in the control group...

The most important factor associated with postoperative GIS motility is the occurrence of the first flatulence and defecation.[32](#)...In the present study, it was found that the application of acupressure on the LI4 point after cesarean section performed with spinal anesthesia postpones the administration of analgesics in the postoperative period. In addition, it was concluded that the application of acupressure onto the ST36 acupuncture point played an important role in early flatulation and defecation by preventing GIS

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immotility. Because the stimulation of these two points made the implementation of the procedure both easier and faster, [midwives](#), nurses, and [obstetricians](#) can convert this application into a protocol. Therefore, with the implementation of the treatment methods used to postpone the administration of analgesics in the postoperative period and to promote GIS motility, the medication requirements of both the mother and the infant can be effectively reduced.

### **Summary of results and recommendations**

It was concluded that acupressure applied to the LI4 points in the postoperative period after cesarean section under spinal anesthesia delayed the administration of

analgesics. In addition, it was concluded that acupressure applied to the ST36 points promoted gastrointestinal system motility, thus flatulation and defecation to occur earlier. Because the stimulation of these two points in the study made the procedure both easier and faster, midwives, nurses and obstetricians can convert this application into a protocol. Therefore, with the implementation of this treatment methods to postpone the administration of analgesics in the postoperative period and promote GIS motility, medication requirements, length of hospital stays, and healthcare costs can be effectively reduced.

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