



Acupuncture as a complement to the pharmacological management of pain, nausea and vomiting after cesarean section: A randomized clinical trial



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ARTICLE INFO

Article history:

Received 20 November 2014

Accepted 13 December 2014

Keywords:

Acupuncture
Post-cesarean section
Pain
Nauseas
Vomiting

ABSTRACT

Objective: To investigate the effectiveness of acupuncture in addition to routine care, compared with routine care alone, in the treatment of patients with pain, nausea and vomiting due to cesarean section (CS).

Methods: In a randomized controlled trial, 56 patients post CS were randomly allocated to undergo up to 1 session of real acupuncture or to a control group receiving sham acupuncture with no penetrating needling immediately after spinal anesthesia. All patients were allowed to receive usual medical care for pain, nausea and vomiting. A satisfaction questionnaire was also applied to puerperal mothers in the first 48 h after the procedure.

Results: The patient characteristics were similar in both groups. No significant difference was found in the incidence of nausea and vomiting and the antiemetic use between groups during the first 24 h and 48 h post-CS. The sham group showed better VAS pain scores at rest in the first 24 h. In the assessment of pain in 48 h there was no difference between acupuncture group and sham group.

Conclusion: This clinical trial using a single session of acupuncture showed no effectiveness of acupuncture in the prevention of pain, nausea and vomiting after CS. More well-designed studies are needed to define the role of acupuncture on post-CS.

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1. Introduction

Acupuncture is a non-pharmacological therapy modality that can be used as a complementary treatment of various painful conditions [1]. Although its mechanism of action remains unclear, the results obtained with this technique show up positive in many situations, such as low back pain, neck pain and knee osteoarthritis [2].

The use of acupuncture has gained popularity in medical centers and the number of patients undergoing this technique has increased significantly [2]. In order to find new fields of application, acupuncture is also being investigated as adjunctive treatment to

control pain in surgical procedures. Favorable results have been found in the control of postoperative pain and in reducing the incidence of nausea and vomiting using the technique as a complementary treatment to the routines of hospital units [1].

The reduction in opioid use in the transoperative period can limit the adverse effects of drugs and decreasing recovery time in post-anesthetic units [3]. Although acupuncture does not promote anesthesia or unconsciousness [4], it is capable of producing analgesia and sedation [5].

Postoperative nausea and vomiting are anesthetic complications that delay recovery of patients [6]. Despite modern anesthetic techniques and the routine use of prophylactic antiemetic, these symptoms are frequent. Acupuncture can be used in the treatment and prophylaxis of nausea and vomiting, probably by the endogenous beta-endorphin release mechanism in cerebrospinal fluid [7].

In obstetrics, even with routine use of spinal anesthesia, the incidence of emesis remains high. When antiemetic is not

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administered, 80% of puerperal women had symptoms [7]. The effectiveness of acupuncture as a complementary measure to the treatment of nausea and vomiting in cesarean section (CS) is still controversial. In 2011 a clinical trial with 450 women undergoing CS compared acupuncture at P6 acupoint with the use of intraoperative ondansetron and found that acupuncture had a similar effect to the use of ondansetron [8]. A previous study had found reduced incidence of vomiting in these patients when stimulation was performed at P6 by acupressure bands [9]. Ho et al. [10] evaluated P6 acupressure for the prophylaxis of intraoperative nausea and vomiting in a randomized clinical trial and found no reduction in the outcome of 110 evaluated pregnant women. In 2008, a systematic review assessed the effectiveness of different methods of P6 stimulation for the prevention of nausea and vomiting associated with delivery under neuraxial anesthesia; however due to the heterogeneity of the included studies it was not possible to obtain a definitive conclusion [11]. In another 2012 systematic review acupressure was found to be effective for intraoperative nausea (average RR 0.59, 95% CI 0.90–0.38, six studies, 649 women) but not postoperative nausea (average RR 0.83, 95% CI 0.68–1.00, three studies, 429 women). Acupressure was not effective at reducing either vomiting intraoperatively (average RR 0.74, 95% CI 0.46–1.18, six studies, 649 women) or postoperatively (average RR 0.69, 95% CI 0.45–1.06, three studies, 429 women) [12].

The post-CS sections pain may give rise to pain intensity 7, using the Verbal Rate Scale 0–10. The quality of post-CS pain control is often inadequate because analgesia for CS section needs to be safe for the mother and the baby [13]. The multimodal analgesia is a current technique that combines complementary techniques and drugs that act at various points in the cascade of pain. The main goal of multimodal analgesia is to reduce the side effects of opioids, such as nausea and vomiting. Acupuncture and related techniques are safe and can be used for treatment and prophylaxis of postoperative pain in routine obstetric practice in combination with, or as an alternative to, conventional therapies, thereby reducing the adverse effects of opioids. However, few studies have evaluated the effect of acupuncture in reducing pain scores in CS. A 2009 randomized clinical trial, which evaluated 60 patients, found a reduction in the use of morphine and its adverse effects in the group treated with acupuncture at P6 [14].

To the best of our knowledge there are no studies using the combination of the acupuncture point P6 (antiemetic effect) to the point LI4 (potent analgesic effect) in elective CS. Although some studies using the points separately have been published, the results are still inconclusive and the designs are often inadequate. Clinical trials that showed acupuncture as beneficial in these contexts are in their most from Eastern and may not represent the Western reality.

This study aims to investigate the effectiveness of acupuncture in addition to routine care, compared with routine care alone, in the treatment of patients with pain, nausea and vomiting due to CS. The degree of patient satisfaction with this new treatment regimen was also tested.

2. Methods

The study was approved by the Ethics Committee of the Hospital de Clínicas de Porto Alegre, Brazil. Data collection was conducted between August 2011 and March 2013. A total of 58 women undergoing elective CS were randomized to the following two groups: acupuncture treatment group (A) and control group (C). The patient sampling was performed by convenience between patients routinely assisted in the obstetric unit of the institution. Randomization was performed using random number table previously generated.

Spinal anesthesia for cesarean section
• Subarachnoid hyperbaric bupivacaine block 12,5mg and morfine 50mcg
• Tenoxicam 40mg
• Dipirone 25mg/Kg of body weight

Fig. 1. Spinal anesthesia for cesarean section.



Fig. 2. Sham acupuncture without penetration at P6 and LI4.

The analyzed outcomes were the reduction of postoperative pain and the reduction of postoperative nausea and vomiting. It was established a confidence interval of 95% and study statistical power of 80% in order to detect a 30% reduction in pain levels. For nausea and vomiting outcome, a confidence interval of 95% and a statistical power of 80% were also considered with an aim of finding a reduction of 66.6% in symptoms. The number of patients needed in each group was 28.

For pain measurement it was used the Visual Analogue Scale, which consists of a 10 cm ruler without numerical markings where one end indicates no pain and the other end the worst possible pain.

Blinding was accomplished using closed envelopes indicating each patient group. Only the doctor who did the application of acupuncture had knowledge of the contents of the envelopes. Evaluators of outcomes and people involved in the data analysis did not have access to this information. The patients were naïve to acupuncture treatment and all of them were informed about the study.

The treatment group ($n=28$) received standard anesthesia for cesarean section (Fig. 1) plus acupuncture at two points: P6 and LI4. The control group ($n=28$) received standard anesthesia for CS and sham acupuncture, according to Fig. 2. The sham acupuncture was carried out using a cotton pad under acupuncture needle so that the needle does not touch the skin of the patient. The needles used were disposable and sterile 25 mm \times 0.25 mm size. Acupuncture was performed by a sole practitioner and soon after spinal anesthesia, and the needles were held in place for 20 min. All participants received standard prescription of post-CS section analgesia (Fig. 3). The flowchart of the treatment is shown in Fig. 4.

Padronized scheme of analgesics and antiemetics post-cesarean section
• Acetaminophen 500mg PO 6/6h
• Dipirone 1g IV 6/6h
• Tenoxicam 20mg IV 12/12h
• Ondansetron 8mg IV 8/8h, if nausea or vomiting
• Metoclopramide 10mg IV 6/6h, if vomiting refractory to ondansetron.

Fig. 3. Padronized scheme of analgesics and antiemetics post-cesarean section.

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