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• Research Article

Effects of cinnamon on perineal pain and healing of episiotomy: a randomized placebo-controlled trial

Azam Mohammadi[1], Sakineh Mohammad-Alizadeh-Charandabi[2], Mojgan Mirghafourvand[3], Yousef Javadzadeh[4], Zahra Fardiazar[5], Fatemeh Effati-Daryani[1]

1. Students Research Committee, Faculty of Nursing and Midwifery, Tabriz University of Medical Sciences, Tabriz, Iran
2. Iranian Center for Evidence Based Medicine, Tabriz University of Medical Sciences, Tabriz, Iran
3. Midwifery Department, Faculty of Nursing and Midwifery, Tabriz University of Medical Sciences, Tabriz, Iran
4. Department of Pharmaceutics, Faculty of Pharmacy, Tabriz University of Medical Sciences, Tabriz, Iran
5. Women Reproductive Health Research Center, Tabriz University of Medical Sciences, Tabriz, Iran

BACKGROUND: Analgesic and wound-healing effects of cinnamon, a widely used spice, have been shown in laboratory rats. However, we found no human studies in this area.
OBJECTIVE: The aim of this study was to assess the effect of cinnamon on perineal pain and healing of episiotomy incision.
DESIGN, SETTING, PARTICIPANTS AND INTERVENTIONS: In this double-blind, randomized, placebo-controlled trial, 144 postpartum women were allocated into two groups, using stratified block randomization, 1 h after completion of episiotomy repair. They received cinnamon or placebo ointment, 2 mL every 12 h for 10 d.
MAIN OUTCOME MEASURES: Perineal pain and wound healing were assessed using visual analogue scale (0–10) and Redness, Edema, Ecchymosis, Discharge, Approximation scale (0–15), respectively. General linear model was used to compare the groups on the outcomes adjusted for baseline values and stratified factors.
RESULTS: Follow-up rate was 100% up to the 8 h time point in both groups, and 86% (62 of 72) in the cinnamon group and 85% (61 of 72) in the placebo group at day 10–11 after delivery. Pain score in the cinnamon group was significantly lower than that in the placebo group at (4±1) h (adjusted difference: −0.6, 95% confidence interval: −1.0 to −0.2) and (8±1) h (−0.9, −1.4 to −0.3) after intervention, and on the 10–11th day after delivery (−1.4, −2.0 to −0.7). Also the cinnamon group showed significantly more improvement than the control group in healing score at (8±1) h (−0.2, −0.4 to −0.04) and the 10–11th day after delivery (−1.6, −2.0 to −1.1).
CONCLUSION: Cinnamon can be used for reducing perineal pain and improving healing of episiotomy incision.
KEYWORDS: *Cinnamomum zeylanicum*; episiotomy; postpartum period; pain; wound healing; randomized controlled trial

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Correspondence: Sakineh Mohammad-Alizadeh-Charandabi; Tel: +98-9143136276; E-mail: alizades@tbzmed.ac.ir, smoalch@yahoo.com

1 Introduction

Episiotomy is the most common obstetric intervention in the world. Its prevalence has been reported to be 43% to 100% in primiparous women in Asia[1] and up to 100% in some hospitals of major cities in Iran[2].

Prevalence of perineal pain in people with episiotomy is about fourfold compared to those with no episiotomy[3]. Perineal pain adversely affects different aspects of women's life including lactation, child care and daily chores[4]. Postpartum is a sensitive time when mothers must juggle their own recovery while dealing with the needs of their newborns. Effective pain relief is a major aspect of postpartum care that can positively affect women's life[5–7].

There are several common methods used for reducing pain and accelerating the episiotomy-healing process[3]. Nonsteroidal anti-inflammatory drugs are among the typical medications used to reduce episiotomy pain[4], though they may cause some side effects such as peptic ulcers[8]. Betadine (Iodine) is also commonly used to prevent infection and help with healing of the episiotomy wound. However, various studies show that it has no significant effect on microorganism-reduction[9]. Many women find the current available methods unsatisfactory and are looking for other effective and safe options.

Only a few studies have been conducted on the care of this very common wound[10]. Some studies have examined the effects of herbal remedies such as lavender[11], olive oil[12], or curcumin[13] on episiotomy pain and healing. However, definitive effects of these methods have not been verified through clinical trials, and more extensive studies are still required in this area[3].

Cinnamon is a widely used spice worldwide[14]. It has been found to have numerous properties including anti-inflammatory, antioxidant, and antimicrobial[15]. Analgesic[16,17] and wound-healing[18] effects of its ethanol extract have been shown in laboratory rats. Also, no significant adverse effects of cinnamon have been found in human studies[19].

Considering the above-mentioned evidence on the possible efficacy and safety of cinnamon extract, plus the lack of any human studies on its analgesic and healing effects, this study was conducted to determine the effects of a 10-day application of 2% cinnamon extract ointment on episiotomy wound. The primary outcomes involved reducing perineal pain and accelerating healing of the episiotomy wound; secondary outcomes measured consumption of other analgesics, as compared to the placebo group.

2 Materials and methods

2.1 Study design, participants and setting

This study was a randomized, double-blind, placebo-controlled trial. Women aged 18 to 40 years with parity 1–3 who had vaginal birth with episiotomy were included in the study. Exclusion criteria were: being illiterate; having no access to a phone line (for follow-up); use of drugs or psychotropic substances; gestational age of less than 37 or more than 42 weeks; history of chronic physical or mental diseases that may interfere with healing; following a special diet; long-term (over 18 h) rupture of amniotic sac; severe anemia (haemoglobin less than 70 g/L at admission); history of hypersensitivity to certain drugs; extension of episiotomy (tears of grade 3 or 4); and operative delivery.

Recruitment was done at two hospitals affiliated to the Tabriz University of Medical Sciences (Alzahra, Taleghani, Iran), and one hospital affiliated to the Social Security Organization (29 Bahman). The hospitals are the only public maternity facilities in Tabriz and have the highest number of clients for vaginal delivery services among all centers in Tabriz, Iran.

In these hospitals, episiotomy is usually performed in more than 90% of the first vaginal deliveries, and 70% of the second and third deliveries. Episiotomy incision and repair is often done by midwifery students, obstetrics assistants, and senior medical students, and in some cases by employed midwives. Cephalexin (500 mg, oral) is routinely administered four times a day for 6 d after delivery. In all the three medical centers, non-continuous stitches are used to repair episiotomy.

2.2 Allocation and intervention

Allocation sequence was determined by block randomization with block sizes of 4 and 6, and allocation ratio of 1:1 using a computer-generated randomization schedule with stratification for center (three centers) and parity (two strata: first and second or third). Sequentially numbered, opaque, sealed envelopes of the same shape and size containing cinnamon or placebo ointment were used to conceal the allocation and to maintain blinding. Every package contained one 40 g cinnamon or placebo tube with no label on it.

The packages and allocation sequence were prepared by a person who was not involved in the recruitment, data collection and data analysis. Therefore, the investigators and participants were unaware of the type of ointment given to every participant (double blinding).

After obtaining written informed consent from eligible women at the first stage of delivery, the investigator (first author, AM) attended at bedside of every participant to record details of delivery and episiotomy procedure in a checklist. The person in charge of delivery was requested to use no disinfectant on the perineal area. The first part of the questionnaire (socio-demographic and reproductive characteristics) was completed based on the file documentation and interview with the participants. The investigator measured episiotomy incision length using a sterile tool and transferring it onto a ruler. After baseline assessment