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Original Research Article

Evaluating the effects of Dill (*Anethum graveolens*) seed on the duration of active phase and intensity of labour pain

Seyedeh Tahereh Mirmolaee[a], *Seyedeh Fatemeh Hekmatzadeh*[b], *Anooshirvan Kazemnazhad*[c], *Fariba Aidenlou*[d], *Mehri Shamsi*[a,*]

[a] *Nursing and Midwifery Faculty of Tehran University of Medical Sciences, Tehran, Iran*
[b] *Nursing and Midwifery Faculty of Yasuj University of Medical Sciences, Yasuj, Iran*
[c] *Trbiyat Modares University, Tehran, Iran*
[d] *Tehran Social Security Organization, Iran*

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ABSTRACT

Introduction: Pregnant women in traditional cultures often use herbal medicines to facilitate childbirth and reduce labour pain. The aim of this study was to evaluate the effects of Dill seed on duration of the active phase and intensity of labour pain in parturient women.
Materials and methods: This retrospective cohort study evaluated the effects of Dill seed on duration of active phase and intensity of labour pain in 85 parturient women who consumed a tea made from Dill seed (case group) and 85 parturient women who consumed no medicines during labour (control group). Data collection instruments were a questionnaire, data recording sheet, Sonny Kidd and Visual Analogue Scale (VAS). All statistical analyses were performed by SPSS 16.
Results: The results showed that in the first stage of labour pain the average duration of active phase in the case group was 4.21 ± 2.6 h compared with 6.01 ± 3.4 h in the control group ($p = 0.001$). The comparison of pain intensity in the two groups was not statistically significant ($p > 0.05$), but progress of labour in the case group was more than the control group ($p = 0.001$).
Conclusion: This study showed that a tea made from Dill seed can be used in the initial stages of labour without any side effects on mother and foetus to reduce labour pain.

1. Introduction

Traditional cultures often rely on the beneficial effects of herbal remedies during pregnancy, labour and postpartum period. The perceived knowledge and the correct use of these natural medicines have been acquired and improved over many generations. It is estimated that 85% of the population in developing countries depend mainly on traditional health care systems (Attah et al., 2012). During pregnancy and childbirth,

* *Corresponding author at*: Nursing and Midwifery Faculty, Tohid Square, Dr. Mirkhani Street, Tehran, Iran. Tel.: +98 9122356736; fax: +98 2166904252.
E-mail address: mehri13@yahoo.com (M. Shamsi).

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traditional medicine practice relies on the use of certain herbs for their beneficial effects in toning the uterus muscle, including labour, removing retained placenta and management of postpartum bleeding (Gruber and O'Brien, 2011).

Currently, pharmaceutically derived oxytocin is used for induction and augmentation of uterine contractions. Similarly prostaglandins may be administered for their direct effects on the myometrium. However, both of these have side effects such as hypertension, water intoxication, bradycardia, headache, nausea, vomiting, anaphylactic reactions, cardiovascular complications and rupture of uterus (Cuningham et al., 2010).

As discussed above, despite their effectiveness, drugs may have unwanted side effects. Therefore, in recent years, the use of herbal medicine with fewer side effects has widely increased (Mahdavian et al., 2010). Herbal medicines, which include a spectrum of substances ranging from homemade teas to the national regulatory bodies-approved medical substances, are defined as plant-derived products that are used for medicinal or nutritional purposes (Kuczkowski, 2006).

Many years ago, consumption of herbal medicine was common in Iran and other countries. For a variety of reasons herbs were used by many women during pregnancy (Ebrahimzadeh Zagami et al., 2012). Sereshti et al. (2006) reported that 51.9% of pregnant women in Iran consumed herbal drugs and that most of their consumption in the third trimester related to the last month of pregnancy (23.3%) in order to induce labour. In Iran one of the most common herbal medicines used for reducing labour pain is boiled Dill seed. Dill is an aromatic and annual herb of the Apiaceae family and it has been used in traditional herbal medicine for more than 2000 years. It acts as an aromatic, carminative, mild diuretic, galactagogue, stimulant, stomachic, appetite stimulant and digestive herb. Dill stimulates milk flow in a lactating mother. Also Dill is used to reduce blood cholesterol and lipid levels, menstrual bleeding and dysmenorrhoea (Jana and Shekhawat, 2012).

The phytochemical constituents of Dill seed include tannins, resinous material and a volatile oily essence made of limonene, keton and carvon. Its leaves contain active compounds such as phalanderen and anethole. The anti-inflammatory effects of Dill seed may be due to carvon and limonene. Tannins are usually derived from polyphenols and have contractive properties in exposed tissue (Soaros et al., 2007).

In vitro studies conducted by Lis-balchin and Hart (1997) reported that a series of herbs such as Dill seed, angelica, fennel and nutmeg have contractive effects on uterine tissue. Mahdavian et al. (2010) showed that oral consumption of 6–7 g of Dill seed extract after delivery, decreased postpartum haemorrhage. They reported in a later study that Dill seed shortened the duration of the first stage of labour (Ebrahimzadeh Zagami et al., 2012).

The Committee for Voluntary Medicinal Products (1999) reported that the dried berry of Juniper has contractive effects on the uterus myometrium and that this effect is due to the limonene content of the herb. Gharb Naseri et al. (2007) reported that Dill seed plays an effective role in releasing oxytocin which is a basic hormone in uterine contractions.

In view of the effects of Dill on uterine contraction and the ongoing consumption of this herb by parturient women in Iran, the authors aimed to evaluate the effects of Dill seed on the duration of the active phase of the first stage of delivery and the intensity of labour pain in parturient women.

2. Materials and methods

This retrospective cohort study was performed at the central (Imam Sadjad) hospital in Yasuj city in Iran between July 2010 and October 2011 and was approved by the Ethics Committee of Tehran University of Medical Sciences as part of a thesis for a masters' degree in midwifery. The aim of the study was to evaluate the effects of Dill seed on the duration of the active phase and intensity of labour pain in parturient women. All the parturient women included in this study were between 18 and 35 years of age. They had singleton and term pregnancy, a parity of less than 3, started labour naturally with normal FHR (foetal heart rate), had a natural pattern of uterine contractions and a dilatation of cervix 3–4 cm, cephalic presentation and an estimated of foetal weight between 2500 and 4000 g. Subjects were excluded if they had any cardiovascular disease, gestational diabetes, preeclampsia, rupture of foetal membrane, vaginal bleeding or any indication of the need for Caesarean section. In addition, any complications during labour, which led to the use of analgesic drugs or midwifery interventions to accelerate labour or Caesarean section or vaginal bleeding, caused the parturient women to be excluded from the study.

The conditions of the study were fully explained to parturient women who met the inclusion criteria. The parturient women who had used the Dill seed infusion (one level of tablespoon of whole fresh Dill seeds seeped in a half or whole cup of boiling water for 3–4 min) before going to hospital at the beginning of uterine contractions were placed in the case group ($n = 85$) and those who had not consumed any herbal drugs were placed at the control group ($n = 85$).

Data was collected with a questionnaire, together with a record of vital signs, cervix dilatation, effacement and standard Visual Analogue Scale ruler (VAS) for intensity of pain. The assumption in this scale was an 11 point (0–10: 1–3 mild, 4–7 moderate, 8–10 severe pain). This scale has been repeatedly used in different studies and its reliability and validity are commonly recognized.

During the active phase, the uterine contractions were measured by touching the fundus of the uterus and a vaginal examination was carried out every hour. Additionally the intensity of labour pain was recorded by parturient women hourly. If any parturient woman had a digestive incident such as diarrhoea, nausea, or vomiting, it was recorded.

The form of recording neonate characteristics including sex, weight and Apgar score (first test given to a newborn to quickly evaluate their physical condition) in the first and fifth minutes after birth was completed.

Statistical evaluation was performed with SPSS® 16.0 software (SPSS Inc., Chicago, IL, USA). The quantitative data was displayed as a mean ± standard deviation and the qualitative data was displayed as a number with percentage. *T*-tests and chi-squares test were used when appropriate and a *p*-value, less than 0.05 was considered as statistically significant.