

The effect of Lavender Essence on pain severity after cesarean section under spinal anesthesia

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ABSTRACT

Background: Pain is one of the most common complications after cesarean section. Aromatherapy is one of the nonpharmacological pain relief methods. This study aimed to determine the effect of lavender essential oil on pain severity after cesarean section.

Methods: This single-blind randomized clinical trial was performed in 2015 on 80 patients after cesarean section. Based on the criteria for inclusion, 40 patients were randomly assigned to the intervention group (inhale two drops of lavender essential oil) and 40 patients in the control group (placebo inhalation with two drops of normal saline). All of the patients were given Diclac 100 mg Suppositories during the recovery period. Up to 6 hours after surgery if the patients had pain the interventions were conducted in both groups. Pain intensity was measured by Visual Analog Scale. Data analysis was performed with SPSS 20 statistical software.

Results: Pain severity in patients treated with lavender oil was lower than the placebo group. This difference was statistically significant ($P < 0.00$). Use of analgesics was lower in the intervention group than the control group ($P < 0.05$).

Conclusion: After surgery, use of lavender decreased the need for anti analgesic medications. Therefore, it is recommended to use Aromatherapy in addition to other medication to reduce the pain.

KEY WORDS: lavender, pain, surgery, caesarean section.

1. INTRODUCTION

Cesarean section is one of the most common midwifery operations in the world and nearly 40% of all child deliveries in Iran are through caesarean (Seidy, 2010; Jouhari, 2014), while this statistics in the world ranges from 15 to 25 percent (Jouhari, 2014). One of the most common and main causes of people's fear of operation is the pain flowing it whose unfavorable physiological side effects result in higher treatment costs and a longer period of hospitalization (Sarin, 2016). Keeping in mind the importance of looking after the mother in the early hours of child delivery and her calmness in order to start the breast feeding process, reducing the post-delivery pain is of significant importance (Suresh, 2012). Thus, it is necessary to have a medical or non-medical intervention to kill the pain (Vadivelu, 2016).

The common methods of controlling the pain after operation rely on chemical Analgesic. Nonsteroidal anti-inflammations or Prostaglandins inhibitors such as Diclofenac are the main line of treatment after caesarean (Bozkurt, 2009). As for the benefits of such medicines compared to opiates, one can mention non-weakening of the respiratory system, no addiction to the medicine, and less hypnotic effects (Olateju, 2016). It will result in the quicker commencement of breast feeding, shorter period of rest in bed, better discharge of lung discharges, preventing the DVT, quick restoration of the intestinal functioning and a sense of quicker recovery (Darvish, 2014). Using rectal Diclofenac suppository results in more pain reduction compared to other Nonsteroidal anti-inflammatory medicines after caesarean (Akhvanakbari, 2013).

Further to medical methods of pain control, there are also certain non-medical methods for pain relief (O'Garar, 2016). One of the potential methods recommended for this purpose is using aromatherapy (Johnson, 2016) where refined oils (oil essences) are utilized. These types of oils are 100% herbal (a fact that makes them quite affordable), have no serious side effects, are non-invasive and have no medical interventions. As utilizing them is simple and cheap and they are better accepted by patients, they are considered to be good complements for post-operation pains (PdQ Integrative and Complementary Therapies Editorial, 2002) and are widely used in nursing cares (Johnson, 2016).

One of the useful methods of utilizing aromatherapy products is to produce them in the form of respiratory, fumigation and sprayed products which spread the aromatic material's particles gained through oil refining in the air. These particles are then inhaled and absorbed by the body (Ueki, 2015). In a case study on oil essences, Stea (2014), showed that essences made out of mint, lavender and orange are really useful in reducing the post-operation pain. One of the herbal, aromatic volatile oils which is widely used in aromatherapy is the oil extracted from lavender

(Hasanzadeh, 2016). The scientific name of lavender is *Lavandula angustifolia* which belongs to the Lamiaceae family. Several therapeutic properties have been introduced for this herb such as pain relieving, tranquilizing, carminative characteristics, removing spasm, and anti-bacterial and anti-virus effects (Boehm, 2012). This herb is used in aromatherapy as its anti-pain and anti-spasm influences exercised through our neurological system have been proved (Algieri, 2016).

Keeping in mind the importance of mothers' pain relief after caesarean and considering the complications caused by the pain for mother and fetus and remembering this issue that one of the main duties of the nurses is the complementary medical interventions and consumption of less chemical medicines (Johnson, 2016), the present research was conducted to study the effect of lavender essence on post-caesarean levels of pain.

2. METHODS & MATERIALS

Methodology: The present research is an interventional study conducted in accordance with the principles of single-blind clinical trial in Besat Hospital of Sanandaj (associated with Kurdistan Medical Science University) in 2016. The population included all those patients applying for caesarean. There were certain criteria for inclusion in the research such as the patient applying for caesarean, his consent to take part in the research, using an anesthetic technique (spinal anesthesia) and no previous history of using Analgesics. Having no background diseases and patient's withdrawal from the study were some of the exclusion criteria. Based on a statistical estimation with an alpha of 5% and a beta of 20% and estimating the average therapeutic difference of these two methods in previous studies (20%), 40 participants were selected for each group.

All those patients qualified for inclusion were selected through convenient sampling. Then, through random paired blocking (selecting two patients), 80 patients were finally selected and divided into the intervention (receiving lavender essence) and control (receiving normal saline as placebo) groups.

Before sending the patients to recovery unit, all of them used 100 mg diclofenac suppository. 6 hours after operation; the patients who had a pain in a scale of more than 3 were selected based upon VAS measurement tool and randomly divided into the control and intervention groups. In the control group, two drops of lavender essence were poured on a ball of cotton. The ball was placed in front of the patient's nostrils and he was asked to inhale the essence. In the control group, two drops of normal saline were poured on a similar cotton ball and the patient was asked to inhale it.

They were not aware of the type the essence and placebo they were going to receive and the research proceeded in accordance with the principles of single-blind method. The intensity of pain was scored based on the standard tool Visual Analog Scale from 0 to 10. The expected consequence was a pain level more than three scales in VAS tool. Another expected consequence was the amount of diclofenac used. We could finally answer this question about the influence of lavender on reducing the amount of diclofenac consumed. If the scale of pain was greater than three, a 100 g rectal diclofenac suppository was issued by the doctor. A data recording sheet was used to collect information about the level of pain and other demographic characteristics.

The collected data was analyzed using SPSS software and Chi-square and independent T tests. Before beginning the research and after the project was approved through IR.MUK.REC.1394.122 permit of the ethics committee, the principal consent for the project was gained.

3. RESULTS

In this study, no statistically significant difference was observed between the two groups in terms of the patients' age ($p > 0/05$). No statistically significant difference was observed between the two groups in terms of average weight, number of pregnancies, hemodynamic status, the amount of oxygen received, type of spinal anesthesia, and the medicines taken ($p > 0.05$). The comparison of average levels of pain before intervention exhibited between the two groups no statistically significant difference. However, the average pain level after receiving lavender essence in the intervention group was less than the value recorded in control group after receiving placebo. This statistical difference between the two groups was significant ($P < 0.02$) (table.1). In the case of persistent pain after intervention in the groups receiving lavender and a placebo level above 3 based on the Visual Analog Scale; the patients would receive Analgesic. The amount of Analgesic received by those in the intervention group who had received lavender was more than the amount of the placebo received by those in control group. This statistical difference was significant ($P < 0.001$).

Table.1. Comparison of the average pain levels in both groups (using T test)

Level of pain	Group	Mean	SD	P-value	Test
Before intervention	Receiving lavender	6.65	2.15	0.239	t-test
	Receiving placebo	6.10	1.98		
After intervention	Receiving lavender	4.30	1.74	0.001	t-test
	Receiving placebo	5.77	1.94		

Table.2. Comparing the frequency and percentage of taking Analgesic after intervention in both groups (using Chi-square test)

Taking Analgesic Group	Taking Analgesic		Taking no Analgesic		Total		P-value	Test
	Frequency	Percent	Frequency	Percent	Frequency	Percent		
After receiving lavender	23	57.5	17	42.5	40	100	0.001	X_2 df =2
After receiving placebo	36	90	4	10	40	100		

DISCUSSION

As the results of the present research indicate, using lavender's essence as a complementary intervention besides medical treatments could reduce the amount of chemical medicines taken for pain relief. All the patients in both groups who had received lavender's essence and placebo had used diclofenac suppository before intervention. After intervention, the frequency of receiving diclofenac suppository in the group receiving lavender's essence was considerably less than the group receiving placebo. This can be attributed to the greater pain relief caused by lavender's essence as compared against the placebo group. The majority of researches point to the fact that aromatherapy with lavender's essence among women, pregnant mothers or those undergoing a child delivery or caesarean had several pain killing, anti-inflammatory, and anti-anxiety benefits (Karaman, 2016). It has also been used as a complementary treatment in some diseases other than gynecological diseases such as cancer (Boehm, 2012). The study conducted by Olapour (2013), pointed to the effectiveness of lavender's essence after caesarean operation in pain relief. They arrived at the conclusion that using lavender's essence after caesarean operation reduced the need for diclofenac suppository. These results are in line with the findings of our research. The difference between this research and our study was the evaluation of the hemodynamic status of patients further to measuring their level of pain. As it turned out, utilizing lavender's essence was really effective in reducing the heart beat and restlessness of patients. In another study (Hadi & Hanid, 2011), it turned out that utilizing lavender's essence could reduce post-operation pain. The results of this research are in line with those of the present study with minor differences in the volume of sample and the sampling method which had no influence on the difference between the results of these two studies. There are many other studies which have compared the utilization of lavender's essence to reduce post-caesarean pain with other methods. For example, Ebrahimi Houshyar (2015), conducted a comparative research to compare aromatherapy with lavender's essence and on the level of pain after caesarean. They arrived at the conclusion that pain relief by electrical stimulation of nerve through skin was greater than inhaling lavender's essence. However, both methods were more effective than the placebo group in pain relief. The results of this research about the influence of lavender on pain relief were similar to the current research. The only difference was utilization of decreasing non-medical interventions such as utilization of electrical stimulation of nerve through skin for pain relief besides aromatherapy. It is recommended to conduct future researches on the comparison between aromatherapy and other reducing non-medical interventions such as hypnotism therapy, relaxation, music therapy, acupressure, acupuncture, etc.

4. CONCLUSION

Aromatherapy by inhaling lavender's essence can be utilized as a safe and dangerless method as a complementary medicine besides medical interventions. Utilizing aromatherapy, especially inhaling lavender's essence can reduce consumption of chemical medicines among patients. The results of this research are recommended to be used for further development of researches in this field and preparing clinical guidelines to use aromatherapy in clinics.

5. ACKNOWLEDGEMENT

This article was extracted from an approved research project conducted by the Clinical Research Unit of Be'sat Hospital of Kurdistan University of Medical Sciences, Sanandaj, Iran. Hereby, the researchers extend their gratitude to the Vice Chancellor of Research at Kurdistan University of Medical Sciences for the financial support of this study.

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