



The effects of lavender oil and ice applications used in episiotomy care on episiotomy pain

Epizyotomi bakımında kullanılan lavanta yağı ve buz uygulamalarının epizyotomi ağrısına etkileri

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ABSTRACT

Aim: The present study investigates the effects of lavender oil and ice applications on episiotomy pain and wound healing.

Materials and Methods: This study was organized as a semi-randomized controlled type of research. A total of 96 term pregnant women who gave birth in the delivery service of Nazilli State Hospital and underwent episiotomy at birth, had a Visual Analog Skala (VAS) value greater than 3 and agreed to participate in the study were included in the study. The patient information form, the Visual Analog Scale, and the REEDA Scale were used for data collection. The research data was analyzed using number, percentage, the chi-square test, the Kruskal Wallis test, the Mann-Whitney U test, One-Way Anova test, Tukey HD test, and the Wilcoxon Signed Ranks test.

Results: The mean VAS values of the groups before the application were 7.90 ± 0.92 for the lavender group, 8.29 ± 1.03 for the ice group, and 8.00 ± 1.00 for the control group. In addition, it was found that there was a statistically significant difference between the VAS values between the groups after the application ($p < 0.05$), and the mean VAS values in the intervention groups decreased (Lavender group 6.84 ± 1.08 , ice group 5.70 ± 1.53). While there was no statistically significant difference in the mean REEDA recovery scores between the groups before the application ($p = 0.912$), there was a statistically significant difference in the REEDA recovery scores of the intervention groups and the control group after the application ($p = 0.000$).

Conclusion: According to the findings of the study, lavender oil and ice applications used after labor reduce perineal pain and accelerate wound healing.

Keywords: Perineal pain, lavender oil, and ice application.

ÖZ

Amaç: Bu çalışma, lavanta yağı ve buz uygulamalarının epizyotomi ağrısı ve yara iyileşmesi üzerine etkilerini araştırmak amacıyla yapılmıştır.

Gereç ve Yöntem: Bu çalışma yarı randomize kontrollü araştırma türü olarak düzenlenmiştir. Nazilli Devlet Hastanesi doğum servisinde doğum yapan ve doğumda epizyotomi uygulanan, Görsel Analog Skala (VAS) değeri 3'ün üzerinde olan ve çalışmaya katılmayı kabul eden toplam 96 term gebe çalışmaya dahil edildi.

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Verilerin toplanmasında hasta bilgi formu, Görsel Analog Skala ve REEDA Ölçeği kullanıldı. Araştırma verileri sayı, yüzde, ki-kare testi, Kruskal Wallis testi, Mann-Whitney U testi, One-Way Anova testi, Tukey HD testi ve Wilcoxon Signed Ranks testi kullanılarak analiz edildi.

Bulgular: Uygulama öncesi grupların ortalama VAS değerleri lavanta grubu için 7.90 ± 0.92 , buz grubu için 8.29 ± 1.03 ve kontrol grubu için 8.00 ± 1.00 idi. Ayrıca uygulama sonrası gruplar arasında VAS değerleri arasında istatistiksel olarak anlamlı fark olduğu ($p < 0.05$) ve müdahale gruplarında ortalama VAS değerlerinin düştüğü (Lavanta grubu 6.84 ± 1.08 , buz grubu 5.70 ± 1.53) bulundu. Uygulama öncesi gruplar arasında REEDA iyileşme puan ortalamaları arasında istatistiksel olarak anlamlı fark bulunmazken ($p = 0.912$), uygulama sonrası müdahale grupları ve kontrol grubunun REEDA iyileşme puanlarında istatistiksel olarak anlamlı fark vardı ($p = 0,000$).

Sonuç: Çalışmanın bulgularına göre doğum sonrası kullanılan lavanta yağı ve buz uygulamaları perine ağrısını azaltmakta ve yara iyileşmesini hızlandırmaktadır.

Anahtar Sözcükler: Perine ağrısı, lavanta yağı ve buz uygulaması.

INTRODUCTION

Episiotomy is an incision to the bulbocavernosus muscle in the perineum to allow easy, fast, and safe delivery of the infant's head, protect the tonus of the perineum, and prevent undesired tears (1). The American College of Obstetricians and Gynecologists (ACOG) states that episiotomy may be used in maternal or fetal indication cases to protect against maternal lacerations and facilitate or accelerate delivery, yet recommends limited use unless necessary (2, 3). The episiotomy rate is reported to be 9.7% in Switzerland, 100% in Taiwan, 62.5% in the USA, and 30% in Europe (4).

The muscles in the perineum are involved in many activities such as sitting, walking, standing, squatting, bending, urinating, and defecating. Episiotomy applied to this area can cause a lot of discomfort in women. Because episiotomy is a very frequently used intervention in delivery and almost every woman experiences pain with different severity, there are many studies on the severity of pain experienced after episiotomy and methods used to reduce this pain (5, 6, 7, 8). However, the number of studies on episiotomy pain is quite limited in Türkiye (7).

Even today, a wide variety of methods are used in episiotomy care. Examples include ice application, epithelial and anesthetic creams or sprays, sitz baths, or cortisone creams. In addition, cold/hot, wet/dry methods can also be used. However, the effectiveness of these methods in eliminating pain and discomfort is a matter of debate, and it is emphasized that more research is needed (9).

Ice application is one of the alternative treatment methods used in episiotomy care. Ice application shows its effect by decreasing the local temperature in the skin and subcutaneous tissues. Ice application slows down tissue

metabolism in the area where it is applied and creates a vasoconstriction and anesthetic effect, thus reducing the sense of pain. In addition, vasoconstriction reduces edema and slows down inflammation in the application area. Since the prolonged application will cause cell death, it is recommended to apply for 15-20 minutes several times a day (10, 11).

One of the alternative treatment methods used in episiotomy wound care and pain treatment is lavender oil (8, 12). Due to its antiseptic and healing properties, lavender oil is increasingly used in wound care. Lavender is a plant native to the Mediterranean region. In ancient times it was used as mummification, bath additive, and antiseptic.

Lavender oil shows its effect by being absorbed through the skin within 20-40 minutes after application. (12) Lavender oil ingredients have anti-inflammatory, antifungal, and antibacterial effects against gram-negative and gram-positive bacteria and pathogenic fungi (13). Lavender oil shows its antimicrobial effect with the aldehydes and phenols it contains (14). In addition, lavender oil is effective in antibiotic-resistant bacterial infections (15).

Nurses are responsible with providing women in labor with high-performance care, assessing their satisfaction levels, addressing the management of episiotomy pain, and offering evidence-based applications for the said pain. Therefore, the present study investigated the effects of lavender oil and ice applications used in episiotomy care on pain and wound healing.

MATERIALS and METHODS

Study Design

The study was designed as a semi-randomized controlled trial.

Sample & Setting

The study population was made up of women who had an episiotomy in the obstetrics unit of Nazilli State Hospital. The sample consisted of 96 women (32 in the lavender group, 31 in the ice group, and 33 in the control group) over the 37th gestational week who had an episiotomy in the obstetrics unit of Nazilli State Hospital. Those who were willing to participate in the study, over the age of 18, term nulliparous (in the 37th-42nd gestational week), showed single fetus cephalic presentation, reported 3 cm and above perineal pain on the Visual Analog Scale (VAS), and had not received analgesics within the last four hours. The semi-randomized method was used to create the groups. The first day of the week was determined as the lavender group, the second day of the week was chosen as the ice group, and the third day of the week was determined as the control group. The lavender oil application commenced at the 2nd hour after delivery and involved a sitz bath twice daily in 5 lt water (36.5 °C) containing 5-7 drops of lavender oil. For the ice application, ice blocks 8 cm in width and 16 cm in length and bandages were obtained from a pharmacy. The ice application commenced at the 2nd hour after delivery and involved ice application on the perineum for 10-15 minutes every 3-4 hours. The women in the control group did not receive therapy (Figure-1).

Profile To Participants Involved in The Study

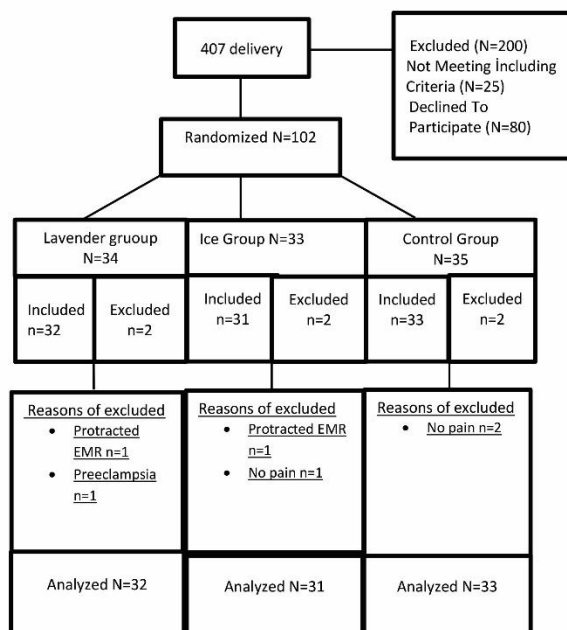


Figure-1. Consort flow diagram.

Pain severity assessment times were determined based on the study conducted by Sheikhan (9). Accordingly, the pain severity was assessed at the second hour to and after the application, at the 14th hour prior and after the application, and prior to discharge. The dose of analgesics and the time of analgesics administration were recorded throughout the study. The pain severity assessment was performed similarly for the control group, and their analgesic use was recorded as well. The REEDA assessment was performed for each group after the episiotomy repair following delivery and prior to discharge.

SPSS 18 was used for data analysis in this study. The Shapire-Wilk test was used to determine whether or not the research data showed normal distribution. The chi-square test and the Kruskal Wallis test were used to analyze descriptive characteristics of the groups and obstetric data, and the Mann-Whitney U test and the Wilcoxon Signed Ranks test were used to assess differences between groups. Also, a power analysis was applied to determine the sample size and to reveal the power of the research. The results were assessed with 95% confidence interval and $p < 0.05$ significance level.

Ethical Consideration

The necessary permission was obtained from the Clinical Research Ethics Board of the Medical School of Ege University (14-6.1/16). The approval of the General Secretariat of the Public Hospitals Association of Aydın was obtained to perform the study in the Nazilli State Hospital. The permission of Üstünsöz (16), who performed the Turkish validity and reliability testing of the REEDA scale used in this study to collect data, was obtained via e-mail. The participants were explained the purpose of the study, and their written consent was received.

RESULTS

There was no statistically significant differences between the intervention and the control groups in terms of age ($p=0.766$), educational level ($p=0.109$), gestational week ($p=0.871$) ($p > 0.05$), and antenatal follow-up ($p=0.396$) (Table-1). In our study, mediolateral episiotomy was performed in 100.0% of the lavender oil and control groups, while median episiotomy was performed in 3.2% of the ice group. There was no statistically significant difference between the groups according to the episiotomy type ($p > 0.05$). 11.5% of the participants in the lavender group, 19.4% in the ice group, and 18.2% in the control group had lacerations that were not caused by episiotomy. No statistically significant

difference was found between the groups in terms of the presence of tear ($p>0.05$).

In our study, the average amount of analgesic use in the lavender group was 1.65 ± 0.14 gr, the average amount of analgesic used in the ice application group was 1.63 ± 0.13 gr, and the average amount of analgesic used in the control group was 1.78 ± 0.28 gr. Although there is no statistically significant difference between the amount of analgesic used between the study and control groups ($p>0.05$), the amount of analgesic used in the study group was less than the control group.

Table-2 shows the average pain scores of the women before and after the application. When

the mean pain scores between the groups before and after the application were compared, no statistical difference was found between the groups at the second hour before the application ($p>0.05$), while there was a statistical difference at the second hour after the application ($p<0.05$). This difference was determined between all groups as lavender and ice ($U=252.5$, $\alpha=0.00$), lavender and control ($U=198.5$, $\alpha=0.00$), and ice and control ($U=119.0$, $\alpha=0.00$) ($p<0.05$). Although pain scores decreased more in both study groups than in the control group, it was observed that the scores decreased more in the ice group than in the lavender group.

Table-1. Comparison of findings between the intervention groups and the control group according to demographic characteristics.

Variable	Lavender		Ice		Control		P- Value
	N	%	N	%	N	%	
Maternal Age							
18-25	16	50.0	16	51.6	15	45.5	0.766*
26-33	12	37.5	11	35.5	16	48.5	
34-41	4	12.5	4	12.9	2	6.0	
Education							
Primary School Graduate	16	50.0	12	38.7	12	36.4	0.109*
Secondary School Graduate	6	18.8	14	45.2	11	33.3	
High School Graduate	9	28.1	5	16.1	6	18.2	
University Graduate	1	3.1	0	0.0	4	12.1	
Working Status							
Yes	7	21.9	4	12.9	10	30.3	0.243*
No	25	78.1	27	87.1	23	69.7	
Gestational Week							
37/38hft	7	21.9	7	22.6	9	27.3	0.871*
38+1 /39 hft	11	34.4	13	41.9	10	30.3	
39+1/40hft	9	28.1	8	25.8	8	24.2	
40+1/41hft	4	12.5	3	9.7	6	18.2	
41+1/42 hft	1	3.1	0	0.0	0	0.0	
Antenatal Follow-Up							
0-3	1	3.1	3	9.7	1	3.0	0.396*
4 ve üstü	31	96.9	28	90.3	32	97.0	

*Chi-square test, Statistical significance values ($p<0.05$) are given in bold

Table-2. Comparison between the intervention groups and the control group according to average pain scores of the women before and after the application.

Application Times	Variables	N	Mean ± SD	Min – Max	KW	P
2th Hour Before The Application	Lavender Group	32	7.90 ± 0.92		3.98	0.137*
	Ice Group	31	8.29 ± 1.03	5-9		
	Control Group	33	8.00 ± 1.00			
2th Hour After The Application	Lavender Group	32	6.8± 1.08		39.58	0.00**
	Ice Group	31	5.7± 1.53	3-9		
	Control Group	33	8.00 ± 1.00			
14 th Hour Before The Application	Lavender Group	32	4.75 ± 1.21		32.32	0.00**
	Ice Group	31	4.22 ± 1.47	1-8		
	Control Group	33	6.12 ± 1.16			
14 th Hour After The Application	Lavender Group	32	3.50 ± 1.31		56.94	0.00**
	Ice Group	31	2.25 ± 1.34	1-8		
	Control Group	33	5.90 ± 1.23			
Prior to Discharge d	Lavender Group	32	1.90 ± 1.05		46.91	0.00**
	Ice Group	31	0.41 ± 1.08	0-5		
	Control Group	33	3.03 ± 1.26			

*KW: Kruskal Wallis test, ** Mann Whitney-U test Statistical significance values (p<0.05) are given in bold.

a : p value of difference between lavender and control group

b : p value of difference between lavender and ice group

c : p value of difference between ice and control group

There was a statistically significant difference between the groups regarding average VAS scores at the 14th hour before application (KW= 32.32, α= 0.00). While the difference between the

lavender and the ice groups (U=397.0, α=0.138) was not statistically significant (p>0.05), the difference between the ice and the control groups (U= 205.5, α=0.00) and the difference between

the lavender and the control groups ($U=146.0$, $\alpha=0.00$) were significant ($p<0.05$). There was a statistically significant difference between the groups regarding average VAS scores at the 14th hour after application ($KW=56.94$, $\alpha=0.00$). The difference was found between the lavender and the ice groups ($U=238.5$, $\alpha=0.00$), between the lavender and the control groups ($U=91.0$, $\alpha=0.00$), and the ice and the control groups ($U=44.5$, $\alpha=0.00$) ($p<0.05$).

There was a statistically significant difference between the groups in terms of average VAS scores before discharge ($KW=46.91$, $\alpha=0.00$).

The difference was found between the lavender and the ice groups ($U=146.0$, $\alpha=0.00$), between the lavender and the control groups ($U=261.5$, $\alpha=0.00$), and the ice and the control groups ($U=85.0$, $\alpha=0.00$) ($p<0.05$).

Table-3 shows the average REEDA score of the participants after delivery, which was 5.25 ± 1.37 for the lavender group, 5.29 ± 1.27 for the ice group, and 5.39 ± 1.25 for the control group. No statistically significant difference was found between the intervention groups and the control group in terms of average REEDA scale scores after delivery ($p<0.05$).

Table-3. Comparison between the intervention groups and the control group according to the average reeda score of the participants after delivery.

Variables	The Average REEDA Score of The Participants Prior to Application			
	N	Mean \pm SD	KW	P
Lavender Group	32	5.25 \pm 1.37	0.184	0.912*
Ice Group	31	5.29 \pm 1.27		
Control Group	33	5.39 \pm 1.25		
The Average REEDA Score of The Participants Prior to Discharge				
Lavender Group	32	3.94 \pm 1.22	15.546	0.121 c
Ice Group	31	3.90 \pm 1.17		
Control Group	33	5.09 \pm 1.30		

* Kruskal Wallis test, ** Mann Whitney-U test Statistical significance values ($p<0.05$) are given in bold.

a : P value of difference between lavender and control group

b : P value of difference between lavender and ice group

c : P value of difference between ice and control group

The average REEDA score of the participants before discharge was 3.94 ± 1.22 for the lavender group, 3.90 ± 1.17 for the ice group, and 5.09 ± 1.30 for the control group. A statistically significant difference was found between the intervention groups and the control group in terms of average REEDA scale scores after application ($p<0.05$). The difference between the lavender and the ice groups was not statistically significant ($p>0.05$), in contrast the difference between the ice and the control groups and the difference between the lavender and the control groups were significant ($p<0.05$).

After the application, 87.5% of the participants in the lavender group, 71.0% in the ice group and 36.4% in the control group reported being very

satisfied. A significant difference was found between the groups ($p<0.05$). Comparing the groups within themselves, no statistically significant difference was found between the lavender group and the ice group ($p>0.05$). A difference was found between the lavender group and the control group ($p<0.05$) and the ice group and the control group ($p<0.05$).

46.9% of the participants in the lavender group reported that the application provided relief, while 51.6% of the participants in the ice group reported that the application reduced the pain immensely.

DISCUSSION

The present study investigated the effects of lavender oil and ice applications on episiotomy pain and wound healing.

Although there is no definitive data on episiotomy rates in our country, it is traditionally applied routinely in primiparas and, when necessary, in multiparous (18). In a study conducted in the gynecology and obstetrics clinic of Erciyes University, the rate of episiotomy was found to be 88.6% in 651 deliveries between years of 2011-2012. This rate was 89.7% in nulliparous and 88.7% in multiparous. (19)

A study comparing the advantages and disadvantages of median and mediolateral episiotomy reported that repair of mediolateral episiotomy is more difficult and postoperative pain is more than median episiotomy(20). Karbanova et al. found that there was no statistically significant difference in the pain levels evaluated with the VAS scale at the 24th hour, 72nd hour and 10th day between the two groups that underwent mediolateral and lateral episiotomy ($p>0.05$) (21).

Women who underwent episiotomy at birth or who had spontaneous perineal lacerations describe long or short-term perineal pain complaints. Although many scientific studies have been carried out to prevent perineal damage during childbirth, this problem has not been completely prevented, and a complete solution has not been found. In a study conducted with postpartum women, it was shown that perineal pain is a problem that can be seen even 6 to 8 months after delivery (9, 21, 22). In our study, mediolateral episiotomy was performed in 100.0% of the lavender oil and control groups, while median episiotomy was performed in 3.2% of the ice group. There was no statistically significant difference between the groups according to the episiotomy type ($p>0.05$).

In a quasi-experimental study on ice application in which 50 Brazilian multiparous women participated, Pain levels were compared before, immediately after, and at the 2nd hour of ice application. There was a significant difference between the pain levels back, immediately after, and at the second hour ($p<0.05$) (22).

In a randomized controlled study conducted by Francisco et al., they applied ice application immediately after delivery to primipara women older than 18 years who did not take analgesic drugs before and after delivery. With ice application, an effective analgesic effect was

obtained in patients between 1 hour 45 minutes and 2 hours. Compared to the control group, the rate of women who had an analgesic effect of more than 30% after ice application was found to be statistically significantly higher in the experimental group (23).

According to the Cochrane review published in 2020, the evidence regarding the effectiveness of ice applications applied in the first two days after birth in relieving pain is limited. However, it is likely that several treatments that will relieve pain can be used simultaneously for patients who have ice applications. Studies with high evidence value should be organized by ensuring the participation of more patients in studies on ice application (24). In our study, there was a statistically significant difference between the 2nd hour, 14th hour and before discharge pain levels between the ice applied to group and the control group.

In another randomized controlled study investigating the effect of lavender oil on episiotomy pain and healing, the pain relieving and healing effect of lavender oil were found to be significantly better than the control group (8).

In a study comparing lavender oil essence and povidone iodine on episiotomy pain and healing, it was found that lavender essential oil was significantly more effective than povidone iodine according to the 4th hour VAS scores ($p<0.05$). In addition, in this study, it was determined that the effect of lavender on pain on the postpartum 5th day was higher than povidone-iodine (9). In another clinical study comparing the effects of lavender oil and povidone-iodine on episiotomy pain, no significant difference was found between the groups in postpartum 10th day VAS scores (25).

In another study investigating the effectiveness of lavender cream in healing episiotomy and reducing pain in primipara women, it was found that while lavender cream was ineffective in the first 24 hours, it was significantly effective on the 3rd, 5th and 10th days postpartum (26).

In terms of pain, the groups show a homogeneous distribution. On the other hand, when the VAS scores were evaluated at the second hour after the application, 14th hour after the application and before discharge, a significant difference was found between the groups ($p<0.05$). This difference was determined between lavender and ice group, lavender and control group, ice and control group ($p<0.05$). It was determined that the pain levels of both application groups decreased more than the

control group, and the pain scores of the ice group decreased more than the lavender group. This shows us that the effects of the applications continue for up to 24 hours.

These results indicate that the effects of lavender and ice applications continue until discharge. Also, even though pain was gradually reduced in all groups, the best response was received from the ice group. Pain levels of the intervention groups were lower compared to the control group, while pain levels of the ice group were lower than the lavender group.

Many women experience pain in the perineum (the area between the vagina and anus) following childbirth (27). The pain caused by episiotomy impacted on women's daily life (28). The perineum may be bruised or torn during childbirth, or have a cut made to help the baby to be born (an episiotomy). After childbirth, perineal pain can interfere with women's ability to care for their newborns and establish breastfeeding. If perineal pain is not relieved effectively, longer-term problems for women may include painful sexual intercourse, pelvic floor problems resulting in incontinence, prolapse, or chronic perineal pain (27).

It has been shown in a study on the use of analgesics for the relief of perineal pain that a single dose of paracetamol is very effective both in relieving perineal pain and in reducing the need for additional analgesic use (29). In the study evaluating the need for analgesics in the postpartum period, while 70% of the patients in the lavender group did not need analgesics, this rate was found to be 30% in the control group, and this difference between the groups was statistically significant ($p < 0.05$) (9). According to the results of our study, there was no statistically significant difference between the groups regarding the amount of analgesic use.

A perineal wound is defined as a tear in the birth canal during instrumental or non-instrumental delivery (30). Perineal tear is classified into 4 degrees. First degree perineal tear includes vaginal mucosa and skin injuries. Second-degree tears involve injury to the perineal muscles that do not involve the anal sphincter. Third-degree tears involve the external anal sphincter, while fourth-degree tears involve rectal mucosal injuries (31).

We use the REEDA Scale to evaluate the episiotomy site. The average REEDA score after delivery and prior to application was 5.25 ± 1.37 for the lavender group, 5.29 ± 1.27 for the ice group, and 5.39 ± 1.25 for the control group.

According to these results, no statistically significant difference was found between the REEDA scale mean scores between the groups ($p < 0.05$).

The average REEDA score prior to discharge was 3.94 ± 1.22 for lavender group, 3.90 ± 1.17 for ice group, and 5.09 ± 1.30 for control group. A statistically significant difference was found between intervention group and the control group in terms of average REEDA scale scores ($p < 0.05$). The difference between lavender and ice group was not statistically significant, whereas the difference between ice and control group and the difference between lavender and control group were significant. Since a lower REEDA score indicates better healing, it can be said that episiotomy healing was faster in the intervention groups.

Sheikhan et al. (9) investigated the effects of lavender oil essence on episiotomy pain and wound healing in Iranian primipara women and did not find a statistically significant difference between lavender and the povidone iodine groups in terms of REEDA score on 5th day following episiotomy ($p > 0.05$) (9). While 46.9% of the participants in the lavender group reported that the application provided pain relief, 18.8% reported that the pain continued, and 15.6% reported that they wished to continue applying lavender oil at home. 12.9% of the participants in the ice group reported that the application provided pain relief, 0.0% reported pain, and 3.2% reported that they wished to continue applying ice at home.

According to the results of our study, lower REEDA score indicates better recovery and it is seen that episiotomy recovery is faster in intervention groups.

CONCLUSION

The average pain score was reduced in both intervention groups compared to the control group, and this decrease in the average pain score was steeper in the ice group compared to the lavender group. Lavender oil and ice applications used in episiotomy care reduce pain and accelerate healing in the postpartum period. Hence, the mother can perform postpartum activities more comfortably and take better care of her baby.

The limitations of our study are that the patients should be followed for at least 7 days according to the reeda scale, while the patients participating in our study were followed for 24 hours.

Conflict of interest: All authors declare that there is no conflict of interest for this study.

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