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Episiotomy Discomforts Relief Using Cold Gel Pads in Primiparaus Iranian Women (A Comparative Study)

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Abstract: Episiotomy is the most common perineal surgical in obstetric and midwifery. Application of Cooling devices is a new approach in pain relief but the pain related to episiotomy is typically treated with oral analgesic medications. This clinical trial involved 60 qualified primiparaus women admitted for labor in Kamali Hospital in Karaj, Iran. They were randomly allocated into two groups: cases (using Gel pads) and control (receiving the hospital routine). The participant's pain and discomforts were recorded on the VAS and REEDA scales, respectively. Pain was evaluated 4, 12 h and 5 days after episiotomy. The obtained data were analyzed in SPSS 14 using independent t-test and chi-square. There were statistically difference in pain intensity scores of 2 groups in 4 h ($p = 0.014$), 12 h ($p = 0.002$) and 5 days ($p = 0.000$) after episiotomy. The REEDA score was significantly low in the experimental group (Gel pads group) at 5 days after episiotomy ($p = 0.000$). This study application of cold gel pads instead of betadine for episiotomy wound care.

Key words: Cold gel pads, episiotomy, povidone-iodine, perineal care, women, Iran

INTRODUCTION

Episiotomy is the most common surgical incision of the perineum in obstetrical procedure. Approximately 33% of women with vaginal delivery had episiotomy in 2000 (American College of Obstetricians-Gynecologists, 2006). However, the prevalence of episiotomy is not the same in different countries. Asian race are presumed to have smaller and tighter perineum so the routine episiotomy may reduce the risk of perineal tearing during delivery (Lam *et al*., 2006). Medio lateral episiotomy is usually preferred from a midline episiotomy because of the risk of the third or fourth degree tear and also because of short perineum in Asian race (Lam *et al*., 2006; Cunningham *et al*., 2005). Like any other surgical incision, episiotomy results in some discomforts for most of postpartum patients (Hill, 1989). Studies reported 10% of women experienced pain for >2 months after spontaneous vaginal delivery and the rate rose to 30% for those who had an assistant vaginal birth (Punasundri *et al*., 2006; Mann, 1996). In Iran the prevalence of episiotomy is much higher than that supported by scientific evidence and the rate of mediolateral episiotomy is higher than median episiotomy. So, it seems that the prevalence of surgical complications is also higher in Iranian women. One recent study revealed that episiotomy was performed in 97.3% of 510 primiparous women who had vaginal delivery in Tehran (Shojaei *et al*., 2009). Currently, in most parts of Iran the patient is prescribed a standard regime of oral analgesics to taken 3 times daily and also bath water sitz is suggested with Betadine 10% as an additive for duration of 30 min twice a day.

Zahravi showed that there was no significant difference between the betadine and water groups in wound healing (Tork *et al*., 2002). Cooper demonstrated in their study that povidone-iodin with a twentieth of typical concentration can inhibit function of fibroblasts and lymphocytes (Cooper *et al*., 1991). Cooling for short time has been used for relieving pain of localized tissue trauma for many years (East *et al*., 2007). Little research has been done to evaluate the effect of topical application of perineal cold gel pads as an alternative way of treatment for reduction of perineal discomforts (Punasundri *et al*., 2006). According to above concerns, this study was undertaken to compare the effectiveness of perineal cold gel pad versus the routine practical program of warm bath sitz with betadine as an additive.

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MATERIALS AND METHODS

Methodology: A randomized control clinical trial method was carried out to evaluate the effects of relieving discomforts of cold gel pads to the perineum of the Iranian primiparous mothers.

Sample and setting: The project was approved by the Ethics in Research Committee of Iran University of Medical Sciences. The study conducted in the postpartum ward and clinic of Kamali Hospital in Karaj. Over a period of 4 months (from July-November 2009) with a convenience sample of 60 primiparous mothers who had term (37-42 weeks), cephalic vaginal delivery and selected with random allocation method. All the mothers had experienced episiotomy and they were able to cooperate with instructions period. Entrance criteria was included single tone vaginal deliveries with episiotomy and without any tearing, operative delivery, systematic chronic diseases and psychological problems, allergies, contextual diseases, eclampsia and preclampsia during pregnancy, PROM more than 24 h, prolonged labor and precipitate labor, addiction, volvo vaginitis and hematoma in perineum during 12 h after delivery. All participants who agreed with the study procedures and voluntarily agreed to participate signed the free and informed consent form. By using a table of random numbers, 60 subjected were randomly allocated to one of two treatment groups. There were no differences between two groups based on episiotomy type, repair method, string type, analgesic dosage before and after stitching, operating labor. Subjects in the control group were following the routine practical program of taking warm sitz bath twice daily for 30 min with 10 mL betadine 10% as an additive to 4 L water while those in experimental group were given a reusable cold gel pads, they had to chart the frequency of their usage according to their pain. They had use it each time for 20 min. Intensity pain and discomfort of episiotomy was assessed by VAS and REEDA scales, respectively. Pain intensity and discomfort assessment were done before intervention during the first 4 h after episiotomy as a basic assessment and after pain relief intervention of intervals of 4, 12 h and 5 days after episiotomy. Healing episiotomy was recorded using a REEDA scale at 5 days after episiotomy. All analgesics were consumed by the subjects recorded. Subjects in both groups were routinely allowed to take mefenamic acid capsules 3 times during the first 12 h after episiotomy and they were allowed to consume analgesics when is needed at home if consumption of analgesics were mre than routine program that they were omitted. Individuals who did not attend for examination or presented any sign of allergy or infection were excluded. All subjects in interventional group were asked to use gel pads whenever they had pain and chart the frequency of their daily usage of gel pads during 5 days. Data analysis was done by SPSS software version 14.00 for Windows using t-test and χ^2. The significance level was set at ($\alpha = 0.005$).

RESULTS

According to obtained results there wasn't a significant difference between both groups for their demographic information such as age, education, economical status, job experience and obstetrical and neonatal factors including: The length of episiotomy, duration of each labor stage (first to third), the number of superficial stitches, mother's body mass index 5 days after episiotomy, neonatal head circumference and also after episiotomy factors such as mother's highest status for breast feeding and time for commencing daily activities after delivery ($p>0.005$) (Table 1).

Pain score before intervention: There were not any similarities in intensity of pain in the process of research thus basic assessment before intervention was done to estimate the intensity of pain both groups. The mean level for the intensity of the pain was (4.90±1.56) for gel pad

Table 1: Demographic information, obstetrical and neonatal and after post partum factors

Variables (Mean±SD)	Povidone-iodine group (n = 30)		Gel pads group (n = 30)		p-value
Age	23.47±4.14		22.67±3.93		0.46
Duration of first labor stage	422.83±75.33		460.23±90.49		0.20
Duration of second labor stage	43.16±5.33		45.6±5.41		0.21
Duration of third labor stage	1.61±0.42		1.46±0.55		0.45
Length of episiotomy	4.97±0.32		5.03±0.32		0.50
Number of superficial stitches	5±0.26		5.03±0.32		0.76
Neonatal head circumference	33.4±1.37		33.7±1.4		0.38
Body mass index	24.83±1.55		25.13±1.75		0.31
Variables	Number	%	Number	%	p-value
Education (diploma)	11	36.7	14	46.7	0.74
Economy status (moderate)	23	76.7	27	90.0	0.43
Job experience (householder)	30	100.0	29	96.7	0.36
Sitting status for breast feeding	26	86.7	25	83.3	0.62
Not start commencing daily activitie 5 days after delivery	30	100.0	24	79.9	0.09

Table 2: Mean level of analgesics consumption after delivery

Time period	Control group	Gel pads group	Statistical significant
2 day	2.07±1.66	0.53±1.00	0.000
3 day	2.03±1.67	0.40±0.93	0.000
4 day	1.97±1.70	0.47±0.97	0.001
5 day	1.93±1.70	0.3±0.870	0.000

The mean difference is significant at the 0.05 level

group and it was (4.47±1.30) for control group and there wasn't a significant difference between two groups (p = 0.29).

Pain score after intervention: The mean for the intensity of the pain 4 h after intervention in experimental group was 3.20±1.58 and it was 4.23±1.59 in control group that indicated a significant difference between groups (p = 0.014). In addition, a significant difference between the intensity of the pain of the mean level was shown 12 h and 5 days after episiotomy. the intensity of the pain of the mean level was (3.17±1.64) in gel pad users and it was 4.53±1.56 in control group 12 h after episiotomy (p = 0.002).

The intensity of the pain of the mean level for experimental group was 2.20±1.62 while it was 4.60±1.79 for control group 5 days after episiotomy (p = 0.000). Moreover, 70% of subjects in experimental group (gel pad users) hadn't taken analgesics while 33.3% participants in control group hadn't consumed analgesics 4 days after episiotomy and due to this a significant difference was shown between the analgesics consumption of groups 4 days after episiotomy (p = 0.007). There was a significant difference between the mean level of analgesics 2-5 days after delivery (p<0.05) (Table 2).

According to the results, 50% of subjects used gel pads 1-2 times in the 1st day. However, the usage of gel pads increased to 3-4 times in 56.7% of subjects in the 2nd day and 53.3% of participants in the 3rd day after episiotomy.

The rate of using gel pads dropped again to 1-2 times a day in 53.3% subjects in the 4th day after episiotomy and 53.3% participants in the 5th day after birth.

The mean and standard deviation for the REEDA scores before intervention in each group were (4.67±1.37), gel pad group and (4.47±1.54), betadine group. There wasn't a significant difference between two groups (p = 0.59).

There were no statistically significant differences detected in redness, edema, ecchymosis, discharge and approximation before intervention (Table 3).

The use of cold gel pads resulted in statistically significant differences detected in perineal edema, ecchymosis, approximation at 5 days after episiotomy,

Table 3: Comparison of REEDA (Redness, Edema, Ecchymosis, Discharge and Approximation) scales between two groups before intervention

Variables (Mean±SD)	Gel pads group	Betadine group	p-value
Redness	1.7±0.79	1.43±0.77	0.25
Edema	1.4±0.49	1.30±0.59	0.27
Ecchymosis	0.4±0.60	0.67±1.02	0.68
Discharge	0.1±0.30	0.03±0.18	0.58
Approximation	1.1±0.30	1.03±0.18	0.16

Table 4: Comparison of REEDA (Redness, Edema, Ecchymosis, Discharge and Approximation) scales between two groups at 5 days after episiotomy

Variables (Mean±SD)	Gel pad group	Betadine group	p-value
Redness	0.93±0.36	1.13±0.62	0.3300
Edema	0.32±0.47	0.83±0.64	0.0010
Ecchymosis	0.07±0.25	0.5±0.820	0.0050
Discharge	0.13±0.34	0.1±0.300	0.8900
Approximation	0.57±0.50	1.07±0.52	0.0000
REEDA score	2.03±1.10	23.63±1.24	0.0000

compared with use of betadine. While there were no differences detected in redness and discharge between the two groups. However, the REEDA scale was significantly low in the experimental group at 5 days after episiotomy (p = 0.000) (Table 4).

DISCUSSION

The primary reason of perineal pain is bruising of the perineum followed by episiotomy. Perineal trauma causes pain and discomfort and this can dominate the experience of mother hood (Sleep, 1995; Punasundri *et al*., 2006). In addition, pain can cause decreased mobility and discomfort with passing urine or faeces and it has many negative impacts on the women's ability to care for their newborns also their ability for breast feeding and attending to their baby's need would decrease significantly (Cunningham *et al*., 2005; Kropp *et al*., 2005; Sultan and Thakar, 2002). Furthermore, studies have evidenced that episiotomy results in more pain, sexual disfunction and infection than spontaneous perineal tearing and this pain has negative affections on the women's health in the postpartum period (Araujo and Oliveira, 2008; Larsson *et al*., 1991). Perineal pain in mediolateral and medial episiotomy is higher than spontaneous tearing (Walsh, 2001). Study about the episiotomy rates around the world showed that this surgery ranged from 9.7% (worthern Europe-Sweden) to 96.2% (South Africa-Ecuador) with the lowest episiotomy rates in English-speaking countries (North America-Canada: 23.8% and United states 32.7%) and it remained very high in many countries (centered south-America like Brazil: 94.2%, South Aferica-63.3% and Asia like China 82%) (Graham *et al*., 2005). Recent study in Greece revealed that the highest portion of obstetricians prefer to do mediolateral and lateral episiotomies for normal and operative vaginal birth (Grigoriadis *et al*., 2009). According to the importance of

women health promotion and due to previous investigations revealing the higher intensity of pain in mediolateral episiotomy and high prevalence of mediolateral episiotomy in Iran, there is a special need in finding a new way of relieving pain. Besides, there are very little formal investigations on prevention and relieving of perineal pain after episiotomy following the vaginal delivery.

Cold therapy has been shown to attenuate the level of pain by numbing the superficial tissue surrounding the wound through its action on local nerve fibers and by decreasing the levels of perineal edema and pain (Steen *et al*., 2000). Decreasing the temperature of soft tissue by 10-15°C by applying a local treatment reduces the metabolism of the cells and also decrease the oxygen needs of the tissue. So, it causes constriction of the peripheral blood vessels. The heat activated receptors are known to play a significant role in inflammation-related pain and the pain relives by cooling effectively (East *et al*., 2007; Kichko and Reeh, 2004; Reid, 2005). There is a tendency to replace non medicinal and non invasive interventions in spite of chemical and medical substances (Paterson *et al*., 2004). The study showed that applying gel pads after episiotomy can be a good treatment for relieving pain. However, another randomized control trials between 120 subjects for evaluating the effectiveness of icepacks and epifoams with cooling gel pads on relieving postnatal perineal pain showed no statistical significant difference between groups (Steen *et al*., 2000). We suggest that this can be related to differences between the tissue constructions that may be connected to different races of subjects and also the differences between pariety of the participants and type of episiotomy and also the number of participants. In addition, less oral analgesic consumption in the experimental group (gel pads users) might be another reason that supports the efficiency of cold gel pads on reliving pain. Further studies by considering different nations are recommended to make the proof for the results of the experiment.

CONCLUSION

According to above concerns and results from this research and previous publications and due to the importance of women's health promotion especially during post partum period for making better quality of life for both mothers and their newborns. So, applying cold gel pads is an effective non-invasive method of reliving discomforts.

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