

Effectiveness of Maternity Cooling Gel Pads on Primiparous Women Post Episiotomy- A Literature Review

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Abstract

Background: A high proportion of primiparous women undergo perineal injury and experience perineal swelling and pain immediately after vaginal delivery and episiotomy. This pain continues to persist for at least five days despite oral analgesia. A variety of interventions for relieving perineal pain are based on localised cooling which is Cryotherapy. Ice packs, cold pads & homemade ice packs are used by women to relieve pain. The use of the maternity cooling gel pads is rated much more by the women than the use of standard cooling treatment.

Aim: To review the relevant articles which discuss the use of cooling treatment post episiotomy and the use of Maternity cooling gel pads by women for the perineal pain post episiotomy.

Search Method: PubMed, Google Scholar, Pedro, Research Gate, Science Direct & Cochrane are the sites from which the articles were searched for and selected.

Selection Criteria: Articles that focused on the importance of cryotherapy treatment post episiotomy & vaginal birth on primiparous women, and the articles that proved that maternity cooling gel pads are preferred over the use of ice packs and standard hospital routines were selected. 11 published articles were selected that stated the use of cryotherapy & highly rated maternity cooling gel pads for the treatment of perineal pain.

Results: Use of Maternity cooling gel pads helps reduce perineal pain in women faster and also promotes quick wound healing.

Conclusion: The use of the maternity cooling gel pads to the perineum post vaginal delivery and episiotomy, relieved perineal pain in primiparous women and increased their postpartum comfort. The women were able to resume their daily activities sooner and carry them out pain free.

Key Word: Postpartum, Primiparous women, Episiotomy, Ice Packs, Maternity cooling gel pads, postpartum comfort.

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I. Introduction

The perineal trauma and tears are the most common complication and impediment that occurs during labour, especially of the primiparous women. It commonly includes any spontaneous or induced injury (instrumental injury) to the perineal area or the pelvic floor muscles. The perineal pain after such trauma and episiotomy within the puerperium stage is one of the foremost common causes of maternal morbidity and maternal depression that affects early motherhood experiences. Therefore this features a significant effect on the mother's day to day activities⁵.

Perineal pain affects the mother's physical strength, and mental and social well-being during the postpartum period. Breastfeeding, bonding with the neonate, family life and sexual relations can all be disrupted. The perineal pain usually persists for hours after delivery and leads to a sense of discomfort during all her physical activities. It also results in elimination, sleeplessness and disrupted breastfeeding time. If left unnoticed and not taken care of, in the long-term this might produce maternal depression, maternal anxiety, stress enuresis, dyspareunia, irritability, and fatigue⁵.

Episiotomy is a commonly performed surgical procedure during the delivery of the child and is therefore considered as an intrinsic part of labour management for most primiparous women who are at risk from suffering severe degrees of tear during vaginal birth. It is a surgical perineal incision done to widen the vaginal opening just before the baby is born, shorten the baby's expulsion period and prevent a painful perineal tear. However, it is also considered that an episiotomy is more painful, because of the suturing, when compared with perineal tears and that episiotomy takes longer to heal. Hence, taking all necessary steps to reduce perineal

swelling, pain and discomfort is important for any woman who has had perineal injury, especially those women who have had an episiotomy performed.

Performing episiotomy also has some complications that are caused to the mother. The complications include redness, irritable pain, swelling, infection and improper wound healing. The swelling and pain at the site of injury may cause discomfort while sitting and if severe may also lead to retention of urine in women, thus interfering with the women's daily activities.

Primiparous women undergoing episiotomy may experience unusually tiring pain and discomfort in the initial few days post episiotomy that may affect them from experiencing the goodness of motherhood. Therefore, the therapists need to help them deal with this pain and overcome it as soon as possible.

Early physiotherapy proceedings after have a positive effect on the physical and mental state of primiparous women. Very early after birth, still, on the maternity ward, the patient should learn the correct sitting down and getting up from bed. A woman must not sit directly on the wound after the incision. Crossed-legged sitting should be completely avoided in the initial few days, as improper sitting and uneven pressure on the wound may lead to more swelling of the wound. Therefore, proper technique of sitting can prevent complications associated with suture dehiscence. Getting up from the bed should be supported by kneeling at the edges of the bed. Teaching bed mobility in the first days can positively influence the improvement of blood circulation and the proper function of the blood reduces the risk of thrombosis¹¹.

In addition, pain management can be achieved with the use of Cryotherapy. Cold therapy has an analgesic effect and is safe to use in the first few days after birth. In addition to the analgesic effect, it also reduces bleeding in fresh wounds and also prevents the formation of oedema at the site of episiotomy.

The application of cold has a positive effect in relieving perineal pain. It helps reduce oedema and muscle spasms associated with the inflammation and also it relieves pain by inducing short-term paresthesia of the peripheral nerve fibers which also helps decrease the inflammatory response. The application of cold therapy to the perineum decreases the temperature of the perineal skin and the underlying tissues⁵.

Oedema which appears at the site of episiotomy soon after childbirth is a major factor that leads to discomfort and stress for the mother in the early motherhood stages. Hence this immediate application of ice therapy can reduce the severity of pain and thereby give some form of satisfaction to the new mother.

The use of ice packs on the perineal region post episiotomy has proven to decrease the perineal pain, oedema, and redness and improve wound healing. It's been used extensively by doctors and therapists on all women who undergo episiotomy during normal vaginal deliveries. The use of ice packs by the women has been reported to cause them unnecessary distress and discomfort due to the hardness, rigidity, sharp corners it consists and its wet sensation which makes it unpleasant for use to the women. For such reasons, a research was done to bring to light the specifically designed maternity cooling gel pads for women to use on their perineal region post any perineal trauma.

After the availability of the maternal cooling gel pads, many comparative studies were done to compare the effectiveness of ice packs and maternity cooling gel pads on women post episiotomy. Women's opinions were also rated as to how effective they considered their treatment to be and a comparison was done between the effectiveness of the standardly used ice packs and the maternity cooling gel pads.

II. Material And Methods

Study Design

Search Method and Eligibility Criteria

An extensive literature review was done using PubMed, Google Scholar, Medline, Science Direct and Pedro. Articles focusing and based on the study related to the management of perineal pain post episiotomy using Cryotherapy were included, whereas articles that were not published in the English Language were excluded. Postpartum, Primiparous women, Episiotomy, Ice Packs and Maternity cooling gel pads were the keywords used for the research.

Sample Size

A sample size of 17 articles was selected out of which articles obeying the inclusion criteria were filtered and finally, 11 articles were obtained for the review.

Inclusion criteria:

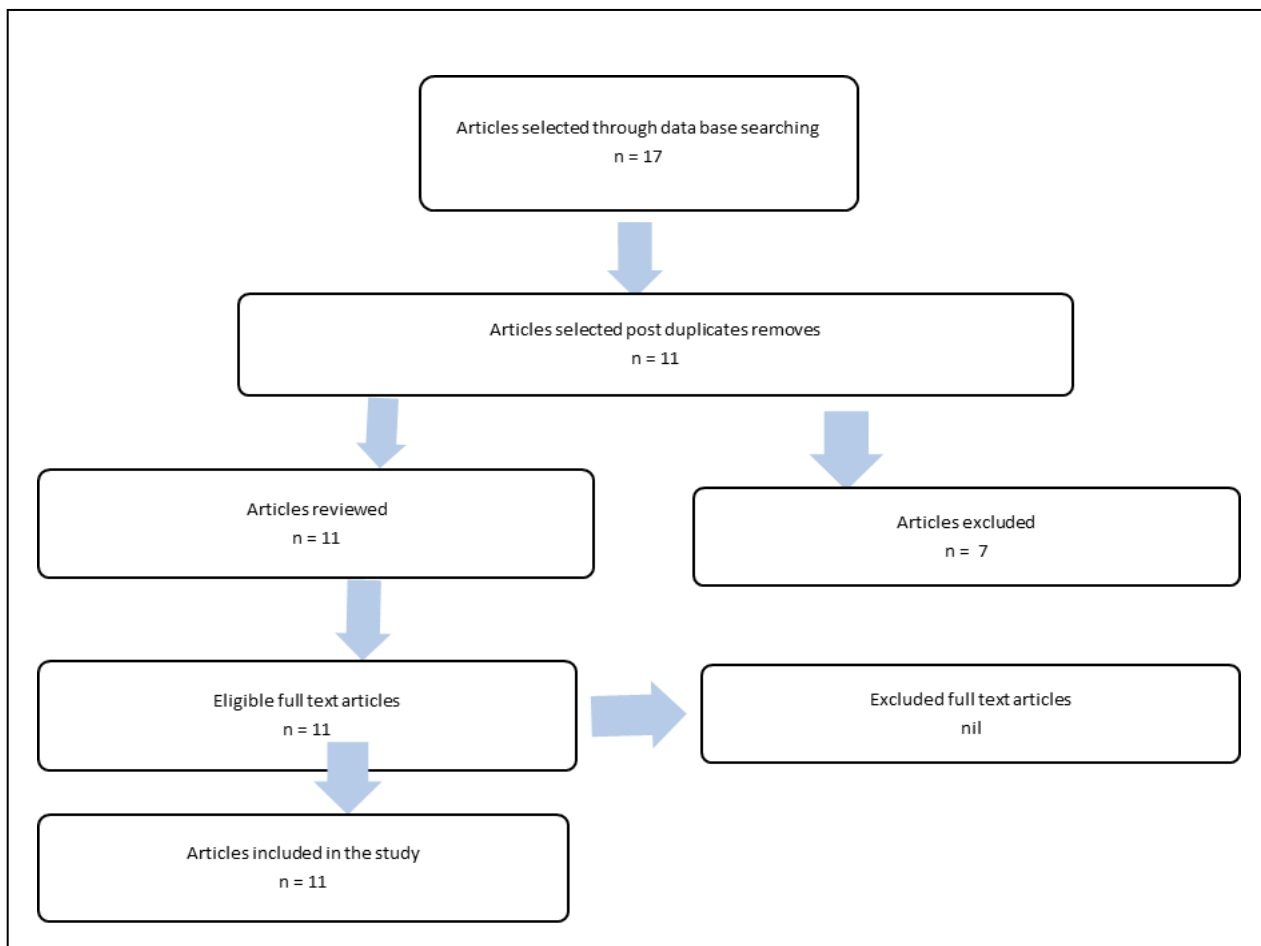
1. Articles related to perineal pain management using Ice packs.
2. Articles related to perineal pain management using maternity cooling gel pads.
3. Articles that were published in recent years
4. Full-text articles taken.
5. Articles that were published in English

Exclusion criteria:

1. Articles past 2000
2. Articles explaining the surgical interventions for the same
3. Articles related to the management of perineal pain using other forms of treatment or interventions.

SELECTION OF INCLUSION AND EXCLUSION CRITERIA

Based on the inclusion and exclusion criteria, 11 articles were selected and reviewed. All the 11 were published between the years 2000 –and 2020, as they had a better opinion on the recent advances. All the articles discussing perineal pain management post episiotomy using Cryotherapy, especially the usage of ice packs and maternity cooling gel pads were selected for the review. Almost all articles were which were selected were in the favour of the maternity cooling gel pads. Articles that were in full text and the English language were preferred rather than the ones of other languages, for better understanding.



III. Summary Of Articles

AUTHOR & YEAR OF STUDY	SUMMARY	OUTCOME MEASURES	RESULT
Steen, Mary & Cooper 2000	A Randomized controlled trial with 120 primiparous women who had undergone episiotomy & received treatment with ice packs, epifoam & maternity gel pads.	- Pain, using ID-point visual analogue scale - Perineal oedema & bruising, using the newly developed visual evaluating tool.	There was a statistically significant change in the medians of oedema, bruising and pain across the treatment groups, which was in the favour of maternity cooling gel pads than the group receiving ice packs for their treatment.
Shahin Navvabi & Zahra Abedian 2009	A randomised controlled trial with 121 primiparous women who had undergone episiotomy and received Ice packs & cooling gel pads for their treatment.	- Pain, using NRS - Wound Healing, using REEDA Scale. - Women’s satisfaction levels, using NRS.	It was concluded that localised cooling treatments are effective in reducing perineal pain and trauma which was in the favour of the maternity cooling gel pads.
Jahdi & Sheikhan F	A single-blinded clinical trial	- Pain, using VAS	Pain intensity after 5 days was seen

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2010	was conducted on 60 primiparous women who were randomly allocated into 2 different groups, one receiving ice packs & other receiving gel pads.	and analgesic usage.	significantly lower in the treatment group which received cooling gel pads for their treatment than the control group.
Melaniece Robin Petersen 2011	Reviewed the interventions to relieve postpartum pain from perineal trauma and episiotomy in primiparous women of about 5-6 authors.	- Pain reduction - Wound healing and inflammation - Patient satisfaction & its impact on daily activities.	The use of maternity cooling gel pads provides greater convenience to both the therapist & patient and such is less expensive also. The gel pads provide less discomfort to the patient & thus can be used easily by them thereby reducing the perineal pain intensity sooner.
Angel Rajkumari 2015	Conducted a randomised interventional study with 30 primiparous women categorized into 2 groups, one receiving cooling gel pads & the other receiving ice packs for 20-30mins, morning and evening for 4 days.	- Pain, using VAS - Wound healing, using REEDA Scale.	The maternity cooling Gel pads comfortably alleviate the symptoms of perineal trauma & episiotomy and also most importantly the associated pain following childbirth, compared to the use of ice packs.
Ana Carolina Sartorato Belezaa 2016	Conducted an RCT with 50 primiparous women who reported pain after episiotomy. The treatment group received 20mins of treatments via crushed ice bag over their perineal region.	- Pain, using NRS - Women's satisfaction levels.	Cryotherapy helps relieve pain related to episiotomy & also decreases the perineal temperature post episiotomy which thereby makes the women satisfied with the treatment and also the childbirth process.
Deriya K Senol 2017	A simple probability sampling method with 200 primiparous women was done. The women were divided into groups, one control & one receiving gel pads for 20mins after 2 hours of episiotomy & then after 4 hours of the first application.	- Pain, using VAS - Women's satisfaction levels using PCQ.	After the use of maternity cold gel pads, the pain levels decreased in the experimental group in both primiparous & multiparous women. The PCQ score was also comparatively more in the experimental group on the last day of the assessment.
Tawheda Mohamed Khalefa El Sady 2018	A quasi-experimental research design was used in the research conducted with 200 primiparous women undergoing an episiotomy, assigned into 2 groups (100 in each). The experimental group received ice gel pads for their treatment.	- Pain, using a Short-form McGill pain questionnaire & NRS - Wound healing, REEDA Scale.	The use of Maternity cooling gel pads is safer and more effective in reducing pain & promotes faster wound healing. Hence the women in the experimental group had a better ability to perform their daily activities post-test than the women in the control group.
Andriana Amarin Francisco 2018	An RCT with 69 primiparous women of 18years of age was conducted. The women in the treatment group received a single ice pack application for 10mins post 6 – 24 hours postpartum.	- Pain intensity and effectiveness of the duration of application of cryotherapy.	On application of ice therapy for 10mins to the injured perineum, the intensity of pain was reduced and such was maintained for 1hr45min to 2hrs.
Hyun-Jung Kima 2020	11 published studies including 1492 participants were included. The patients received cryotherapy in the form of both ice packs and maternity gel pads for perineal pain after episiotomy for one day & up to 5 days after childbirth.	- Pain intensity	Cryotherapy can be an effective non-pharmacological intervention to reduce perineal pain after childbirth. The use of ice packs and maternity cooling gel pads had similar pain-relieving effects.
Arathi mahishali & Ashwini Chougala 2013	An RCT with 30 women who underwent vaginal delivery with episiotomy with allocated into 2 groups. One group received ultrasound and maternity cooling gel pads for treatment and the other placebo therapeutic ultrasound with oral analgesics for treatment.	- Pain Intensity, using VAS - Wound healing, using the REEDA Scale	The effect of maternity cooling gel pads and ice packs on perineal pain showed a higher level of satisfaction with the maternity cooling gel pad group when compared with other groups receiving ice packs and other forms of treatment. The experimental group showed reduced pain intensity levels and a better wound healing process.

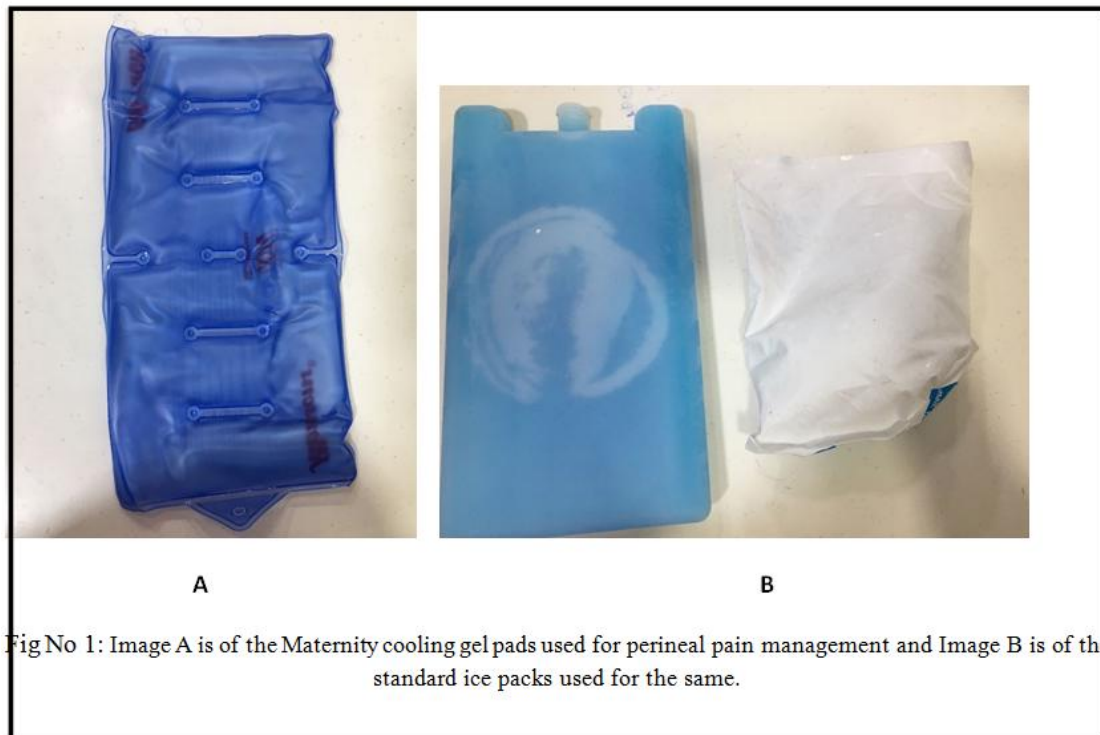


Fig No 1: Image A is of the Maternity cooling gel pads used for perineal pain management and Image B is of the standard ice packs used for the same.

IV. Discussion

Most of the primiparous women will endure some degree of perineal injury during vaginal birth and the rates are as high as 85%- 95%. Episiotomy is considered to be more painful compared to spontaneous perineal tears which usually takes longer to heal. This pain developed during the postpartum period can affect the women's relationship with their family and the newborn infant in addition to their general physical and psychological well-being. In certain cases also leads to postpartum depression in women.

The therapists need to actively promote the ways to assist the primiparous women in managing their perineal pain experiences, as this will help them to adapt to their motherhood more easily. And it is also important for the therapists to determine the comfort levels of the primiparous women during their postpartum period, thereby helping them overcome the problems and preventing them from developing postpartum depression. Failure to do this and treat pain related to perineal trauma can have long-term negative effects on the women's health including urinary incontinence, pain with the elimination of painful sexual intercourse etc. These effects can last for as long as 1 year or more after birth¹³.

Numerous methods have been used to relieve postpartum perineal pain, including warm and cold therapy, application of topical analgesics and narcotic analgesics, anti-inflammatory agents, olive oil and herbs. In particular, Cryotherapy has been useful in regulating bleeding, oedema, and pain immediately after childbirth. It can contract the blood vessels, promote the reduction of bleeding, and suppress the stimulation of nerve endings at the site episiotomy⁶. Therefore, various interventions aimed at relieving the perineal episiotomy pain are largely based on localised cooling treatment methods. Cryotherapy has been shown to attenuate the level of redness, pain and swelling by numbing the superficial tissues surrounding the wound through its action on peripheral nerve fibers and by reducing the level of oedema of the soft tissue damage. When cold therapy is applied to the surface of the body, the epidermal tissue will lower the skin temperature within 2 to 5 minutes, resulting in immediate cooling. Thus, this will increase circulation, and reduce perineal redness, swelling, bruising and pain without any adverse effects on wound healing at the site of episiotomy.

Application of Cryotherapy does not require professional skills or any special requirement, hence, the mothers are commonly instructed to apply it themselves immediately after childbirth and also continue to apply it even after they are back home. Prior studies have reported that the use of cold therapy was helpful for postpartum perineal pain control and that cold therapy is a cost-effective and convenient postpartum care for primiparous women⁶. Therefore, maternity cooling gel pad application is an inexpensive, safe, and easy-to-use method that does not have any side effects and does not prevent breastfeeding⁷.

Cold packs come in different forms, ranging from manufactured packs that have a controlled temperature and stay cool for a limited period, to a variety of improvised "homemade" packs. One should always consider the potential harm caused by it. Cold packs may cause skin breakdown or freezer burn on patients with limited sensation secondary to epidural analgesia. The homemade ice packs may also pose a risk as

a possible vector for infection. The improvised cold packs may cause additional discomfort to the patient's already sore perineum; edges may be sharp or the pack may even be frozen solid¹³. Therefore, good knowledge and skills about the cold application are equally important to prevent the necessary side effects that could arise following the application of cold therapy like numbness, frostbites, pain, cold burns, chills and tissue damage that are likely to hurt the new mother's health. To make the use of cold therapy easy and effective for the mothers, the maternity cooling gel pads were suggested to the women post episiotomy.

The use of maternity cooling gel pad has shown to have a greater effect in reducing the level of the perineal oedema, bruising and pain. This is because the specifically designed cooling gel pads can be kept at a closer approximation to the traumatized tissues in the perineal region, without causing any discomfort to women using it. Also, its gel composition makes it have a higher thermal capacity than frozen ice packs and therefore helps it to maintain its pseudo-plasticity even at temperatures down -30°C. Since the pads could be molded around the vulvar and perineal regions even at the point of removal from the freezer, unlike the ice packs, and having a larger surface area were easier to use and help heal the entire perineum region at the same time¹.

The primiparous women's opinions demonstrated a high preference for using a cooling gel pad when compared to standard ice packs, as they were effective at reducing pain, swelling and bruising up to 2 weeks following birth with no adverse effects on healing. Thus, it was stated that primiparous women were highly satisfied while using the maternity cooling gel pads for their treatment and it greatly assist them in wound healing.

V. Conclusion

Primiparous women who applied the Maternity cooling gel pad to their perineal region during the postpartum period, experienced decreased levels of episiotomy pain with better and faster wound healing, and also had a better ability to perform and carry out their daily living activities compared to the control group which received the treatment with ice packs or no treatment at all². The Maternity cooling gel pads were more highly rated by the primiparous women when compared with standardly used ice packs¹.

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