Alleviating Perineal Trauma: (the APT Study)

Mary Steen (Research Fellow in Midwifery)  
Leeds Teaching Hospitals NHS Trust, UK.

supported by a Northern & Yorkshire NHS Exe. Research Fellowship + Smith & Nephew Nursing Foundation Research Fellowship
Perineal Injury

The risk of perineal injury during childbirth continues to affect the majority of women. Approx. 40% of primiparous women & 20% of multiparous women will sustain some degree of perineal injury (James et al, 1999).
Perineal Wounds

- A perineal wound can be surgically induced by performing an episiotomy or can spontaneously occur as a tear.
- An episiotomy can be a medio-lateral, midline or J-shaped incision.
- Evidence that demonstrates women experience more perineal pain after episiotomy when compared to other perineal trauma (Kitzinger & Walters, 1993)
Perineal Tears

- An increase in spontaneous tears and intact perinea is now noticeable with the reduction in the use of episiotomy
- 1\textsuperscript{st} Degree (Perineal skin layer, small area of vaginal wall)
- 2\textsuperscript{nd} Degree (Posterior vaginal wall, subcutaneous fat, perineal skin layer, superficial/deep muscles)
- 3\textsuperscript{rd} Degree (same structures as for 2\textsuperscript{nd} Degree tear + anal sphincter) (4\textsuperscript{th} Degree, in extremes case the anterior wall and rectum maybe involved)
Pain associated with perineal wounds and sometimes the repair itself has been reported to be a traumatic experience for many women, ‘the stitches were worse than having the baby’. (Nisbett, 1992)
Episiotomy use

- Decreased dramatically during last two decades
- Systematic reviews have concluded that there is strong evidence to support the restricted use of episiotomy (Carroli et al, 1997; Renfrew et al, 1998).
- Recommended that episiotomy use should be restricted to fetal indications only (Sleep & Grant, 1987). Indications i.e button-holing, rigid perineum or previous scarring are not justified reasons to perform an episiotomy (Enkin et al, 2000).
Perineal Pain

• ‘Perineal Pain in the early post-natal period has been reported to be one of the most common causes of maternal morbidity’ (Sleep, 1990)

• Walker (1990) suggested that ‘Pain and discomfort from perineal trauma can dominate the experience of early motherhood’.
Perineal Trauma:
Numerous Negative Consequences
Short Term

- Pain and Discomfort when sitting and voiding urine and faeces
- Inhibit mobilisation
- Impair ability to care for baby
- Contribute to poor lactation
- Insomnia
Long Term

- Depression
- Maternal exhaustion
- Contributes to stress incontinence
- Dyspareunia
- Affects relationship with partner
'Perineal trauma can cause considerable pain, distress and discomfort. It’s severity is frequently under-estimated and many women suffer unnecessarily, often in silence’.

(Steen & Cooper, 1998)
Classification of Perineal Oedema

1. No Oedema
2. Mild Oedema
3. Moderate Oedema
4. Severe Oedema
‘No matter how good delivery or suture techniques become, there will always be women who sustain perineal trauma, therefore, treatment is an important consideration’ (Steen, 2002).
Cooling Applications

• Localised cooling to alleviate pain has been in use for centuries. Hippocrates (father of medicine) used snow (McMasters, 1977).

• Cooling can produce a strong analgesic effect for many painful conditions (Ernest & Fialka, 1994).

• Concerns voiced re: delay in healing (Grundy, 1997; Walker, 1990).

• A recent review concluded that controlled cooling by intermittent applications has the ability to alleviate pain without adverse effects on healing.
APT Study - AIMS: Short-term

• To explore women’s experiences of perineal pain and their opinions as to the need, acceptability and effectiveness of localised cooling treatments

• To investigate whether localised cooling treatment is effective at reducing perineal oedema, bruising and pain during the first 14 days following childbirth with no adverse effects on wound healing
APT Study - AIM: Long-Term

- To explore the impact of perineal trauma in the first year of motherhood
METHODS

• A Randomised Controlled Trial (1998/99)
• Ethic Committee Approval
• Pilot Study (60 women)
• Recruitment (450 women)
• Allocated to one of three treatment groups:
  Group 1 (No localised treatment)
  Group 2 (Ice Packs)
  Group 3 (Maternity Gel Pad)
Entry Criteria:

- 16 - 45 years,
- English Speaking,
- Cephalic Presentation
- Conventional Birth Position
- Term Fetus
- Singleton Birth
- Normal Delivery/Instrumental Delivery
- Episiotomy/2nd Degree Tear (sutured Vicryl Rapide)
Outcome Measures:

- Oedema and Bruising was assessed, following suturing, daily from Day 1 to Day 5, at Day 10 and finally at Day 14 (evaluated by visual tool).
- A categorical healing scale was used to assess healing at the same measuring intervals.
The Intensity of Pain:

- The intensity of pain: was measured retrospectively (over the previous 24 hours) by use of a Verbal Rating Scale following the activities of walking, sitting down and lying in bed.
The Quality of Pain:

• The quality of pain: was measured by asking women to describe the pain in their own words. These words will be analysed as pain descriptors under the themes of sensory, affective, evaluative and miscellaneous as described by the McGill Pain Scale. In addition, intensity, discomfort, physical symptoms, metaphors used and links to the expectations of the woman will be considered.
Women’s Opinions

• Women allocated to either Group 2 (Ice) or Group 3 (Gel Pad) were asked to rate the effectiveness of the cooling treatment they received at Day 1, Day 2, Day 3, Day 4 and Day 5.

• All women in the trial were asked to rate their overall level of satisfaction with the care of the perineum at Day 10. (by use of a 5 point ordinal scale describing the categories; poor, fair, good, very good, excellent.)
Data Collection:

• Two questionnaires incorporating both open and closed questions were used to record both quantitative and qualitative data.
• One was completed by midwives and the other by women.
• A follow-up survey at 3 months, 6 months and finally at 12 months.
Results

- 316 (71%) of questionnaires were returned
- Significant reduction in oedema was observed in favour of cooling treatments at Day 2 and Day 5, \( p=0.016, p=0.018 \) (Kruskal Wallis test)
- Significant reduction in bruising was also observed by Day 10, \( p=0.01 \) (Kruskal Wallis test)
- Pain was less in the cooling gel pad group. A significant reduction was seen at Day 5, Day 10 and Day 14, \( p=0.023, p=0.007, p=0.058 \) (Kruskal Wallis test)
Treatment effect on the % of mothers with some oedema

Graph showing the percentage of women with oedema over different measurement intervals, comparing the effects of no local treatment, ice pack, and gel pad.
Treatment effect on the % of mothers with some bruising
Mothers reporting some (mild/moderate/severe pain)
Mothers reporting moderate or severe pain
• It was not easy to assess the overall statistical significance of treatment effect due to the repeated nature of the observations of the levels of pain reported each day and the fact that localised cooling treatments were applied intermittently.

• In attempt to overcome these problems a summary measurement of pain assessment was undertaken and levels of pain were self-assessed during local application.
Summary Pain Measurement:
Recoding the data under the categories of worse, no change, or improved from initial assessment to Day 5. Category change was compared within the groups. A statistically significant result in favour of Group 3 (Gel Pad) (p=0.009 chi square).
Level of Maternal Satisfaction with overall perineal care

![Chart showing satisfaction levels for different groups.](chart.png)
Women’s words: Perineal Trauma

• Word descriptors demonstrated that women use sensory words that are associated with acute pain
• Majority of words on the McGill Pain Scale
• Most common words: sore, aching, throbbing and stinging
• Cooling effect was reported to ease these pain sensations
Conclusions:

This trial confirms earlier findings in a previous study. Evidence to support the use of a specially designed cooling gel pad is a safe, effective localised treatment to alleviate perineal trauma without any adverse effects on healing.
The feme pad is now available:

From florri-feme Pharmaceuticals Ltd., Leeds UK
Tel: 0113 2424774  Fax: 0113 2424994
www.maternity2K.com   www.mothercare.com
Awards:

• Elizabeth Clark Charitable Trust Award (1993)
• NHS Executive Research Fellowship (1996)
• Travel Awards (1997/98) (USA/Australia)
• Highly Commended - Original Research (1997)
• 3rd Prize - Clinical Innovation Category (1998)
• Runner-up Wound Care Nurse of the year 1999
• Smith & Nephew Foundation 1999 Nursing Research Fellowship
• Finalist in the Nye Bevan Awards 2000
• Winner of the Yorkshire Woman of the Year 2002 Community Award
References:

• Steen MP (1998) Perineal Trauma: How do we evaluate its severity? MIDIRS. Midwifery Digest. 8:2 228-230
• Steen MP & Cooper KJ (1998) Cold therapy and perineal wounds: Too cool or not to cool? British Journal of Midwifery. 6:9 572-579
References:

• Steen MP (2000) Out of the ice age and into the millennium: The feme pad has arrived. British Journal of Midwifery. 8:5 312-315
• Steen et al (2000) A RCT to compare the effectiveness of ice packs and epifoam with cooling maternity gel pads at alleviating postnatal perineal trauma. Midwifery 16:1 48-55
• Steen MP (2001) we care enough about perineal wounds? British Journal of Midwifery 9:5 316-320
• Steen MP & Marchant PR (2001) Alleviating Perineal Trauma: The APT Study. RCM Journal 4:8 256-259
• Steen MP (2002) A RCT to evaluate the effectiveness of localised cooling treatments in alleviating perineal trauma: the APT Study MIDIRS Midwifery Digest. 12:3 373-376