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The management of nipple pain and/or trauma associated with breastfeeding.
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Best Practice
Evidence based information sheets for health professionals

The Management of Nipple Pain and/or Trauma Associated with Breastfeeding

Recommendations

- Antenatal education on positioning and attachment technique is recommended in preventing or reducing nipple pain caused by breastfeeding. **(Grade A)**
- Early postnatal education on positioning and attachment technique is recommended to reduce nipple pain. **(Grade B)**
- Warm water compresses are recommended over breast milk for the management of nipple pain and trauma related to breastfeeding. **(Grade B)**
- Antenatal nipple preparation may reduce nipple pain but caution is required due to the risk of uterus contraction. **(Grade C)**
- Clinical effectiveness of the following methods is not confirmed or supported: **(Grade C)**
  - breast shells
  - breast shield
  - aerosol spray
  - hydrogel dressing
  - film dressing
  - modified lanoline
  - collagenase
  - dexpanthenol

Information Source

This Best Practice information sheet, updates and supersedes the Joanna Briggs Institute information sheet of the same title published in 2003,[2] that was based on two systematic reviews published in 2003[3] and 2005.[4]

Background

Breastfeeding is important for the health and development of both mother and child and provides optimal infant nutrition. Nipple pain and trauma as complications associated with breastfeeding are considered amongst the most significant factors impacting on breastfeeding in the first weeks of motherhood.[2] The degree of nipple pain ranges from an uncomfortable feeling to severe pain, which is associated with nipple trauma in both frictional and suction lesions.[4] The incidence is reported to vary between 34% to 96%[2] and it peaks at day 3 and decreases by day 7.[4] Up to one third of mothers who experience these complications may change to alternate methods of infant nutrition within the first six weeks postnatal.[3]

Definitions

For the purposes of this information sheet the following definitions were used:

Nipple pain and trauma: pain sensation on frictional and suction lesions of nipple ranges from uncomfortable feeling to severe pain with physical trauma (cracked, sore, bleeding, oedematous, erythemic, blistered nipples that may have fissures and eschar present) associated with breastfeeding.

Postnatal: the period from just after delivery to the 6th week after birth.

Antenatal: occurring before labour commences

Primiparous: first birth experience

Multiparous: having given birth two or more times

Objectives

The purpose of this Best Practice Information Sheet is to determine the effectiveness of interventions used by and for breastfeeding women to prevent and/or reduce nipple pain and trauma.

Grades of Recommendation

These Grades of Recommendation have been based on the JBI-developed *2006 Grades of Effectiveness*[1]

Grade A Strong support that merits application

Grade B Moderate support that warrants consideration of application

Grade C Not supported

Types of Intervention

The Best Practice Information Sheet included any antenatal education and preparation programs, application of topical agents, dressings and other types of material or methods used to prevent and to alleviate nipple pain and trauma related to breastfeeding.

Quality of the research

Many studies included in the reviews were randomised controlled trials (RCTs) with small sample sizes and participants from specific socio-cultural settings. Various types of interventions were reported. There was a large overlap of primary studies included in the two systematic reviews.

Preventing Nipple Pain/ Trauma

Antenatal education

There is good evidence to show that antenatal education on women's positioning and attachment technique is likely to reduce nipple pain caused by breastfeeding.

A RCT compared standard antenatal education with an additional 30 minutes of one-on-one education for 158 primiparous women within 24 hours of giving birth. The woman's positioning and attachment technique was assessed during the education session and on each subsequent day in hospital. Nipple pain was found to be lower in the treatment group with a statistically significant difference observed between the treatment and control groups on day 2. No significant differences were found for nipple trauma (predominantly nipple redness) at all assessment stages.[3,4]

Another RCT examined the effectiveness of a one hour antenatal teaching session on position and attachment of the infant to the breast in preventing nipple pain and trauma. The women who received the session had lower scores for nipple pain on the fourth day postpartum when compared to the control group. At 6 weeks postnatally, 31 of the 35 women in the experimental group were still breast feeding compared to only 10 of the 35 women in the control group.[4]

Antenatal nipple preparation

There is some evidence to support prenatal nipple preparation for preventing nipple pain and trauma. However, clinicians may be reluctant to encourage prenatal nipple preparation because nipple stimulation can lead to uterine contractions.[4]

Postnatal Education

An RCT of 160 postpartum women examined the impact of postnatal positioning and attachment education on the reduction of nipple pain and trauma in comparison to usual care. The women in the treatment group received visual, verbal and written information on positions of the infant at the breast, breast anatomy, principles of correct attachment and sucking stages. A nipple visual analogue scale was used for the assessment of nipple pain. On day 2 and 3 postpartum, the women in the treatment group reported significantly lower nipple pain compared to the control group. On other days, no significant difference was found.[4]

Warm water compress, Breast milk and Teabag

Among the options of applying warm water compresses, breast milk or teabags, the placement of a warm water compress was found to be the most effective intervention in controlling nipple pain and trauma.

Teabag compress vs. Warm water compress vs. Breast milk

An RCT compared four interventions on 73 primiparous breastfeeding women: instruction only, warm moist teabag compress, warm water compress, and milk massaged into the nipple and air-dried. All groups were given written and verbal instructions on breastfeeding. The intervention groups were asked to perform their allocated treatment four times a day after breastfeeding. Intensity and effect of nipple pain was measured with visual analogue scale (VAS) on days one through to seven. The breast milk group had the highest mean scores for both pain affect and pain intensity. A statistically significant improvement in pain scores and pain effect was found in the warm water compress group as compared to the teabag group and the breast milk group.[3,4]

Another RCT including 65 primiparous women showed that warm water or tea bags compresses were more effective in alleviating the pain of breastfeeding compared to breast milk compresses.[3,4] However, it was cautioned that the use of teabags may not be appropriate as a first choice intervention due to the possible alterations in taste and smell of nipples.[3,4]

Warm water compresses vs. Breast milk vs. No treatment

Again, a warm water compress is likely to give the most beneficial effect among the treatments options listed above, despite no statistical significance. Ninety primiparous women were randomised into three experimental groups. Group 1 applied warm wet compresses on and around the nipples after breastfeeding four times daily. Group 2 applied expressed breast milk on and around the nipples and let it dry for a few minutes after each breastfeed. Group 3 did nothing but keep their nipples clean and dry.[3,4] No statistical difference in pain scores was shown between the three groups. However, women who applied warm compresses showed the lowest pain intensity and pain affect. Additionally, all three groups' pain scores peaked on day and started to decrease from day 3 on.[3,4]

Water compress vs. breast milk vs. education vs. lanolin

An RCT involving 177 primiparous women compared four different interventions; warm water compress, milk massaged into the nipple and air-dried, instruction only and modified lanolin.[3,4] The warm water compress group reported the lowest pain intensity and affect on days 7 and 14. The number of women still breastfeeding at 6 weeks were comparable.[3,4] All groups experienced the highest pain intensity and affect on day 4.

Aerosol spray

Due to the existence of conflicting evidence to support the use of aerosol spray for the management of nipple pain and trauma, no strong conclusion can be drawn. Further research is required.

Aerosol sprays vs. No treatment

An RCT where two aerosol sprays were randomly allocated to each breast was evaluated on 200 participants. Participants acted as their own controls with breasts randomly allocated to either group. The control was a placebo of distilled water and the treatment was Chlorhexidine (0.2%)/ alcohol. Participants were instructed to use a brief spray before and after each feed.[3, 4]

Overall discomfort was reduced by a significantly greater extent in the treatment breast than in the control breast. Regarding the status of nipple traumas, both breasts showed a significant decrease in the severity and incidence of nipple trauma from week one to week four.[3,4] No side effects for infants were reported.

Aerosol sprays ± Ointments vs. No treatment

An RCT compared aerosol sprays and/or ointments on 219 primiparous and multiparous women.[3,4] No significant differences were found between the groups in the incidence of nipple pain or nipple trauma.[3,4]

Dressings, Modified lanoline ointment, Collagenase and Dexpanthenol

Some evidence was found to support the use of film dressing, modified lanolin, collagenase and dexpanthenol. However, given the limited number of high quality studies available, no meaningful conclusions could be drawn. Some cases of nipple infection in the use of hydrogel dressing or modified lanolin were reported, which also require a further investigation to draw a strong conclusion.

Film dressing vs No treatment

An RCT involving 50 primiparous and multiparous women evaluated the effectiveness of a film dressing as compared to no treatment. Participants acted as their own controls with breasts randomly allocated to either group. The treatment consisted of the use of a polyethylene film dressing (Blisterfilm). Discomfort associated with removal of the dressing may be an issue and could account for the likely drop out rate of 16%. Statistically significant differences were found for the amount of eschar favouring the film dressing group.[3,4]

Hydrogel dressing vs. Modified lanolin

Hydrogel dressings are sterile, polyurethane-based hydrophilic hydrogel dressings that provide a mechanical barrier and moist wound environment. An RCT compared a hydrogel dressing and modified lanolin ointment on 106 primiparous women. Mean pain scores showed significant decline of nipple pain and trauma for the hydrogel dressing group.

Another RCT that compared a hydrogel dressing and lanolin ointment with breast shells on 42 primiparous women showed a statistically significant reduction in nipple trauma and improvement in nipple pain in both groups. The Lanoline group showed statistically significant reduction in pain during breastfeeding when compared to other groups.

Mixed evidence result exists in relation to the use of hydrogel dressing or modified lanolin ointment for the treatment of nipple infections. In a first study[4], all 8 infections out of 106 participants occurred in the modified lanoline group.[4] In a second study, seven out of 21 women who were treated with hydrogel dressing dropped out from the study due to infections.[3] Another RCT of 100 primiparous women that compared modified lanolin and gentle massage did not report any breast infections related to the trial.[4]

Collagenase vs. Dexpanthenol vs. Warm water & soap

An RCT of 66 primiparous women compared the above agents (four times daily for 2 weeks) on the management of nipple pain. The women were randomly assigned to one of the three groups. Nipple pain increased significantly on day 3 postpartum in the group that was treated with dexpanthenol or water and soap. Collagenase and dexpanthenol showed equally favourable effects on nipple pain in comparison to water and soap.[4]

Breast/Nipple shields and Breast shells

Some evidence was shown to favour the use of glycerine gel above the use of breast shells and lanolin. However, due to the limited number of high quality RCT, no firm conclusion can be presented.

Breast shields

Nipple shields can be used during feedings to assist the baby to latch onto flat nipples, everted nipples, or an engorged breast, to protect sore or cracked nipples, or to prevent sore nipples. However, there were no studies available evaluating the use of nipple shields for the management of nipple pain.[4]

Breast Shells & Lanolin vs. Glycerin gel

Breast shells are used before and after feeding to protect sore nipples. An RCT of 30 breastfeeding women compared the application of lanoline combined with breast shells, and glycerin gel therapy to evaluate a potential reduction in nipple pain. It was reported that the glycerin gel treatment group experienced markedly more relief from nipple pain than the lanolin cream plus shells treatment group.[4]

Breast Shells vs. No Treatment

A small study with 20 breastfeeding women found no significant difference between wearing a breast shell and not using breast shells in nipple pain scores. Eighty % of the 20 women indicated they would use the breast shell again due to the improved general comfort between feedings and decreased friction from clothing in breast shell use.[3,4]

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Acknowledgments

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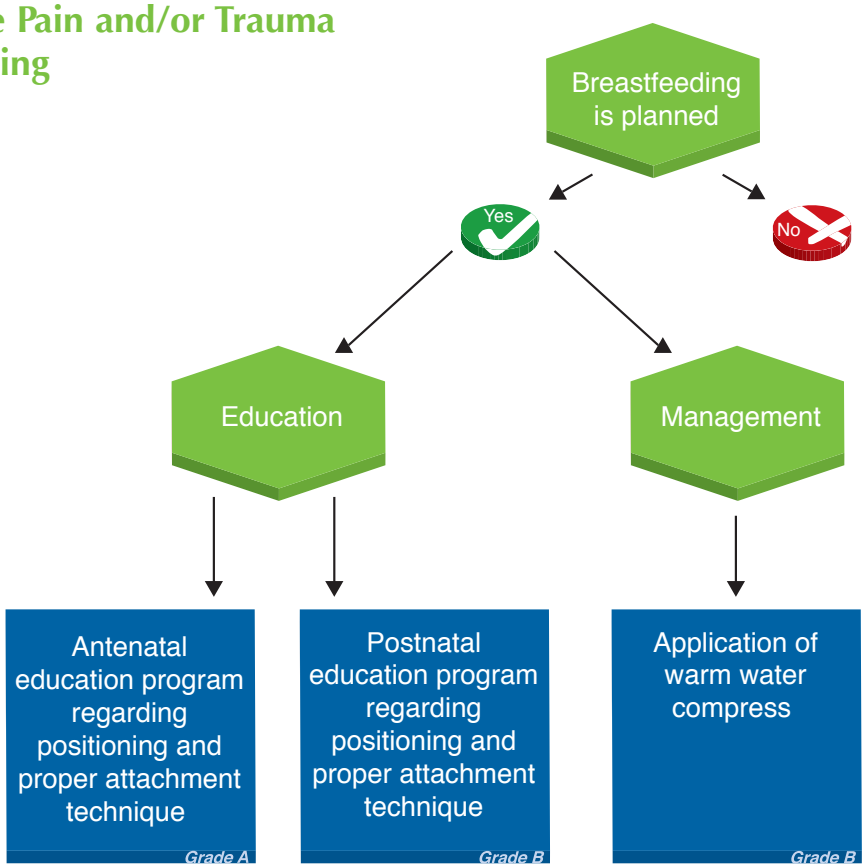
In addition this Best Practice information sheet has been reviewed by nominees of international Joanna Briggs Collaborating Centres.



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Evidence-based Practice evidence, context, client preference judgement

This *Best Practice* information sheet presents the best available evidence on this topic. Implications for practice are made with an expectation that health professionals will utilise this evidence with consideration of their context, their client's preference and their clinical judgement.[5]