BREASTFEEDING MEDICINE
Volume 4, Number 2, 2009
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DOI: 10.1089/bfm.2009.9997

ABM Protocols

ABM Clinical Protocol #20: Engorgement

The Academy of Breastfeeding Medicine Protocol Committee

A central goal of The Academy of Breastfeeding Medicine is the development of clinical protocols for managing common medical problems that may impact breastfeeding success. These protocols serve only as guidelines for the care of breastfeeding mothers and infants and do not delineate an exclusive course of treatment or serve as standards of medical care. Variations in treatment may be appropriate according to the needs of an individual patient.

Purpose

The purpose of this protocol is to evaluate the state of evidence as to the prevention, recognition, and management of breast engorgement to encourage successful breastfeeding. The effect of medications on breast engorgement and lactation suppression will also be reviewed.

Background

Engorgement has been defined as "the swelling and distension of the breasts, usually in the early days of initiation of lactation, caused by vascular dilation as well as the arrival of the early milk."[1] The concept put forward by Newton and Newton[2] in 1951 suggested that alveolar distension from milk then led to compression of surrounding ducts, which subsequently led to secondary vascular and lymphatic compression. Some degree of breast fullness in the second stage of lactogenesis is considered normal and reassuring to the mother and healthcare provider.

Engorgement symptoms occur most commonly between days 3 and 5, with more than two-thirds of women with tenderness on day 5 but some as late as days 9–10.[3,4] Two-thirds of women experience at least moderate symptoms.[5,6] More time spent breastfeeding in the first 48 hours is associated with less engorgement.[7]

One difficulty when evaluating incidence and treatment options for this condition involves the spectrum of engorgement, from expected physiologic breast fullness through severely symptomatic engorgement. Additionally, more optimal lactation management and support in some institutions may reduce the frequency of significant symptoms compared to less supportive environments.

Assessment of Engorgement

Tools

No standardized reliable tool for assessing breast engorgement has been established. Various methods of subjectively rating engorgement have been utilized, such as visual descriptions, cup size, hardness or firmness scales, but none has become clinically useful.[2,6,8,9]

Predictors

1. The relationship between parity and engorgement remains unclear because of little research. Onset of lactogenesis occurs sooner in multiparous compared to primiparous women, but engorgement has not been studied in this regard.[10]
2. Women undergoing cesarean delivery typically experienced peak engorgement 24–48 hours later than those who delivered vaginally.[7] These women also initiated breastfeeding significantly later than did their vaginally delivered counterparts. This finding appears consistent with other research that has found that cesarean delivery may correlate with a higher likelihood of delayed onset of lactation.[10]
3. It is not uncommon for women who have undergone breast surgery to experience engorgement.[11]
4. The influence of length of labor, premature delivery, anesthetic options, and intravenous fluids remain unclear.[12–14]

Differentiating engorgement from other causes of breast swelling

1. *Mastitis*. Engorgement may be associated with a slight elevation of maternal temperature, but significant fever, especially when associated with breast erythema and systemic symptoms such as myalgias, suggests the diagnosis of mastitis. Typically mastitis affects only one breast with a segmental pattern of redness. Engorgement is usually diffuse, bilateral, and not associated with breast erythema.[1]
2. *Gigantomastia*. Gigantomastia is a diffuse, bilateral process that occurs very rarely and does not typically present in the postpartum period. The reported incidence is approximately 1:100,000, but some feel that it is more common with a rate as high as 1:8,000.[15] It is regarded as bilateral benign but progressive massive breast enlargement

to an extent that tissue necrosis may occur and infection and sepsis may result. Histologic findings suggest marked lobular hypertrophy and ductal proliferation. No clear etiology for this condition has been elicited, although hormonal changes are likely involved.[15–18]

Prevention and Treatment

Prevention

There has been a great deal of research into medical therapies to suppress lactation, but limited research into prevention and treatment strategies for lactating women who may develop engorgement. Focused education to mothers regarding breastfeeding position and attachment or prenatal nipple conditioning has shown no difference in subsequent incidence of engorgement.[19,20] However, some breastfeeding techniques have been specifically associated with less engorgement, including emptying one breast at each feeding and alternating which breast is offered first.[21] Limited evidence suggests breast massage after feeds performed for the first 4 days postpartum may reduce the extent of engorgement.[20] Although commonly accepted as preventive of engorgement, frequent effective feeding patterns have not been studied.[21]

Treatment

Adequate management of engorgement is important for successful long-term lactation.[23,24] Although experiencing engorgement may be temporarily uncomfortable for mothers, it appears to be associated with a decrease the likelihood of early weaning. At the same time, failure to effectively resolve *prolonged symptomatic* engorgement may additionally have a negative impact on continued adequate milk supply.

Both pharmacologic and non-pharmacologic therapies have been touted as beneficial for the treatment of engorgement. A systematic review of both randomized and "quasi-randomized" controlled studies assessing effectiveness of treatments for breast engorgement was done by Snowden et al.[25] in 2001. This analysis identified eight trials including 424 women. Therapies reviewed that outperformed placebos in decreasing symptoms are described below:

1. Serrapeptase® (Takeda Chemical Industries, Ltd., Osaka, Japan) (Danzen), an anti-inflammatory enzyme agent, 10 mg three times daily, was compared to placebo three times daily for 3 days.[26] The Danzen group reported marked improvement in 23% of women compared to only 3% in the placebo group. Overall 86% of the treatment group reported statistically significant marked or moderate improvement compared to 60% for the placebo group. Although the results suggest that the anti-inflammatory agent may be beneficial, the study has the significant limitation that few women in the study were breastfeeding their infant.
2. Enzyme therapy using a protease complex enteric-coated tablet containing 20,000 units of bromelain and 2,500 units of crystalline trypsin, another anti-inflammatory agent, has been tested.[27] Women with breast swelling or induration on days 3–5 and pain were given either the protease complex or placebo tablets (approximately 5 tablets per day) for 3 days for a total of 16 tablets. The protease complex was found to be effective in 83% of cases compared to 33% of those receiving placebo.
3. Reverse pressure softening technique uses gentle positive pressure to soften an area (1–2 inches or so) near the areola surrounding the base of the nipple. The goal is to temporarily move some swelling slightly backward and upward into the breast. Moving the edema away from the areola has been shown to improve the latch of the infant during engorgement.[28] The physiologic basis for this technique is the presence of increased resistance in the subareolar tissues during engorgement.
4. Snowden et al.[25] concluded that there is no benefit for the following treatments as compared with placebo: cabbage leaves, cabbage leaf extract, oxytocin, cold packs, and ultrasound.

It may be that some treatments that help the discomfort without relieving the actual engorgement.

It should also be noted that many of the therapies listed above may not be available in certain countries.

Other considerations

1. *Herbal remedies.* At the present time herbal remedies for breast engorgement and oversupply have been described, but scientific investigation regarding their effectiveness is not available.
2. *Manual expression or pumping.* If the infant can not successfully nurse, measures should be undertaken to assist the mother with manual expression or pumping, either for a few minutes to allow softening and compressibility of the nipple–areolar complex or for milk extraction. The milk can then be given to the infant by cup, and the mother can be encouraged to nurse more frequently prior to the recurrence of severe breast engorgement. All new mothers should also be instructed in the technique of manual breast expression.[29]
3. Anticipatory guidance regarding the occurrence of breast engorgement should be given to all breastfeeding mothers prior to hospital discharge. In many countries where women may have longer hospital stays engorgement may occur in the birth hospital. However, many women are discharged before the expected time of peak symptomatic engorgement. Mothers should be counseled about symptomatic treatment options for pain control. Acetaminophen (or paracetamol) and ibuprofen are both safe options for nursing mothers to take in appropriate doses. Additionally, contact information for breastfeeding supportive advice should be provided. Healthcare personnel seeing either the newborn or mother after discharge should routinely inquire about breast fullness and engorgement.

Recommendations for Future Research

Currently there is inadequate research into both the physiologic process of engorgement and effective prevention and treatment strategies. A uniform measurement system for the severity of the engorgement should be developed to allow standardized measures and comparison of results between studies. Once an objective noninvasive bedside measure of breast engorgement has been developed, then clinical trials assessing correlation of objective measures of engorgement and treatment of engorgement with breastfeeding duration

and problems can be conducted. Knowledge about the influence of labor interventions and patient characteristics predisposing to the development of significant engorgement would be useful in identifying patients at risk for engorgement and those who could benefit from counseling and closer follow-up. Non-pharmacologic remedies for the management of engorgement should be investigated. Double-blinded placebo-controlled studies of medications known to be safe during lactation and with potential to relieve symptomatic engorgement should be prioritized.

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Contributor:
**Pam Berens, M.D., FABM*

Protocol Committee
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*Lead author

For reprint requests: abm@bfmed.org