

Training for Perfect Breastfeeding or Metoclopramide: Which One Can Promote Lactation in Nursing Mothers?

K. Sakha and A.G. Behbahan

Abstract

Background: One of the most common complaints of nursing mothers in a few days after delivery is insufficient lactation. This is known to be partly due to the mothers' deficient knowledge of proper breastfeeding and often results in the beginning of bottlefeeding, which finally diminishes or ceases their breastfeeding. Considering the valuable effects of breastfeeding on nutritional, immunologic, and emotional aspects of infants' health, we planned this study to find out whether training of nursing mothers for breastfeeding can enhance their lactation; also, we tried to compare the effects of metoclopramide on lactation with those of training.

Methods: Throughout 2006, we consecutively enrolled 20 primipara nursing mothers who were referred to Tabriz Children's Hospital, Tabriz, Iran for counseling about prescription of infant formula as a response to their complaint of insufficient lactation during a couple of months after parturition. Only those mothers were included in this study whose newborns had failed to gain appropriate weight, determined by their age and birth weight. First, all newborns were weighed, and all mothers passed a short training course about "perfect practice of breastfeeding"; then we randomly allocated them in two equal groups of 10 mothers—one group received a metoclopramide tablet (10 mg/dose every 8 hours), and the other just placebo, both for a period of 15 days. Thereafter we weighed the newborns again and compared the two recorded weights of each infant and the average weight of the two groups with each other to assess the sufficiency of breastfeeding and effects of training and galactagogue.

Results: Eighteen of the 20 newborns studied (90%) showed an appropriate weight gain: 12 newborns gained 385–415 g (mean, 400 ± 15 g), six neonates gained 270–315 g (mean, 292.5 ± 22.5 g), but the remaining two newborns gained 150–235 g (mean, 192.5 ± 42.5 g). Statistical analysis revealed that training of nursing mothers for perfect breastfeeding (with or without metoclopramide consumption) has a significant improving role in infants' weight gain ($p < 0.001$); however, there was no statistically meaningful difference between the two treatment groups (with and without administration of metoclopramide, $p = 0.68$).

Conclusions: Counseling nursing mothers for proper lactation before delivery and their continued training thereafter are the main clinical pathways toward a successful and sustained breastfeeding.

Introduction

UNSUCCESSFUL BREASTFEEDING after discharging a mother and her newborn infant from the hospital, which is recently performed earlier than ever, may be caused by many factors, including¹ (1) maternal ignorance about importance of breastfeeding, (2) shortage of the mother's information concerning the proper practice of breastfeeding, (3) deficient interventions for evaluation and removal of causative factors when breastfeeding fails, (4) easy availability of infant formula, and (5) early discharge of newborn infants from the nursery.

Passing judgment on the mothers' practice of breastfeeding and determining if it is efficient or deficient could be done only by assessment of their infants' growth. When an exclusively breastfed infant is growing normally, it can be concluded that his or her mother's lactation is efficient,² but inappropriately low weight gain (less than 500 g/month or 17 g/day) during the first several months necessitates a thorough investigation to find its reason(s), including insufficient breastfeeding.

This may be revealed by focusing on the mothers' deficient experience or knowledge about proper breastfeeding as one of the most important causes of this failure.³

Health workers can play a key role in supporting and promoting breastfeeding. Their presence at the time of delivery and their subsequent contacts with the mother and infant provide them with unique opportunities to help the mother and baby to establish and maintain lactation. In the past 2 decades, there has been a rapid increase in our understanding, not only of the scientific basis of lactation and suckling, but also of prevention and effective management of breastfeeding problems, including the use of basic counseling skill. Many studies have shown that if health workers' attitude and practice are supportive, it is more likely that mothers will breastfeed successfully and longer. Unfortunately, breastfeeding has been neglected in the training of most health workers, leaving a serious gap in both their knowledge and skill. Therefore training is urgently needed at all levels for up-to-date and effective management of breastfeeding.⁴

Despite a perfect technique of breastfeeding, an infant's weight gain may not be as suitable as expected; insufficient milk production by the mother's breasts may be a reason for this failure. Therefore many studies have addressed galactogogues, medications that promote lactation. The study of Gabay⁵ on galactogogues in the United States revealed that metoclopramide remains the galactogogue of choice because of its documented efficacy and safety in women and infants. Domperidone crosses the blood-brain barrier and into the breastmilk, to a lesser extent than metoclopramide, decreasing the risk of toxicity to both mother and infant possibly making it an alternative. The study of Petraglia et al.⁶ on an antidopaminergic drug (domperidone) showed that lactogenesis is increased by this drug, but unlike the study of Gabay,⁵ they claimed that domperidone secretion into breastmilk is negligible and the drug cannot cross the blood-brain barrier. The study of Hansen et al.⁷ showed that metoclopramide did not increase breastmilk volume or duration of breastfeeding in women delivering preterm neonates. However, most galactogogues exert their pharmacologic effects through inhibition of dopaminergic receptors, resulting in increased prolactin level and thereby augmenting milk production. Considering this diversity in results of various studies, the effect of metoclopramide in enhancement of breastfeeding remains to be proved. Therefore we designed this study to find out whether training of nursing mothers for perfect breastfeeding can enhance their lactation; in addition, we tried to compare the effects of metoclopramide on lactation with those of mere training, both to support breastfeeding mothers and to assess the effects of galactogogues.

Patients and Methods

In a randomized controlled trial, throughout 2006, we consecutively enrolled 20 primipara nursing mothers who had been referred to Tabriz Children's Hospital, Tabriz, Iran for counseling about prescription of infant formula as a response to their complaint of insufficient lactation during a couple of months after parturition. Only those mothers were included in this study who had a term newborn with a weight gain of less than 500 g/month.

All aspects of our study and treatment plan were explained to the mothers, and then we obtained their written permission.

The Research Review Board and Ethics Committee of Tabriz University of Medical Sciences approved the study.

Mothers' weight, height, body mass index, and economic state were not considered in this study. Exclusion criteria were as follows: mothers with preterm or low-birth-weight infants; working mothers; mothers with infants who had cardiac, pulmonary, musculoskeletal, metabolic, genetic, and neurological disorders or anomalies; mothers who had tried bottlefeeding before counseling; mothers with multifetal delivery; mothers with anatomical abnormalities of the breast; mothers who had been admitted to hospital more than 3 days after delivery and mothers whose newborn infant had been admitted to the hospital more than 3 days after birth.

At first all newborns were weighed by a Seca[®] (Hamburg, Germany) balance under the same controlled condition. Their weight was then compared with recorded data in their nursery discharge sheet and growth surveillance card. Afterward term newborns with a weight gain of less than 500 g/month were determined and consecutively enrolled. All mothers passed a short training course about latch and positioning techniques of breastfeeding including^{8,9}:

1. Position of the mother, baby language, and tension. Pillows were used to provide support for arms or the infant.
2. Positioning of the infant's ventral surface toward the mother's ventral surface, and the infant's head in the crook of the mother's arm to be moved toward her breast by arm movement.
3. Positioning of the mother's hand on her breast not in the way of proper grasp by the infant.
4. Positioning of the mother's nipple to be centered in the baby's wide-open mouth and trying to get as much of the breast's areola as possible in the baby's mouth without forcing it.
5. Positioning of the infant's face, to check that the baby's nose and chin touch the breast and the baby's lower lip is not folded in, so that the infant does not suck it; the lip is flanged (turned out).
6. To check the baby's holding of breast, pulling the baby's head slowly and slightly away from the breast to see if the baby has a good hold.
7. To correct a painful latch, the mother should feel a pulling or tugging sensation, after the initial latch-on discomfort. She should then sit back, relax, and enjoy the closeness of breastfeeding her baby. If the latch is still painful after 1 minute, she must take the baby off by breaking the suction with her finger. To break the suction, she places her finger between the baby's mouth and her breast. Pulling the baby off without first breaking suction may cause her nipple to become sore.
8. Trying to reattach the baby to her breast, in a correct position, the mother will be comfortable, and the baby will be able to get a lot of milk. The mother will know that her baby is properly attached when she sees jaw and temple movement with the baby's rhythmic suck. She will hear her baby's swallowing (gulping at times).
9. Facilitate unrestricted breastfeeding, eight to 12 times per 24 hours.
10. To avoid using bottles and allowing the infant to nurse hindmilk from the breast in every breastfeeding.

TABLE 1. INFANTS' WEIGHT GAIN, AFTER TRAINING OF MOTHERS FOR BREASTFEEDING, WITH OR WITHOUT METOCLOPRAMIDE ADMINISTRATION

Mothers' group	Infants' mean weight gain (g)			p value
	Number	Total over 15 days	Per day	
Trained	10	328.5	21.9	0.68
Trained and received metoclopramide	10	351.5	23.4	

Then we randomly allocated trained mothers in two equal groups of 10: one group received metoclopramide tablets (10 mg/dose every 8 hours) and the other just placebo, both for a period of 15 days. Thereafter we weighed the newborns again and compared the two recorded weights of each infant and the average weight of both the groups with each other to assess the sufficiency of breastfeeding and effects of training and galactogogue.

Statistical analysis was done by using the independent sample test and paired *t* test from SPSS (Chicago, IL) software.

Results

As shown in Table 1, the infants' weight gain was appropriate in both groups of trained mothers (with or without metoclopramide consumption), although the mean weight gain of infants in the metoclopramide-treated group was slightly higher than in the other group, but this difference was not statistically meaningful ($p = 0.68$).

Table 2 shows that inappropriate weight gain continued only in two cases (one from each group of mothers, with or without metoclopramide consumption), while the other 18 infants grew appropriately.

The weight gain of infants 15 days after training of mothers for perfect breastfeeding was compared with their previous weight gain; this revealed that training of mothers for the perfect practice of breastfeeding (with or without administration of prolactin-stimulating drug) could increase the mothers' lactation and enhance the infants' weight gain. This induced difference was statistically meaningful ($p < 0.001$).

Discussion

Our study revealed that training of mothers improves their self-confidence, motivation, and knowledge about breastfeeding and will result in enhancement of their lacta-

tion skills. The efficacy of this training is more significant than that of administration of prolactin-stimulating drugs such as metoclopramide and domperidone, which increase pituitary prolactin secretion and breastmilk production.

In a study by Seema et al.¹⁰ 50 mothers of infants less than 4 months old with lactation failure were randomly assigned to two equal groups. Both groups were motivated, supported, and trained for repeated suckling to practice breastfeeding properly; one-half of the mothers, in addition, were given metoclopramide. The relactation attempt was completely successful in 46 (92%) cases, partially successful in three mothers (6%), and unsuccessful only in one (2%). The researchers concluded that relactation should be possible in most of the mothers without the help of galactogogues. Education, motivation, and professional support of mothers are necessary, at least for exclusive breastfeeding during the first 4–6 months.¹⁰ Both groups of mothers in our study were trained for the perfect practice of breastfeeding, but only one group received metoclopramide; however, we found no statistically meaningful difference between milk supplies in the two groups as lactation and infant's weight gain improved equally in both groups. These findings are similar to those of the study of Seema et al.¹⁰ Therefore, the efficacy of training for perfect practice of breastfeeding to enhance lactation is never less than that of galactogogues.

In evidence-based studies galactogogues such as metoclopramide and domperidone can increase breastmilk supply, but the study of Brown et al.¹¹ showed that the prolactin response to the medications was most influenced by parity, as nulliparous women had the quickest and highest prolactin secretion with metoclopramide, while multiparous women had prolactin secretion patterns that were equivalent between those induced by metoclopramide and domperidone.

Kaupilla et al.¹² declared that metoclopramide increases breastmilk secretion but has no thyrotropic or lactotropic effects.

TABLE 2. MINIMAL AND MAXIMAL INFANTS' WEIGHT GAIN, AFTER TRAINING OF MOTHERS FOR BREASTFEEDING, WITH OR WITHOUT METOCLOPRAMIDE ADMINISTRATION

Number of infants	Weight gain (g)					
	Minimum		Maximum		Mean	
	Total over 15 days	Per day	Total over 15 days	Per day	Total over 15 days	Per day
12	315	21	485	32.3	400	26.7
6	270	18	315	21	292.5	19.5
2	150	10	235	15.7	192.5	12.8

De Gezelle et al.¹³ evaluated the effects of metoclopramide on breastmilk in 13 primiparous nursing mothers participated in a placebo-controlled double-blind trial; these researchers claimed that during the early puerperium the total milk yield was 50% greater in the metoclopramide-treated group compared to the control group. In addition, metoclopramide enhances the rate of transition from colostrum to mature milk.

Although we found that the mean weight gain of infants in the metoclopramide-treated group was slightly higher than that in the other group, this difference was not statistically meaningful ($p = 0.68$). These results show the preferable role of training and enhancement of the mother's self-confidence and motivation.

Conclusions

Administration of prolactin-stimulating drugs can increase breastmilk production, but training of mothers for the perfect practice of breastfeeding and explaining to them the values of breastmilk for their children's health will improve their self-confidence and motivation. These are the strongest and most effective factors that increase and sustain breastfeeding.

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Address reprint requests to:
A.G. Behbahan, M.D.
Department of Pediatrics
Tabriz University of Medical Sciences
Sheshgelan Street
Tabriz, Iran

E-mail: ghalehgolab@yahoo.com