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Chapter 4

Support for Breastfeeding

Patricia Triviño Vargas

Abstract

Breastfeeding support for mothers of newborn babies in neonatal units is the basis for successful breastfeeding. With this, health professionals should educate the key members of the family and the environment surrounding the family about the benefits of breast milk in the first months of life and how to encourage and support the mother in the first months of life breastfeeding days. Exclusive breastfeeding is the most effective intervention to reduce infant morbidity and mortality and is estimated to prevent 13% of infant mortality under 5 years in low-income countries. However, the rate of exclusive breastfeeding is alarmingly low in developing countries. Mothers who face problems in breastfeeding immediately turn to high-quality milk formulas. Therefore, it is very important to assume the responsibility of health professionals to identify and adequately manage breastfeeding problems. UNICEF/World Health Organization, through the Baby Friendly Hospital Initiative (BFHI), has recommended good health care practices that support breastfeeding to increase the likelihood of optimal breastfeeding. The focus of breastfeeding in preterm infants and hospitalized term infants should must worry on the physical, emotional, legal, and social difficulties that may occur in the mother. It is necessary to consciously strengthen these terms for a successful breastfeeding.

Keywords: support for breastfeeding, newborns, premature infant, neonatal hospitalization

1. Introduction

Support for the production of breast milk in neonatal units is essential for the survival of preterm and term newborns [1–4]. This support is achieved with the conviction that this natural food is essential and irreplaceable in the first days of a newborn’s life. Breastfeeding is the natural way to feed babies, providing nutritional, immunological, psychological and...
economic benefits. These qualities are especially important in preterm infants due to their vulnerability [5]. Sometimes it is contrasted with the lack of education, education, conviction and eventually the infrastructure that provides spaces to stimulate and encourage breastfeeding through manual extraction or with artifacts that facilitate the extraction in the neonatal units. These are the place of breast milk, extraction.

2. A historical perspective

2.1. Body research methods

A prospective study investigated the frequency of use of breast milk for the delivery of preterm infants of a high-risk neonatal unit. These are 244 preterm infants and were performed at a Hospital Friends of Children. The observed frequency of breast milk use at discharge from the neonatal unit was 94.6%. The finding that preterm infants were receiving breast milk reflects a well-structured program to promote breastfeeding of preterm infants at this institution, which is based on an interdisciplinary team to provide adequate support to mothers [6].

3. Physiology

With regard to the physiology of the creation of breast milk should be taken into account the stage of embryology. From that period on, the basic components of the genesis of the organs are developed.

In the intrauterine period the amniotic fluid contains amino acids, proteins, vitamins, minerals, hormones and growth factors. Although the concentration of these nutrients is much lower than that found in human milk, the large volumes of amniotic fluid ingested (up to one liter per day in the last stage of gestation, considerably more than the newborn after birth). Have a significant impact on growth and maturation of both the fetus and the fetal intestine. This makes it beneficial for his extraterrestrial life especially in the period of prematurity. Animal studies and limited human observations suggest that ingested amniotic fluid accounts for approximately 15% of fetal growth. The stage of prematurity, less than 37 weeks gestational age, affects the milk of mothers who give birth prematurely as it differs from women who give birth at term. The milk of the premature newborn, according to studies, is initially in concentration higher in proteins, fats, free amino acids and sodium, but during the first weeks after the birth these levels decrease. Keep in mind that the mineral content of preterm milk is similar to that of full-term milk, with the following exceptions: calcium is significantly lower in preterm milk than term milk and apparently does not seem to increase in over time.

With respect to carbohydrates in breast milk, lactose is the main carbohydrate. This disaccharide is an important source of energy, according to studies, it is relatively low in colostrum (first secretion of the mammary gland) and increases over time with more dramatic increases in preterm milk. Complex oligosaccharides are the second most abundant carbohydrate in breast milk. These oligosaccharides of human milk (HMO) are not digestible by host glycosidases.
and, however, are produced in large quantities with very variable structures by the mother. HMOs have three important functions: prebiotic (stimulation of commensal bacteria containing glycosylated bacteria to deconstruct and consume HMOs), strategy (structural similarity with glucans in enterocytes allows HMOs to competitively bind to pathogens) and the supply of fucose and sialic acid that appears to be important in host defense and neurodevelopment, respectively. In addition, preterm milk is relatively more variable in the HMO content. The differences between mothers are due to genetic diversity. Glycosaminoglycans (GAGs) also appear to act as decoys that provide binding sites for pathogenic bacteria to avoid adherence to the enterocyte. Premature milk is richer in GAG than full-term milk. We have to know the components of this stage of prematurity to contain and guide the mother in its extraction and access of premature to breast milk.

In turn, biological molecules actively in human milk are important components of the innate immune system. The differences in cytokines, growth factors and lactoferrin between premature milk and full-term milk are more important in colostrum and early milk and, in most cases, resolve after 4 weeks after delivery. Leptin is produced by the mammary glands, secreted in human milk, and may be important in postnatal growth. The leptin in human milk does not seem to differ between the milk to the preterm newborn and the milk of the term newborn. The activity of the lipase stimulated by the bile salt is similar in the term and in the preterm milk while the activity of the lipoprotein lipase is higher in the milk at term. The physiological basis of the composition of breast milk in its states of prematurity in the newborn provides us with guiding elements in the importance of the promotion of breast milk and the constant support that should be provided to the mother in neonatal units.

4. Successful breastfeeding

The success of breastfeeding lies in the interaction that is received from the mother–child binomial, the stimulation of the mammary gland and the coordinated hormonal aspects in the mother’s organism.

In turn, several randomized and quasi-experimental studies have investigated the influence of early postnatal contact on the initiation or continuation of breastfeeding and, in some cases, on other aspects of the interaction between mother and child. Studies of early contact in suction focused on comparing two groups of newborns assigned (by decision of the midwife and the mother) to a “contact” group or a “separation” group immediately after delivery. The 38 newborns of the first group were in contact with their mother from the time of delivery for at least 1 hour. After an average of 49 minutes, 24 of them nursed correctly. The 34 newborns of the second group started contact immediately after delivery, but they separated from it at 20 minutes and returned with their mother another 20 minutes later. Only 7 of them breastfed effectively, and the difference was significant (p < 0.001) [7]. The contact is significant at the time of breastfeeding precociously.

Numerous previous studies about the importance of early contact of mothers with their newborns and the permanence of effective breastfeeding is demonstrated in the following investigations between the years 1980 and 1990. Four studies show that early contact produced a
significant increase in the prevalence of breastfeeding after 2 or 3 months [8–11]. One study only found an effect after one week [12], and in two studies no significant effects were found [13, 14]. Sosa et al. studied 40 Guatemalan mothers, randomly distributed in a group with early contact and a control group, followed by home visits [8]. Early contact began after delivery of the placenta and suture of the episiotomy, and lasted 45 minutes. According to the study of Sosa, the control group had their first contact 24 hours after delivery. Three months later, 72% of mothers with early contact performed breastfeeding to their son/daughter, and only 42% did not, in the control group. The mean duration of lactation was 196 days (six and a half months) in the group with early contact and 104 days (three and a half months) in the control group (p < 0.05). According to the study by De Château and Wiberg they studied 40 primiparous women in Sweden [9]. The mothers were randomly assigned to a control group to another intervention group with “extra contact” (15 to 20 minutes of suction and skin-to-skin contact during the first hour after delivery). At 3 months, 58% of the mothers in the additional contact group continued to breastfeed, compared to 26% in the control group (p < 0.05). Mothers with more contact spent more time kissing and looking at their children’s eyes, while they smiled more and cried less. The study by Thomson, Hartsock and Larson compared the effect of early contact, initiated 15 to 30 minutes after delivery and continued for 15 to 20 minutes, with routine contact less than 5 minutes immediately after delivery, followed by a separation of 12 to 24 hours, in 30 primiparas who were destined to breastfeed [10]. Two months after delivery, breastfeeding without milk supplements was more common in the early contact group than in the control group (9/15 versus 3/15, p < 0.05). According to the study by Ali and Lowry they compared routine contact (starting around 9 a.m.) with early contact (45 minutes immediately after delivery, and then separation until 9 a.m.) in 74 Jamaican mothers, randomized [12]. The prevalence of complete breastfeeding was higher in the group with early contact, both at 6 weeks (76 versus 49%, p < 0.02) and at 12 weeks (57 versus 27%, p < 0.05). Observed at 12 weeks, mothers with early contact talked more with their children, and got up and followed them in greater proportion when someone took the baby.

Strachan-Lindenberg, Cabrera and Jiménez studied the effect of early contact, the promotion of breastfeeding and joint accommodation on the initiation and continuation of breastfeeding in the Nicaraguan primipara [12].

Immediately after delivery, the mothers were assigned to a control group, with complete separation until discharged (12 to 24 hours after delivery), or to an early contact group, in which mother and child were in contact for 45 days. Minutes immediately after delivery and then completely separated until discharged. Full breastfeeding, 1 week later, was significantly more prevalent in the group with early contact than in the control group, but no differences were observed at 4 months. It was not adjusted for age, although about half of the mothers were teenagers. A meta-analysis of these seven studies concluded that early contact had a positive effect on the duration of breastfeeding at 2 or 3 months (p < 0.05). However, it warns that “the effect of the size between the studies was heterogeneous”, and some studies included other interventions (guidance on breastfeeding, presence of the father during the early contact), which could have contributed independently to increase breastfeeding [15].

A cross-sectional study of 726 primiparae in the USA. A study found that the prevalence of exclusive breastfeeding in the hospital was lower if the first blowjob took place between 7 and 12 hours after delivery (adjusted odds ratio = 0.5, 95% confidence interval). More than 12 hours after delivery (adjusted OR = 0.2; 95% CI, 0.1–0.4) [16].
The success of breastfeeding corresponds without a doubt to policies, in health centers, written that contemplates the necessary steps for a successful breastfeeding, assuring that the practice of early nursing is maintained and assistance to the mother of a premature newborn is priority in the promotion of early milk extraction. These policies focus on: training the personnel in the technique and practice of early breastfeeding and extraction, informing the mothers of the benefit, encouraging them to breastfeed within the hour following the birth and promoting the creation and establishment of support groups for the Breastfeeding in neonatal hospitalization units.

5. Risk factors

The risk factors that lead to the failure of access to breast milk related to the mother and the newborn, the clear majority are presented together. Although, the problems raised do not contemplate the suspension of breast milk if one way to solve them is to continue breastfeeding.

According to some problems that appear in the prematurity stage, the Breastfeeding Section of the American Academy of Pediatrics issued a policy statement that represents a significant change from the previous statements in its recommendation that all premature babies should receive human milk, pasteurized breast milk instead of premature infant formula the preferred alternative cannot provide adequate volume. The current recommendation, according to the studies, is based on an extraordinary variety of benefits that breast milk provides to highly vulnerable newborns such as premature infants, including the reduction of late onset infection rates, necrotizing enterocolitis (NEC) and retinopathy of prematurity, fewer readmissions in the first year of life and better results of neurodevelopment.

Preterm infants receiving breast milk have lower rates of metabolic syndrome, lower blood pressure and low density lipoprotein levels and less resistance to insulin and leptin when they reach adolescence, compared to premature infants who receive formula.

What has been shown in different studies is that the most determining benefit is that feeding with human milk decreases the appearance of NEC, given its high prevalence (5–10% of all newborns with birth weight < 1500 grams), high mortality and morbidity, long-term complications such as stenosis, cholestasis, short bowel syndrome and poor growth and alterations in neurodevelopment. According to these results, it is understood that there is a dose–response effect of feeding with breast milk. For example, breast milk >50 ml/kg/day reduces the risk of late-onset infection and NEC compared to <50 ml/kg/day, and for every 10 ml/kg/day increase in milk, there is a 5% reduction in the recurrent hospitalization rate. According to studies, the mechanisms by which breast milk protects the premature newborn against NEC are probably multifactorial. Human milk IgA, lactoferrin, lysozyme, bile salt stimulating lipase, growth factors and HMOs provide protective benefits that could contribute to the reduction of NEC. Clinicaltrials.gov (NCT00854633) published a multicenter randomized clinical trial, concerning bovine lactoferrin treatment, which decreased late-onset sepsis but not NEC in preterm infants. Recombinant human lactoferrin assays are currently being carried out in preterm infants. In animal models, epidermal growth factor (EGF) and pooled HMOs prevent NEC, but have not yet been tested in premature infants. These studies are carried out in order to evaluate the
safety, toxicity and efficacy of talactoferrin in reducing the incidence of nosocomial infections in preterm infants. Even the support and authenticity are being evaluated in the United States.

On the other hand, it is believed that microbial colonization plays an important role in the risk of NEC. Breastfeeding is one of the many factors that influence the composition of the intestinal microbiota in full-term infants; Limited studies suggest that diet may have a lesser effect on the composition of the gut microbiota in the premature baby than other factors (such as the administration of antibiotics). The new bioinformatics tools to correlate the wide range of fecal metabolites and fecal microbiota offer great promise to understand the factors that influence the premature baby’s microbiota. Studies to date suggest that metabolites that differ between infants fed human milk and those fed formula that are most closely associated with the conformation of the microbiota include sugars and fatty acids. It is unknown whether these metabolites differ functionally in the extremely premature newborn and in what way.

Other potential benefits of human milk to premature infants have been studied with mixed results. There do not appear to be consistent benefits of human milk in premature infants in relation to feeding tolerance, time to full enteral feeding, or allergic/atopic outcomes. Providing human milk has been postulated to decrease parental anxiety, increase skin-to-skin contact and parent-infant bonding, but data to support these hypotheses are limited. The provision of human colostrum in the form of oral care for intubated premature infants has been proposed as a method of stimulating the oropharyngeal-associated lymphatic tissue and altering the oral microbiota, but data to support this intervention are lacking [17].

Studies of the benefits of human milk in premature infants to date have predominantly compared mother’s own milk to premature infant formula. Whether pasteurized donor human milk (which generally is provided by women who delivered at term) provides similar or superior protection is unclear. In premature infants receiving only mother’s own milk or pasteurized donor human milk (no formula), increasing amounts of mother’s own milk correlate with better weight gain and less NEC. A meta-analysis in 2007 concluded that formula feeding was associated with both increased short term growth and increased incidence of NEC compared to donor human milk feeding number needed to harm 33 with no differences in long term growth or Neurodevelopment [18]. However, of the 8 studies included in the meta-analysis, 7 were published before 1990, during which time nutritional comparisons were limited. For example, several of the reviewed studies did not include formulas designed for premature infants and none included nutrient-enriched donor milk. One study, initiated in 1982 followed a cohort of premature infants that received either premature infant formula or unfortified donor human milk with the latter group showing decreased blood pressure and improved lipoprotein profiles as adolescents. In the single included study published since 1990, infants whose mothers were unable to provide sufficient milk for their extremely premature infants (< 30 weeks gestation) were randomly assigned to receive supplementation with either premature infant formula or nutrient-enriched donor human milk; donor human milk led to slower weight gain but did not decrease episodes of sepsis, or ROP, length of hospital stay or mortality compared to supplementation with premature infant formula.

The incidence of NEC decreased in the group of human milk donors to almost half compared to the formula group, but this did not reach statistical significance due to the small sample size. It is noteworthy in this study that, despite the increase in supplementation in the donor
milk group, 20% of the children switched to formula due to poor growth. A more recent comparison of own breast milk with pasteurized human donor milk showed better growth and less ECN with the former.

All these risk factors lead to high rates of hospitalization and sequelae that are installed for the rest of their lives in the term newborn and especially prematurity.

6. Promotion of breastfeeding

6.1. Measures to promote progress in the increase of exclusive breastfeeding

The following evidence-based recommendations should be applied at the appropriate scale in order to achieve progress on the 2025 global target for exclusive breastfeeding.

1. Provide capacities in hospitals and health centers to support exclusive breastfeeding, including revitalizing, expanding and institutionalizing the initiative of child-friendly hospitals in health systems.

   • Maintaining the effectiveness of the initiative of hospitals friendly to the child requires institutionalization in the health system to allow certification and recertification of hospitals, as well as continued investments in training, monitoring and supervision of health personnel.

   • Sustainability also requires monitoring progress and measuring the number and proportion of non-domiciliary deliveries that take place in hospitals and other health centers that are child-friendly.

   • The promotion of breastfeeding and the corresponding support measures should be integrated throughout the spectrum of maternal and child health care, especially in the prenatal and puerperal periods.

2. Implement community strategies to support exclusive breastfeeding, which includes the implementation of communication campaigns adapted to the local context.

   • It is necessary to ensure that there is a strong link between the strategies in the centers and in the community. The influence on exclusive breastfeeding of health-based programs, such as the child-friendly hospital initiative, may decrease when women return home and need community support.

   • It is necessary to provide ongoing family and community support through community leaders and various other communication channels.

   • In countries with low rates of hospital delivery, community support can be provided through home visits or support groups.

   • Communication channels and messages must be adapted to the context based on the literacy levels of the recipients, their use of the different means of communication, as well as their access to them, and contact with health professionals. Behavioral change messages
must be adapted to specific barriers and motivating factors at the national or subnational level in relation to exclusive breastfeeding that is identified. Individual counseling and peer counseling are effective, but group counseling also improves rates of exclusive breastfeeding, and a combination of these approaches appears to be particularly effective [19]. Support for mothers can come from people—professionals or not—properly trained, and reaches its maximum effectiveness when both health centers and community members offer information and coherent messages, practical support and referral to the appropriate services.


- Countries are urged to enforce laws, regulations or other measures that are legally enforceable in order to implement the International Code of Marketing of Breast-milk Substitutes, as well as to actively monitor for possible violations and establish and apply effective sanctions in case of violation [20].

4. Train women to practice exclusive breastfeeding by introducing a mandatory 6-month paid maternity leave, as well as policies that encourage women to breastfeed their children at work and in public places.

- Labor policies should support all working women - both in the formal economy and the informal economy sector - to continue breastfeeding their children upon return to work (e.g., through day care centers in the center) of work, breaks for breastfeeding or milk extraction, and comfortable and intimate areas in which women can express and store milk safely).

5. Invest in training and capacity building for the protection, promotion and support of breastfeeding.

- In addition to training on infant and young child feeding practices, it is necessary to strengthen training in problem solving and counseling, and to identify mechanisms for monitoring and mentoring professionals after training.

- Be aware of the differences in skill profiles and information needs among the different types of health professionals.

7. Conclusion

Breast milk remains the preferred food for all children, including premature and sick babies. Advising mothers of hospitalized newborns increases the incidence of initiation of breastfeeding and the extraction of human milk without increasing maternal stress and anxiety. Early Kangaroo mother significantly increased exclusive breastfeeding and direct breastfeeding in very low birth weight infants [21].

The potential long-term benefit of receiving breast milk in the NICU for very low birth weight infants may be to optimize cognitive potential and reduce the need for early intervention and special education services [22].
The implementation of a program to promote breastfeeding in the NICU has a marked positive effect on the rate of exclusive early breastfeeding after discharge. Exclusive breastfeeding is the most effective intervention to reduce infant mortality, and infant mortality in low-income countries is estimated to prevent 13 per cent of children under five [18].

With this bibliographic review it is clear that the use of promotional strategies is a resource that improves behavior against breastfeeding. This support helps to improve health and exercise greater control over newborn and own care. This is achieved through different actions aimed at promoting education, communication, public policies, legislation, community development, and training, among others. The summary of the effectiveness of interventions for support in breastfeeding according to the evidence lies in education in breastfeeding pregnant women and mothers, support by peers, implementation of the Baby-Friendly Hospital policy and the mother of WHO and UNICEF [23].

Probably effective are professional support, early attachment promotion in maternity wards, mass media strategies. According to the literature the less effective interventions are the delivery of promotional packages for breastfeeding and delivery of printed material [24].

As we learn more evidence in support of breastfeeding mothers with hospitalized newborns better survival will have these patients [25].

Author details

Patricia Triviño Vargas

Address all correspondence to: patriciatrivino@uach.cl

Instituto de Enfermería UACH, Valdivia, Chile

References


