ARTICLE

DOI 10.36074/grail-of-science.17.03.2023.075

EVALUATING OF SUPPLEMENTARY FEEDING IN BREASTFED INFANTS

Oliinyk V.S.
PhD, Associate Professor, Department of Propedeutics
of Pediatric Diseases with Patient Care
National Pirogov Memorial Medical University, Vinnytsya, Ukraine

Yushchenko L.O.
PhD, Associate Professor, Department of Propedeutics
of Pediatric Diseases with Patient Care
National Pirogov Memorial Medical University, Vinnytsya, Ukraine

Kuleshov O.V.
PhD, MD, Professor, Head of Department of Propedeutics
of Pediatric Diseases with Patient Care
National Pirogov Memorial Medical University, Vinnytsya, Ukraine

Kotsur L.D.
PhD, Associate Professor, Department of Propedeutics
of Pediatric Diseases with Patient Care
National Pirogov Memorial Medical University, Vinnytsya, Ukraine

Summary. *The aim of the study: to assess supplementary feeding in breastfed neonate, evaluate infant and maternal indications for supplementation in healthy infants. Methods. An anonymous voluntary survey about supplementary feeding of 50 women who has breastfed children and visited the hospital for various reasons, not related to breastfeeding. According to the results of survey, the main reason for starting supplementary feeding was the insufficient amount of breast milk in the mother (63,20%). Other reasons included: low body weight of the child, illness of the mother, difficulties in applying to the breast, restlessness of the child. After the introduction of supplementary food, only 3,80% of children were returned to exclusively breastfeeding, 22,20% - remained on mixed feeding until the introduction of complementary food, and 29,60% had artificial feeding. The majority of women (74,10%) did not use any methods to improve lactation. Half of the surveyed mothers (56,00%) who introduced supplementary feeding gave milk formula to feed their child and used bottle feeding (32,60%) and spoon feeding (21,30%). Conclusions: the majority of interviewed women had a shortage of breast milk, which was the main reason for the introduction of supplementary food; the best supplementary food product is mother's or donor's milk; a third part of the surveyed women used bottle feeding; the decision to introduce supplementary food should be made by the doctor individually to every child.*

Keywords: *breastfeeding, newborns, alternative feeding methods, supplementary feeding, breastfeeding support.*

Breastfeeding is one of the most effective ways to ensure child health and

survival. However, contrary to WHO recommendations, fewer than half of infants under 6 months old are exclusively breastfed [5].

Research shows strong evidence that breastfeeding offers many health benefits for infants and mothers, as well as potential economic and environmental benefits for communities [1].

Exclusive breastfeeding for the first 6 months is associated with the greatest protection against major health problems for both mothers and infants. Unfortunately, infant formula supplementation of healthy neonates in hospital is commonplace, despite widespread recommendations to the contrary. Early supplementation with infant formula is associated with decreased exclusive breastfeeding rates in the first 6 months and an overall shorter duration of breastfeeding [2].

There is a strong evidence that breastfeeding from their own mothers is the most appropriate diet for healthy newborns. If a ranking is made from the most appropriate diet to the least preferred diet, breastfeeding by the mother would be in the first place, followed by an artificial method of delivering her own breast milk (spoon, cup, supplemental nursing devices), followed by donor breast milk and, finally, the use of formula. [1].

Possible indications for supplementation in healthy, term infants (37–41 6/7 weeks gestational age).

I. Infant indications.

1. Asymptomatic hypoglycemia, documented by laboratory blood glucose measurement.

2. Signs or symptoms that may indicate inadequate milk intake:

a. Clinical or laboratory evidence of significant dehydration (e.g., high sodium, poor feeding, lethargy, etc.) that is not improved after skilled assessment and proper management of breastfeeding.

в. Weight loss of 8–10% (day 5 [120 hours] or later), or weight loss greater than 75th percentile for age. Although weight loss in the range of 8–10% may be within normal limits if all else is going well and the physical examination is normal, it is an indication for careful assessment and possible breastfeeding assistance. Weight loss in excess of this may be an indication of inadequate milk transfer or low milk production, but a thorough evaluation is required before automatically ordering supplementation.

c. Delayed bowel movements, fewer than four stools on day 4 of life, or continued meconium stools on day 5 (120 hours).

3. Hyperbilirubinemia.

4. Macronutrient supplementation is indicated, such as for the rare infant with inborn errors of metabolism.

II. Maternal indications.

a. Delayed secretory activation (day 3–5 or later [72–120 hours] and inadequate intake by the infant).

b. Primary glandular insufficiency (less than 5% of women—primary lactation failure), as evidenced by abnormal breast shape, poor breast growth during pregnancy, or minimal indications of secretory activation.

c. Breast pathology or prior breast surgery resulting in poor milk production.

d. Temporary cessation of breastfeeding due to certain medications

(e.g., chemotherapy) or temporary separation of mother and baby without expressed breast milk available.

e. Intolerable pain during feedings unrelieved by interventions [3].

Supplementation by alternative feeding methods might help preserve the breastfeeding relationship and help reach the World Health Organization's goal of increasing exclusive breastfeeding rates [4].

The aim of the study: to assess supplementary feeding in breastfed neonate, evaluate infant and maternal indications for supplementation in healthy infants.

Methods. An anonymous voluntary survey of 50 women who has breastfed children has been conducted using Google Forms. The interviewed women visited the Vinnytsia Regional Children's Hospital "Mother and Child" for various reasons which was not related to breastfeeding. The average age of respondents was: 25±6,56 years. The same number of women aged 18-25 years old and 40-45 years old made up 40,70%. 14,80% were women aged 25-40 years old and 3,8% were under 18 years old of age. The majority of women (41,10%) had one child, a third part (33,30%) had two children, 14,80% had three, and the rest 10,80% had four. Questions included: awareness of supplementary feeding, reasons, infant and maternal indications for supplementation, types of supplementary feeding, evaluation of breastfeeding, alternative feeding methods for breastfed infants, ets. Moreover, an analysis of scientific publications in PubMed, médecine/sciences, protocols of the Academy of Breastfeeding Medicine were conducted.

Results. The majority of women (85,20%) were aware about the definition of supplementary feeding, the rest (12,80%) answered that they do not have an exact information. 44,40% of mothers learned about the concept of " supplementary feeding" during a consultation with a doctor, a third part (33,30%) - while studying at a college, university, courses, 7,40% - trusted the previous experience of their mother or friends. More than half mothers (55,60%) introduced supplementary feeding to their child, 44,40% of them gave supplementary food to the first child, 7,40% - to the next children in the family. The following calculations were carried out in a group of women who introduced supplementary feeding to their children. According to the results of survey, the main reason for starting supplementary feeding was the insufficient amount of breast milk in the mother (63,20%). Among other reasons, the following were mentioned: low body weight of the child (15,70%), illness of the mother (7,8%), difficulties in applying to the breast (10,30%), restlessness of the child (2,30%) and the rest mothers did not remember about reasons. After the introduction of supplementary food, only 3,80% of children were returned to breastfeeding, 22,20% - remained on mixed feeding before the introduction of complementary food, and 29,60% had artificial feeding. The majority of women (74,10%) did not use any methods to improve lactation, while others adjusted the daily regime, controlled the food and drink regime, used pumping, massage, feeding the baby at night and had consultations with a medical workers.

When supplementary feeding is medically necessary, the primary goals are to feed the infant and to optimize the maternal milk supply while determining the cause of low milk supply, poor feeding, or inadequate milk transfer. Supplementation should be performed in ways that help preserve breastfeeding such as limiting the volume to what is necessary for the normal newborn physiology, avoiding teats/artificial nipples, stimulating the mother's breasts with hand expression or

pumping, and for the infant to continue to practice at the breast [2,3].

Optimally, mothers need to express milk frequently, usually once for each time the infant receives a supplement, or at least 8 times in 24 hours if the infant is not feeding at the breast. Breasts should be fully drained each time. Maternal breast engorgement should be avoided as it will further compromise the milk supply and may lead to other complications [3].

Half of the surveyed mothers (56,00%) who introduced supplementary feeding used milk formula to feed their child, while only 7,40% of mothers fed expressed or pumped milk and 3,80% of children received donor milk. Among the methods of supplementary feeding, women used: supplemental nursing system, finger feeding, cup feeding, spoon feeding, syringe feeding or bottle feeding. It should be noted that the most common methods among interviewed families were bottle feeding (32,60%) and spoon feeding (21,30%). All mothers choose an appropriate method of feeding by themselves. As usually, doctors use criteria for selecting an alternative method of infant feeding: it does not harm the baby, it is a good match for the baby's stamina, physical condition, and level of maturity, it is easy for the parents to manage, it involves equipment that the parents can easily obtain and clean, it is a suitable intervention for the length of time needed to remediate the feeding problem, it will help the baby learn to breastfeed [2]. According to these criteria, the doctor together with the family chooses the most suitable option.

Conclusions:

- the majority of interviewed women had a shortage of breast milk, which was the main reason for the introduction of supplementary food;
- the best supplementary food product is mother's or donor's milk, while more than half of families used milk formula to feed their child;
- a third part of the surveyed women used bottle feeding, but there are a variety of other methods that have lots of advantages and help to support breastfeeding;
- the decision to introduce supplementary food should be made by the doctor individually to every child.

References:

[1] Bilgen, H., Kültürsay, N., Türkyılmaz, C. (2018). Turkish Neonatal Society guideline on nutrition of the healthy term newborn. Turk Pediatri Ars. 53(Suppl 1), 128–137. https://doi.org/10.5152/TurkPediatriArs.2018.01813.

[2] Breastfeeding Protocols for Health Care Providers. (2013). Toronto Public Health.https://www.toronto.ca/wp-content/uploads/2017/11/9102-tph-breastfeeding-protocols-1-to-21-complete-manual-2013.pdf.

[3] Kellams, A., Harrel, C., Omage, S., Gregory C., Rosen-Carole, C., and the Academy of Breastfeeding Medicine. (2017). ABM Clinical Protocol #3:Supplementary Feedings in the Healthy Term Breastfed Neonate, Revised 2017. Breastfeeding medicine. 12, (3). https://doi.org/10.1089/bfm.2017.29038.ajk.

[4] Penny, F., Judge, M., Brownell, E. A., McGrath, J. M. (2019). International Board Certified Lactation Consultants' Practices Regarding Supplemental Feeding Methods for Breastfed Infants. J Hum Lact, 35(4), 683-694. https://doi.org/10.1177/0890334419835744.

[5] World Health Organization. Breastfeeding. (2020). Available at: https://www.who.int/health-topics/breastfeeding.

