Pediatric Nutrition and Nutritional Disorders

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SECTION 6

Chapter 27

DIET OF THE NORMAL INFANT

Proper nutrition in infancy is essential for normal growth, resistance to infections, long-term adult health, and optimal neurologic and cognitive development. Healthy nutrition is especially important during the first 6 months, a period of exceptionally accelerated growth and high nutrient requirements relative to body weight (see Chapter 5). Breastfeeding is associated with a reduced risk of many diseases in infants, children, and mothers (for more details visit http://www.nutrition.gov/).

BREASTFEEDING

Human milk and breastfeeding are the ideal and normative standards for infant feeding and nutrition. The American Academy of Pediatrics (AAP) recommends human milk as the sole source of nutrition for the first 6 months of life, with continued intake for the first year, and as long as desired thereafter. Breastfeeding has short- and long-term advantages for infant neurodevelopment. Pediatric health care providers should approach breastfeeding at multiple levels (individual, community, social, and political) to reach the goals of "Healthy People in 2020"; its targets include 82% of infants with any breastfeeding, 23.7% of infants with exclusive breastfeeding for the first 6 months of life, and lactation support at work of 38%. In collaboration with national and global organizations, including the AAP, World Health Organization (WHO), UNICEF, the Centers for Disease Control and Prevention (CDC), and the Joint Commission, hospitals are asked to promote and facilitate breastfeeding.

The first 2 days of breastfeeding, and perhaps the first hour of life, may determine the success of breastfeeding. The current rate of breastfeeding initiation for the total U.S. population is 75% (Figure 27-1). There is greater emphasis to improve and standardize hospital practices with "Baby Friendly" programs for breastfeeding support.

The Department of Health and Human Services and the CDC recognize that breastfeeding offers infants, mothers, and society compelling advantages in industrialized *and* developing countries. Human milk feeding decreases the incidence and severity of diarrhea, respiratory illnesses, otitis media, bacteremia, bacterial meningitis, and necrotizing enterocolitis.

There are beneficial effects of feeding *preterm* infants with human milk on long-term neurodevelopment (IQ) in preterm infants. Preterm breastfed infants also have a lower readmission rate in the first year of life.

Mothers who breastfeed experience both short- and long-term health benefits. Decreased risk of postpartum hemorrhages, more rapid uterine involution, longer period of amenorrhea, and decreased postpartum depression have been observed. Similarly, there is an association between a long lactation of 12 to 23 months (cumulative lactation of all pregnancies) and a significant reduction of hypertension, hyperlipidemia, cardiovascular disease, and diabetes in the mother. Cumulative lactation of more than 12 months also correlates with reduced risk of ovarian and breast cancer.

Adequacy of milk intake can be assessed by voiding and stooling patterns of the infant. A well-hydrated infant voids six to eight times a day. Each voiding should soak, not merely moisten, a diaper, and urine should be colorless. By 5 to 7 days, loose yellow stools should be passed at least four times a day. Rate of weight gain provides the most objective indicator of adequate milk intake. Total weight loss after birth should not exceed 7%, and birth weight should be regained by 10 days. The mean feeding frequency during the early weeks postpartum is 8 to 12 times per day. An infant may be adequately hydrated while not receiving enough milk to achieve adequate energy and nutrient intake. Telephone follow-up is valuable during the interim between discharge and the first doctor visit to monitor the progress of lactation. A follow-up visit should be scheduled by 3 to 5 days of age, and again by 2 weeks of age.

In the newborn period, elevated concentrations of serum bilirubin are present more often in breastfed infants than in formula-fed infants (Chapter 62). Feeding frequency during the first 3 days of life of breastfed infants is inversely related to the level of bilirubin; frequent feedings stimulate meconium passage and excretion of bilirubin in the stool. Infants who have insufficient milk intake and poor weight gain in the first week of life may have an increase in unconjugated bilirubin secondary to an exaggerated enterohepatic circulation of bilirubin. This is known as **breastfeeding jaundice**. Attention should be directed toward improved milk production and intake. The use of water supplements in breastfed infants has no effect on bilirubin levels and is not recommended.