

Maternal Drug Use

Any drug prescribed therapeutically to newborns usually can be consumed via breast milk without ill effect. The factors that determine the effects of maternal drug therapy on the nursing infant include the route of administration, dosage, molecular weight, pH, and protein binding. Few therapeutic drugs are absolutely contraindicated; these include radioactive compounds, antimetabolites, lithium, and certain antithyroid drugs. The mother should be advised against the use of unprescribed drugs, including alcohol, nicotine, caffeine, or “street drugs.”

Maternal use of illicit or recreational drugs is a contraindication to breastfeeding. If a woman is unable to discontinue drug use, she should not breastfeed. Expression of milk for a feeding or two after use of a drug is not acceptable. Breastfed infants of mothers taking methadone (but no alcohol or other drugs) as part of a treatment program generally have not experienced ill effects.

FORMULA FEEDING

Cow’s milk-based formulas are the vast majority of commercial formulas. Most milk-based formulas have added

iron, which the AAP recommends, and parents should use only iron-fortified formula unless advised otherwise by the primary health care provider. Infant formula manufacturers have begun to examine the benefits of adding a variety of nutrients and biological factors to infant formula to mimic the composition and quality of breast milk. These include long-chain polyunsaturated fatty acids, nucleotides, prebiotics, and probiotics. Soy-based formulas, which sometimes have added iron, may be used for newborns who may be allergic to cow’s milk. However, some newborns allergic to cow’s milk are also allergic to the protein in soy formulas. There are hypoallergenic formulas for infants who can’t tolerate the basic formulas, such as those with allergies to milk or soy proteins. The proteins in these hypoallergenic formulas are broken down to their basic components and are therefore easier to digest (Table 27-2). Specialized formulas are designed for premature, low birth weight babies. The carbohydrate is generally lactose, although lactose-free cow’s milk-based formulas are available. The caloric density of formulas is 20 kcal/oz (0.67 kcal/mL), similar to that of human milk. A relatively high-fat and calorically dense diet (human milk or formula) is needed to deliver adequate

Table 27-2 Composition of Breast Milk, Breast Milk after Freezing and Pasteurization, and Representative Infant Formulas

COMPONENT	BREAST MILK	BREAST MILK AFTER FREEZING AND PASTEURIZING	STANDARD FORMULA	SOY FORMULA	HYPOALLERGENIC FORMULA
Protein	1.1 per dL	Reduced	1.5 per dL	1.7 per dL	1.9 per dL
Fat	4.0 per dL	4.0 per dL	3.6 per dL	3.6 per dL	3.8–3.3 per dL
Carbohydrate	7.2 per dL	7.2 per dL	6.9–7.2 per dL	6.8 per dL	6.9–7.3 per dL
Calcium	290 mg/L	290 mg/L	420–550 mg/L	700 mg/L	635–777 mg/L
Phosphorus	140 mg/L	140 mg/L	280–390 mg/L	500 mg/L	420–500 mg/L
Sodium	8.0 mg/L	8.0 mg/L	6.5–8.3 mg/L	13 mg/L	14 mg/L
Vitamin D	Variable	Variable	400 per dL	400 per dL	400 per dL
Vitamin A	100%	100%			
Osmolality	253 mOsm/L	253 mOsm/L	230 mOsm/L	200–220 mOsm/L	290 mOsm/L
Renal solute load	75 mOsm/L	75 mOsm/L	100–126 mOsm/L	126–150 mOsm/L	125–175 mOsm/L
IgA and SIgA	Present	Reduced 30%	0	0	0
IgM	Present	Present	0	0	0
IgG	Present	Reduced 30%	0	0	0
Lactoferrin	Present	Reduced 30%	0	0	0
Lysozyme	Present	Reduced 25%	0	0	0
Lipases	Present	0	0	0	0
Monoglycerides	Present	Present	Added to some formulas	Added to some formulas	Added to some formulas
Free fatty acids	Present	Present	Added to some formulas	Added to some formulas	Added to some formulas
Linoleic acid	Present	Present	Added to some formulas	Added to some formulas	Added to some formulas
Alpha-linoleic acid	Present	Present	Added to some formulas	Added to some formulas	Added to some formulas
Bifidus factor	Present	Present			
Oligosaccharides	Present	Present			