Controversies on Feeding Babies: A Critical Review

SUMMARY

There are six chief controversies relating to infant nutrition: breast- vs. bottle feeding; the age to start solids; the need for supplemental iron, fluorides, or vitamins; sterilization of formulas; food allergies; and the relationship of infant feeding to subsequent coronary heart disease. This article discusses these controversies and reviews the evidence on both sides of each question. (Can Fam Physician 1988; 34:1199-1201.)

Key words: infants, nutrition, controversies

RÉSUMÉ

L’auteur passe en revue les causes physiologiques et psychogéniques de la douleur abdominale récidivante chez les enfants et propose une approche pratique pour en arriver au diagnostic et au traitement de cette complainte fréquente.

Controversy No. 1
Are bottle-fed babies at risk of medical or emotional problems?

Some authors suggest that bottle-fed babies are at risk of medical or emotional problems. In certain developing countries where sanitation, refrigeration, and adequate nutrition may be lacking, the risks are real. The controversy is whether information from the developing world can be extrapolated to the developed world.

Recently the U.S. Department of Health and Human Services commissioned a task force whose mandate was to examine the scientific evidence relating to infant feeding and infant health in both the United States and developing countries. The task force was given specific criteria by which to judge the evidence, including the strength of the association between type of feeding and subsequent physical and mental health of the infants, and whether confounding factors were accounted for. In addition, it was charged with the task of at-

FAMILY PHYSICIANS are in a unique position to influence the infant-feeding practices of parents, since the counselling that goes on in antenatal visits may include consideration of different forms of infant feeding. In addition to advice from their physicians, health-conscious parents are offered considerable advice from the media pertaining to the nutrition of infants and children. Much of the advice given is still controversial. For this reason it is important that the family physician be aware of the quality of the evidence on which decisions about infant nutrition can be based. There are six major controversies in infant nutrition, and these are listed in Chart 1.

Chart 1
Controversies in Infant Nutrition

1. Breast- vs. bottle feeding in infants
2. Age at which to start solid foods
3. Are supplemental iron, fluorides or vitamins needed?
4. Must infant formulas be sterilized?
5. Food allergies: do they exist?
6. Is atherosclerosis a pediatric problem?
tempting to determine what the effect of uncontrolled biases were likely to be. Its conclusion was that any health benefits that breastfeeding might confer in a population with good sanitation, nutrition, and medical care, are few.

The lack of firm evidence of an association between infant health and feeding practice is due to poor study design; in only a few studies were confounding factors controlled. 1

Using similar criteria, we recently reviewed the evidence that "breastfeeding protects against later psychological maladjustment" and came to a similar conclusion: the quality of the evidence is so poor that there are no grounds for ascribing an improved psychological outcome in the child to either breast- or bottle feeding. 2

Infants who either nurse well or take prepared infant formula in adequate amounts given appropriately, and who are also given love, attention, and stimulation will do well both physically and mentally.

Breastfeeding is enjoying a revival in the developed world. Physicians should be very supportive of mothers who wish to breastfeed their infants, and who are financially able to remain at home and very knowledgeable about how to facilitate breastfeeding. This form of infant nutrition is the most convenient and certainly the lowest in cost. Although convenience and economy are real advantages, problems develop when doctors and nurses become evangelical about breastfeeding and put great pressure on mothers who do not wish to nurse or who cannot do so. Such mothers should be reassured that given the appropriate formula, their infants will do very well.

Controversy No. 2
Should infants start solid foods early (at one month) or late (after four months)?

As with the controversy about breast- versus bottle feeding, more heat than light is generated about the optimal age for introducing solid food. There is no clear evidence that infants need solid food before age four to six months. The most important additional nutrient required at about this age, particularly for bottle-feeding infants, is iron, and the major source of iron is infant cereal. Similarly, there is no clear evidence that the early introduction of solids helps infants to sleep through the night. Conversely, there is no clear evidence that the earlier introduction of solids is harmful. Nevertheless, current consensus is that infant cereals should be started at four to six months because they contain bioavailable iron in adequate amounts.

Controversy No. 3
Do infants need supplemental iron, fluorides, or vitamins?

Iron supplementation has been recommended in the form of either iron drops or iron-fortified milk formula. Recently, however, one of the authors of this article has completed a study which would dispute this recommendation for the majority of full-term infants who are otherwise healthy. 3 Breastfed or formula-fed infants who are started on infant cereals at four to six months need neither iron drops nor iron-fortified milk. There is good evidence that fluoride is related to better teeth, but there is no clear evidence that fluoride supplements are beneficial before the teeth erupt. There is little fluoride in breast milk. Infants whose formula is reconstituted with fluoridated water do not need additional fluoride. Physicians should ascertain from local health authorities the fluoride content of the local water supply; if the fluoride content is less than 0.3 parts per million, supplemental fluoride in the form of sodium fluoride drops is recommended. Infants fed commercial formulas do not need supplemental vitamins. Although human milk contains little vitamin D, 400 international units of vitamin D is the amount recommended for breastfed babies; however rickets in solely breastfed infants is seen only in the offspring of mothers with inadequate vitamin D stores who maintain a strict vegetarian diet, and who receive little exposure to sunlight. Rickets are more of a problem if the infant, as well as the mother, is not exposed to sunlight.

Formula-fed infants need no additional vitamin C, since commercially available infant formulas already contain vitamin C. There is clear evidence that human milk contains adequate amounts of this vitamin. There is no evidence that after infants reach six months of age, they need to continue on prepared infant formula; they do well on whole cow's milk, which is considerably less expensive.

There is suggestive evidence that whole milk is preferable to 2% milk for infants. Commercially available cow's milk has adequate vitamin D added, and if infants take a reasonable amount of fruit juices which contain vitamin C, there is no need for additional vitamins. There is no evidence that after infancy, children who eat a balanced Western diet need any form of supplemental vitamins.

Controversy No. 4
Do infant formulas need to be sterilized?

The leading pediatric texts continue to recommend sterilizing bottles, equipment, and formula, although there is now firm evidence that this recommendation is no longer valid. 4 Careful washing of the hands, bottles, and bottle nipples, as well as appropriate refrigeration of the prepared formula, are all the precautions necessary.

Controversy No. 5
Do food allergies exist?

Many common pediatric problems such as otitis media, colic, diarrhea, and rhinitis, have been attributed to food allergies. The evidence to support this attribution is very flimsy. A recent excellent study at Yale University showed no differences in the incidence of colic in babies fed either human or cow's milk. 5 This study was carefully controlled to exclude confounding variables.

For many years, the early introduction of solid foods and cow's milk were considered to be important factors relating to atopic eczema and other allergic conditions. A recent study that controlled for confounding variables and also ensured that the observers were "blinded" concluded that "breastfeeding and delayed introduction of solids do not protect against atopic eczema." 6 In spite of this general conclusion, a small number of children may have certain symptoms brought on by the ingestion of certain foods.

The most important step towards solving this clinical problem is obtaining the history. If the symptoms disappear on removal of the offending agent and recur on one or more occasions after the re-introduction of the presumed allergen, the parents may be advised to withhold the food for several months. A recent study suggested that proven
food allergies in infants rarely last more than six months. Double-blind reintroduction of the presumed offending agents were rarely associated with recurrence of symptoms in infants over six months of age. The physician should be certain that there is adequate replacement nutritionally if an important source of nutrition, such as milk, is removed from the diet.

Controversy No. 6

Is atherosclerosis a pediatric problem?

Some authors have advocated the introduction in infancy of a diet low in animal fat, in the hope that such a diet may prevent atherosclerosis-related morbidity and mortality in adult life. In one prospective study, infants followed from birth to four years of age showed no correlation between the type and duration of early infant feeding and subsequent lipid levels. By the age of four years, the serum cholesterol concentration correlated with that of the parents, but not with the type and duration of infant feeding. Many authorities are recommending that adults eat a lower-fat diet; the exact percentage of calories coming from fat in the diet of infants and children has yet to be determined. Although it is tempting to theorize that a low-fat diet in infancy might prevent later coronary artery morbidity, it should be remembered that fat is a nutrient important to the growth and development of young infants and children.

In order to establish what a safe and effective dietary fat intake for infants and young children would be, a long-term, prospective, randomized controlled trial would be necessary. Such a study has not yet been done, nor is it likely that it ever will be done, because Western society is now so deeply convinced (rightly or wrongly) about the function of fat in the diet in relation to coronary artery disease that the proportion of fat in everyone’s diet is likely to decrease.

Conclusions

One of the authors of this article has been in clinical practice long enough to have seen the pendulum swing with regard to the various controversies in infant nutrition. Nutrition is one of the “lifestyle” factors over which parents have considerable control. Informed consumers—and many physicians—have become convinced that lifestyle changes which they can control will give them a happier, healthier, longer life. Whereas this is certainly true for certain lifestyle changes, such as using seat belts, and not drinking and driving, it is not necessarily true to the extent that it has been promoted in the area of nutrition. In nutrition, as in other aspects of health care, it is important to be aware of the quality of the evidence that backs up “official” recommendations. When good evidence is not available, family physicians should take care not to jump on the latest nutrition bandwagon but, instead, should give reasonable dietary advice to parents.

References