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Breast feeding as prophylaxis for atopic eczema: a controlled study of 368 cases

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The present study was undertaken in an attempt to draw data whether breast-feeding is beneficial in prevention of atopic eczema. Three-hundred and sixty-eight babies given different feeding modalities were examined for the presence of atopic eczema at the age of three and six months. Seven percent of breast-fed infants developed eczema compared to 10% of formulae-fed and 6% of mixed breast and formulae-fed infants. No difference in the severity of atopic eczema was recorded in the three study groups. Our experience demonstrates the absence of a protective effect of breast-feeding against the development and severity of atopic eczema.

Atopic eczema during infancy is an annoying condition with disappointing treatment results. The role of breast-feeding and dietary elimination of foreign antigens in the prevention of atopic diseases has long been controversial. Some authors indicated that prolonged breast-feeding is a protective measure for infants prone to atopic diseases by hereditary factors [6]. Matthew et al [10] and Saarinen et al [13] reported that breast-feeding prevented atopic eczema up to one to three years of age, respectively. Other studies, however, failed to demonstrate any prophylactic benefit of breast-fed in comparison to bottle-fed babies in prevention of atopic eczema [1, 11]. Conducting a detailed study of 636 children referred with atopic eczema, Kramer and Moroz [8] have concluded that breast-feeding and delay in introduction of solid artificial food did not protect against atopic eczema.

The present prospective controlled study including 368 babies was designed in an attempt to draw data whether breast-feeding could be recommended for prevention of atopic eczema.

Material and Methods

The study included 394 healthy babies at the age of three to six months who were examined during 1980. Only 368 babies fulfilled the study criteria. Sex, ethnic group, family history, duration and severity of atopy were recorded. The babies were examined for the presence of atopic eczema at the age of three and six months. Infants with contact dermatitis were excluded because of the known inverse relation between this condition and atopy [7].

Mothers were interviewed by a qualified nurse prior to their babies' examination and were requested not to give any information regarding their babies' feeding. Diagnosis of atopic eczema was established by a skilled paediatrician and only babies

with definite eczema were included in the study. During the study period all babies were examined by the same paediatrician and nurse in order to ensure comparability of cases.

In order to qualify as having breast-fed, an infant must have been breast-fed for at least six months with no extra bottle feeding (Group A). Partial breast-feeding included all babies in whom breast-feeding was discontinued or only partially given before the age of six months (Group B). The third group of patients included babies who were bottle-fed immediately after birth with no breast-feeding (Group C).

Criteria used in the diagnosis of atopic eczema were derived from Hanifin and Lobitz [4]. Determination of the severity of the condition was classified in three grades. Severe eczema was called definite when a chronic course and extensive distribution with papules, vesicles, oozing, crusting, erythema and scaling were encountered. Mild eczema had an episodic course and localized distribution with erythema, pigment changes and mild scarring. Moderate eczema had intermediate features between the mild and severe forms.

Results

Age, race and ethnic origin in the three groups were found to be confounding. The family history of atopy was found to be of no significant difference between the three groups. Four out of 13 babies with family history of atopy in Group A, three out of 10 in Group B, and three out of 15 in Group C developed eczema. More babies from atopic families developed eczema compared to those from non-atopic families. Babies with a family history of atopy suffered from more severe and prolonged eczema (Table I).

Twenty-six out of 128 (20%) breast-fed babies developed atopic eczema at the age of three months and nine (7%) at the age of six months. In group B which included 99 breast and bottle feeding babies there were 14 (14%) cases of atopic eczema at the age of three months and six (6%) at the age of six months. Thirty out of 141 bottle fed babies had atopic eczema at the age of three months and 14 (10%) at the age of six months.

Table II indicates that breast-feeding did not change the incidence of atopic eczema compared to bottle-fed or mixed-fed babies. The severity of atopic eczema in the different feeding groups was not significantly different (Table III).

Discussion

Mothers should be encouraged to breast-feed which has many physiologic and psychologic advantages. The development of aritificial formulae was followed by a decline in the prevalence of breast-feeding in many parts of the Western world. Human milk contains bacterial and viral antibodies, including relatively high concentrations of secretory IgA antibodies [10]. It has been shown that growth of different types of viruses can be inhibited by substances in human milk [12]. Macrophages are present in human milk and colostrum which may have the ability to synthesize complement, lysozyme and lactoferrin [9]. Stevenson et al [14] noted a higher incidence of respiratory infections during the second six months of life of formulae fed infants. Allergy and intolerance to cow's milk including diarrhoea, intestinal bleeding and colic are less common in infants receiv-

TABLE I

Atopic eczema in babies with a family history of atopy

	Total	Atopic eczema (6 Mon.)	Family history of atopy	Atopy in babies with family history			
				Total	Mild	Modarate	Severe
Breast-feeding	128	9	13	4	1	2	1
Bottle-feeding	141	14	15	4	1	2	1
Mixed breast and bottle feeding	99	6	10	3	1	1	1

TABLE II

Severity of atopic eczema in relation to breast-feeding

	Mild		Moderate		Severe	
	3 Months	6 Months	3 Months	6 Months	3 Months	6 Months
Breast-feeding	8	5	13	2	5	2
Bottle-feeding	14	8	10	5	6	1
Mixed breast and bottle feeding	9	4	3	1	2	1
Total	31	17	26	8	13	4

TABLE III

Incidence of atopic eczema in different groups of babies

	Atopic eczema		Asymptomatic		Total
	3 Months	6 Months	3 Months	6 Months	
Breast-feeding	26 (20%)	9 (7%)	102	119	128
Bottle-feeding	30 (21%)	14 (10%)	111	127	141
Mixed breast and bottle feeding	14 (14%)	6 (6%)	85	93	99
Total	70	29	298	339	368

ing human milk [9]. Cow's milk is the basis for most formulas and a reduction of morbidity and mortality from gastrointestinal infections resulted from sterilization and refrigeration of the formulae.

A possible benefit for the dietary effect of human milk is that special vulnerability to sensitization is transient as in IgA deficiency which commonly precedes allergy [15]. It was also suggested that sensitization requires antigen entry with E. coli endotoxin which is greatly restricted by human milk formulae [5]. A child lacking these protective mechanisms may have general sensitization, and atopic eczema is probably one of them.

The protective effect of breast-feeding against the development of atopic eczema was found by several authors [10, 13] whereas other investigators concluded that breast-feeding did not provide such prophylaxis [1, 11]. Halpern et al [3] reported allergy in 128 out of 803 children with a family history of allergy, either being breast-fed, cow's milk fed or soya milk fed. Glaser et al [2] found that only 15% of children from allergic families fed soya bean milk from birth to six months developed allergic diseases by the age of six years, compared with 52% of retrospective non-related controls fed cows' milk formulae.

Babies' feeding was a self selected maneuver and could not be assigned in our study. It is likely that there is some difference between breast-feeding mothers and those choosing bottle-feeding. It is probable that some babies were specially breast-fed in order to prevent allergic disease. In our study we could not control the mothers' diets and, as a result, breast-fed babies could have been exposed to foreign antigens.

A possible explanation of the large difference in the incidence of atopic eczema at the age of three and six months is probably the inclusion in the diagnosis of seborrhoeic dermatitis which is not necessarily an allergic disease.

We thus concluded that breast-feeding regardless of its many important advantages does not protect against the subsequent development of atopic eczema. Onset, duration and severity of atopic eczema did not change significantly between the three groups. Babies with a family history of atopy had higher prevalence and more severe form of atopic eczema which was not altered by the source of food.

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