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Breast Feeding, Cow Milk Feeding, and Allergy

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Information about every 10th child aged 14 to 38 months was collected by means of a questionnaire in Turku, Finland in March, 1983. This paper reports on the occurrence of allergy in relation to the duration of breast feeding and to the age of the child when cow milk feeding was started. The average duration of breast feeding was 5.7 months and the average age at the introduction of cow milk-based products was 4.3 months. Allergy was reported in family members of 47.6 % of the children. In 30.3 % the child himself was reported allergic. The occurrence of allergy was unaffected by the duration of breast feeding and the age at introduction of cow milk feeding.

Key words: allergy; breast feeding; infant nutrition; lactation; milk, human.

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CLINICAL ASPECTS

Breast feeding of infants has become popular. The overall duration of breast feeding is now long in Finland and has many advantages. During a long period of breast feeding children can conveniently be challenged with different foods in order to find potential allergies. Generally, however, we cannot expect long duration of breast feeding or late introduction of cow milk feeding to prevent later manifestations of allergy.

Lately, the prolongation of breast feeding to at least the age of 6 months (8), but, preferably, for the whole first year of life, has been acclaimed as an effective tool in preventing allergy (1). Mothers are advised to avoid cow milk-containing formulas for as long as possible (5). Also, there has been some doubt about the effect of prolonged breast feeding, or late introduction of cow milk-based products, in allergy prophylaxis (3, 6). The present study was carried out in order to find whether the occurrence of allergy in toddlers in a normal population was associated with the duration of breast feeding or to the age at which cow milk products were introduced.

MATERIAL AND METHODS

In March 1983, a questionnaire was mailed to the mothers of every 10th child aged 14 to 38 months in Turku, Finland, a community of approximately 160,000 inhabitants. 323 (75 %) of the questionnaires were returned. Questions concerned facts about signs and symptoms in early childhood as well as the social surroundings of the children. Here, the results of the occurrence of allergy are presented in relation to the duration of breast feeding and the start of cow milk-based feeding. The statistical method used was the chi-square distribution test.

RESULTS

The mean duration of breast feeding was 5.7 months. The duration of breast feeding in children of allergic and non-allergic families was similar (Table 1). Thus, prolongation of breast feeding had not been used prophylactically in the children of allergic families.

The mean age at the introduction of cow milk-based feeding was 4.3 months. In 22.0 % cow milk formulas had been given since the age

of 1 month or before. 13.6 %, 29.7 %, 19.5 %, and 7.7 % received cow milk products at the age of 2 months, 3–5 months, 6–8 months, and 9–11 months, respectively. 4.3 % had cow milk only at 12 months old or later. In 3.2 % the question about the introduction of cow milk was unanswered.

Allergy was defined as atopic eczema, allergic rhinitis, allergic bronchitis, or asthma. In 49.5 % no allergy was reported among the children's close relatives, while 47.6 % of the children had allergic family members. In 25.4 %, one of the parents had allergy, in 10.8 % one or several siblings, in 6.2 % sibling and one parent, in 3.7 % both parents, in 1.5 % sibling and both parents. In 2.9 % the question of allergy in family members was unanswered.

According to the mothers' knowledge, 68.7 % of the questioned children had no allergy. 18.6 % had atopic eczema, 1.5 % allergic rhinitis, 1.2 % asthma, and 3.7 % another form of allergy, mainly gastrointestinal. 5.3 % of the children suffered from several manifestations of allergy. In 1.0 % the question on allergy was not completed. Allergy was reported positively in 35 % of the 14 to 18 month olds, in 28 % of the 19 to 24 month olds, in 29 % of the 25 to 30 month olds, and in 30 % of the 31 to 38 month olds. The children's allergy was closely related to allergy in family members. Table 2 shows the occurrence of allergy in relation to allergy in parents.

Approximately 30 % of the questioned children were reported allergic. The proportion of allergic children was the same when the children were grouped according to the duration of breast feeding (Fig. 1). Also, the occurrence of allergy among the children with a positive family history of allergy was about the same regardless of the duration of breast feeding (Table 3).

In Table 4 the occurrence of allergy is presented in relation to the age when cow milk-based feeding was started. The occurrence of allergy was similar no matter how late cow milk feeding was started, with only slight and insignificant differences between the groups.

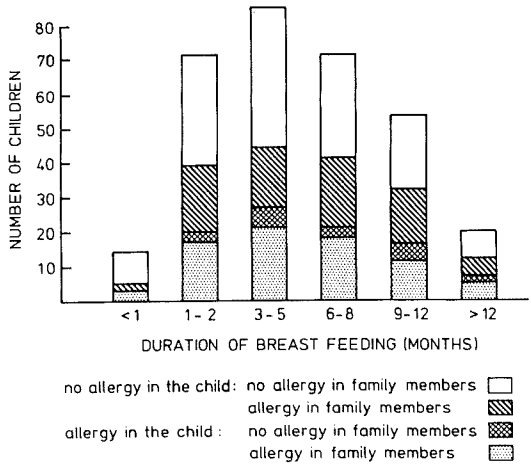


Fig. 1. Occurrence of allergy in relation to the duration of breast feeding.

Table 1

Overall duration of breast feeding in relation to family history of allergy (%)

Duration of breast feeding in months	Family history of allergy	
	negative	positive
0	1	0
< 1	4	3
1–2	22	23
3–5	29	25
6–8	21	25
9–12	16	18
> 12	6	6
Total	99	100

Table 2

Heredity of allergy

Allergy in child by time of study	Allergy in parents					
	neither		one		both	
	n	(%)	*n*	(%)	*n*	(%)
No	153	(78)	63	(62)	4	(24)
Yes	42	(22)	39	(38)	13	(76)
Total	195	(100)	102	(100)	17	(100)

$P < 0.005$.

DISCUSSION

There are many ways to study the effect of breast feeding and early cow milk feeding on the occurrence of allergy. Burr (2) demonstrated that most of the presented studies on this subject were defective. Also, Kovar et al.

(7) in their evaluation of epidemiologic and clinical studies on the health impact of infant feeding concluded that the protective properties of breast milk and the allergenicity of alternative feeding cannot be determined from available studies.

The present study concerned the occurrence of allergy in a randomly selected sample of toddlers. Every 10th child was drawn from the birth register and studied by means of a questionnaire. A possible source of error was that the mothers gave incorrect answers concerning allergy. It was considered impossible to specify in detail the concept of allergy. Therefore, the respondents' definition of allergy might not fulfil the strict criteria of normal diagnosis. However, the occurrence of allergy in the present study did not differ from results obtained in other studies (7).

Table 3

Occurrence of allergy in relation to the overall duration of breast feeding

Duration of breast feeding in months	Positive family history		Negative family history	
	Allergy of child by time of study		Allergy of child by time of study	
	no (%)	yes (%)	no	yes
0-2 (n = 85)	21 (51)	20 (49)	41	3
3-5 (n = 85)	17 (45)	21 (55)	41	6
6-8 (n = 71)	20 (53)	18 (47)	30	3
≥ 9 (n = 73)	21 (57)	16 (43)	29	7
	NS			

Table 4

Occurrence of allergy in relation to age at the introduction of cow milk feeding

Age at start of cow milk feeding in months	Positive family history		Negative family history	
	Allergy of child by time of study		Allergy of child by time of study	
	no (%)	yes (%)	no	yes
≤ 1 (n = 68)	18 (50)	18 (50)	29	3
2 (n = 42)	12 (57)	9 (43)	19	2
3-5 (n = 94)	19 (47)	21 (53)	49	5
6-8 (n = 61)	14 (47)	16 (53)	28	3
≥ 9 (n = 38)	13 (62)	8 (38)	14	3
	NS			

In Finland, almost every child regularly attends well-baby clinics where records are kept of early feeding practices. The duration of breast feeding is also registered in the child's well-baby booklet which is kept by the parents at home. Thus, the reports on the duration of breast feeding and cow milk feeding are reliable. In recent years, the maternity hospitals in Turku have not given substitute milk to the babies if the mother intends to nurse. Thus, the chances of babies receiving cow milk formulas without the mothers' knowledge are negligible.

The promotion of breast feeding has succeeded in Finland. The average duration of breast feeding has increased from 1.7 months in 1971 (10) to 5.7 months in the present study. Also, according to the statistics from the well-baby clinics in Turku, 52 % of the children were breast-fed when 6 months old in 1981 (P. Terho, personal communication). Mothers find breast feeding natural and convenient, and our lengthy maternity leave permits mothers to prolong breast feeding to almost a year.

According to our results, about half of the children of allergic families were allergic regardless of the length of time they had been breast fed or when cow milk feeding was started. Also, in the study of van Asperen et al. (9) half of the children with atopic family history became atopic. Kajosaari & Saarinen (4) showed that an early introduction of solid foods is connected with allergy compared with infants who receive only human milk during the first 6 months. Prolonged breast feeding might postpone the symptoms of allergy, which later appear when the allergic child is introduced to solid foods and other environmental factors which this particular child cannot tolerate.

Allergy is common but rarely severe. Thus, the main task is not to avoid allergy, but, by knowing what the child is allergic to, the triggering factors. A long duration of breast feeding offers a valuable opportunity to find the causes of allergy, particularly in a child with a family history of allergy.

In conclusion, a long duration of breast feeding does not, *per se*, prevent later symptoms of allergy, nor does an early introduction of cow milk formulas increase the risk for allergy in a

normal population. Hopefully, this will comfort those mothers who, despite good will and efforts, have failed in breast feeding and thus harbour feelings of inadequacy. Also, it is only fair that parents of children with a family history of allergy should know that the child might become allergic regardless of the duration of breast feeding.

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