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Specific IgE antibodies to uningested cereals

HYPERSENSITIVITY to egg and cow's milk in exclusively breast-fed infants has been documented previously (1, 2), but there are only brief mentions of sensitization to uningested cereals (1). It seems, however, that such sensitization may be common in infants with early onset atopic dermatitis, since we have diagnosed four typical cases in a pediatric outpatient department within 2 years.

The patients were breast-fed infants aged 3–5 months among a series of 11 children under 6 months of age referred to the outpatient clinic for treatment for atopic dermatitis in 1994–5. They all had a history of atopic dermatitis in their parents or siblings. Three of the mothers had had an unrestricted diet, but one mother (mother of I. E.) had avoided egg, fish, and peanuts. This same subject (I. E.) had been exclusively breast-fed, but the other three had received small amounts of boiled potatoes and carrots mashed with water during the last few weeks. None of them had ever had any other solid foods or cow's milk. All the children had had some contact with airborne flour at home, and the parents of one child (A. M.) operated a pizzeria. They had all had erythematous atopic dermatitis on the face, trunk, and extremities since the age of 1 week to 2 months, and two of them had been admitted to hospital for topical treatment. Laboratory tests comprised determination of total IgE concentration with Phadebas IgE PRIST and specific IgE antibodies with Phadebas RAST (Pharmacia), apart from one child in whom the condition of the skin allowed skin prick testing with commercial allergens (1:20 w/v) from ALK. A RAST result higher than 0.35 kU/l was regarded as positive, whereas wheals in skin prick testing that were at least 3 mm in diameter were regarded as strong positive reactions (+++) and ones at least double that size as very strong positive reactions (++++).

All the subjects had positive reactions to egg white, milk, and wheat in the RAST or skin prick tests, although the reactions to milk were rather weak in two children (Table 1). All the children having positive RAST or skin prick test results for wheat also had comparable positive reactions to rye and barley. The children were put on an elimination diet not containing egg, cow's

Infants can be sensitized to cereals through breast-milk.

milk, or cereals up to the age of 2 years, and the mothers were also advised to refrain from these foods during breast-feeding. In consequence, one child (A. M.) was completely symptom-free at the age of 16 months, and one (T. M.) had clear skin at 25 months but suffered from asthma. The follow-up examination on one newly diagnosed case (H. T.) is still lacking, while the fourth child (I. E.) is still suffering from severe atopic dermatitis at the age of 13 months.

In theory, sensitization of infants to foods may be due to passage of the antigen via the cord blood, oral ingestion, or inhalation. Since the symptoms typically begin after the neonatal period, one may assume that the sensitization mostly occurs extra-uterally. A precise inspection of our nursery revealed that none of the four children had received cow's milk formula. Since there are no infant formulas containing egg or cereals on sale in Finland and we do not recommend cereals for infants until the age of 5 months or more, the possibility of oral exposure to such foods at the nursery or at home other than by passage of the antigens into breast milk seems improbable. Besides egg white and cow's milk antigens (1, 2), breast milk may also contain a small concentration of gliadin (3). On the other hand, sensitization to cereal antigens, leading to bakers' asthma, can also occur through airborne

Table 1. Clinical and laboratory data on patients

Data	Patients			
	I. E.	A. M.	T. M.	H. T.
Sex	M	M	F	F
Age (months)	3	4	5	4
Onset of eczema	2 months	2 months	1 week	2 weeks
Total IgE (kU/l)	784		740	46
RAST (kU/l)				
Egg white	41.3	8.0		7.0
Cow's milk	48.8	0.9		1.1
Wheat	108.4	10.5		12.2
Prick test				
Egg white			+++	
Cow's milk			+++	
Wheat			++++	

exposure. In addition, airborne food particles cause not only respiratory allergy, but also purely dermatologic symptoms (4).

Since positive reactions to uningested foods in RAST or skin prick tests predict cutaneous or respiratory symptoms after exposure to these foods (5), such tests performed on infants with early onset atopic dermatitis from high-risk families should routinely include the foods mainly causing allergic reactions, even though previously uningested, such as cereals, egg, and cow's milk.

Key words: dermatitis; atopic; food hypersensitivity; hypersensitivity; infant food.

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Comparison of three different oral corticosteroids in steroid-dependent asthma patients

CORTICOSTEROIDS represent the most potent treatment of asthma (1). Inhaled corticosteroids are highly effective in most patients, but, in a few

No significant differences were found in this pilot study.

patients, long-term oral steroids are required (2). The most commonly used oral corticosteroids are prednisone (P), prednisolone (PL), and methylprednisolone (MP) because they show the best efficacy/safety ratio. Several reports have

suggested some differences in the lung pharmacokinetics and bioavailability of these molecules (3, 4). Therefore, patients requiring long-term oral treatment with corticosteroids may present differences in the effectiveness of a given molecule.

To compare the effectiveness and the clinical side-effects of three different corticosteroids (P, PL, MP), we performed a randomized prospective trial in 10 severely asthmatic patients (six males, 38.4 ± 17.2 years of age) requiring long-term oral treatment with corticosteroids. All patients were classified as severe asthmatics according to the WHO/NHLBI workshop report (5) and had required at least 2 g of the equivalent dose of prednisolone during the last 12 months (mean $\pm$ SD: 18.0 ± 5.3 mg equivalent prednisolone per day). Many attempts to decrease their dose of oral steroid were unsuccessful, justifying the continuation of oral corticotherapy. All of them were receiving 1600–2000 μ g of inhaled budesonide or beclomethasone. No patient was taking salmeterol or formoterol. They had been instructed to measure their peak expiratory flow rate (PEFR) twice daily for at least 1 year. All the medications required to control the asthma symptoms remained unchanged throughout the study. The study was approved by the ethics committee of the clinic. Patients gave informed consent for the study.

The control of asthma was based on symptom score (0 = no symptoms, 1 = mild symptoms [symptoms which are easily tolerated], 2 = moderate symptoms [symptoms interfering with daily activity or sleep], 3 = severe symptoms [inability to perform usual duties or sleep]), physical examination of the patients, PEFR, and pulmonary function tests. The β_2 -agonist medication was recorded. A randomized prospective trial was performed. The study was preceded by a run-in period of 15 days. At entry to the study, the patients received the equipotent oral dose of glucocorticosteroid treatment that was previously required. The study was divided into three different periods of 21 days, during which the patients received the three molecules in a randomized order (three patients received P-PL-MP; three patients, PL-MP-P; four patients, MP-P-PL). No difference was observed according to the order of the different drug regimens. Side-effects were assessed at each visit by the eventual occurrence of a severe symptom associated with oral corticosteroids and the measurement of weight, blood pressure, and glycemia. Nonparametric tests were used, and paired data were analyzed by the Wilcoxon signed rank test.

All patients completed the study without side-effects. Patients did not experience clinical deterioration of asthma, and the three treatments were found to be similar in terms of efficacy (Table 1). The

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