

Response to diet in 130 children affected with atopic dermatitis

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There is still discussion on the etiological factors playing a role in atopic dermatitis (AD). However, it is generally agreed that food intolerance and/or allergy are important (1-2), even if the incidence varies in different studies (3). It follows that diet must always be considered in AD from a diagnostic and a therapeutic point of view.

Yet, diet is often insufficient to make a proper diagnosis and to establish a correct treatment inasmuch as the origin of AD can be multifactorial (infectious, climatic and environmental factors) (3-4) and, moreover, one must often cope with a food polysensitization.

Given all this, the various experiences on the different diet facets can help to achieve a deeper insight into the correct dietary treatment.

PERSONAL EXPERIENCE

Subjects One hundred and thirty children (76 boys and 54 girls, age range 2-8 years, median 3.4) affected with AD with onset between 1 and 24 months were enrolled in this study.

Familiarity

The overall familiarity for allergy in parents and siblings was present in 76 of 130 (58.4%); in 29 cases (38.1%) there were allergic features only in the mother, in 18 only in the father (23.7%), in 14 (18.4%) in both the mother and father, in 15 (19.7%) in the siblings. Moreover, skin allergic features were present in 50 of 76 parents and/or siblings (65.8%).

Specific IgE. The specific IgE radioimmuno- logically assayed for the most allergenic foods

(milk, egg, soya, nuts, fish and cereals) and for some inhalants (grass pollen, *Dermatophagoides*, cat dander) were negative for both foods and inhalants in 22 out of 130 (16.9%) and only for foods in 28 out of 130 patients (21.5%); of the 102 food-positive cases, 40 (39.2%) had more than five positive assays.

Subdivision in groups

For diet-linked reasons, patients were subdivided in two groups, one (107/130) with an early AD onset (before 6 mo.) and the other (23/130) with a later onset (9 between 6 and 12 mo. and 14 between 12 and 24 mo.). In these groups, the clinical score, the familial atopic history the mean age of onset, the atopic sensitization, and the type of feeding were considered.

Early-onset group

The early-onset group (Group A) presented a mean score of AD of 2.5, a family history for allergy in 64 out of 107 (59.8%) and a familial history for skin allergic diseases in parents and siblings in 40 out of 64 (62.5%). Specific IgE were positive in 95 out of 107 (88.7%) and food-specific IgE assayed positive in 92 out of 95 cases (96.8%).

A distinction was made between breast-fed infants (78) and formula-fed infants (29). In Group A, 27 subjects did not suffer from AD during breast feeding, while 51 presented AD during breast feeding (Group B) (Fig. 1.).

The Group B infants were significantly different from Group A children regarding:

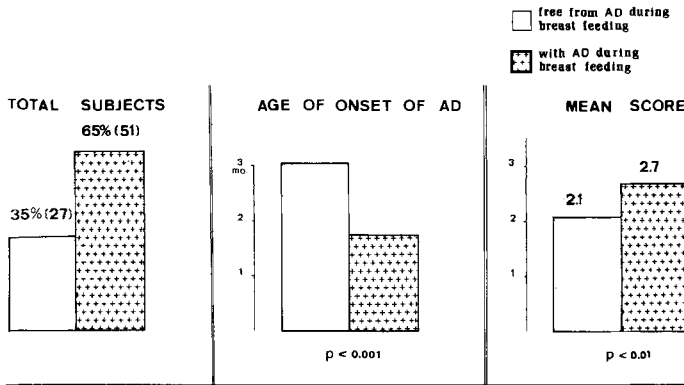


Fig. 1. Early onset AD and breast feeding: 78 subjects.

the age of onset of AD (1 mo. 21 d. vs 3 mo.) (Fig. 1.);

the mean AD score (2.7 vs 2.1, $P < 0.01$) (Fig. 1.);

The history of atopy in both parents (10/30 in Group B, 1/17 in Group A) and the for skin allergic diseases (26/30 = 86.7 % in Group B, 6/17 = 35.3 % in Group A, $P < 0.001$); on the contrary the overall familial history for allergic diseases was not different in the 2 groups (30/51 = 58.8 % Group B, 17/27 = 62.9 % Group A);

Milk-specific IgE, prevalent in Group B (74.4 % vs 47.4 %). Food-specific IgE were almost the same in the 2 groups (47/51 = 92.1 group B, 23/27 = 85. 2 % Group A); a non-significant prevalence of patients with more than 5 positivities was found in Group B.

Maternal diet

The mothers of 18 of the unprotected infants were placed on a milk- and egg-free diet. A good response was observed in 5 cases. The reasons for the 13 failures were: only partial adherence to the milk and egg diet (3 cases), a polysensitization (7 cases) and the predominant influence of infections and environmental factors (3 cases).

Introduction of cow's milk in the diet and weaning

When breast feeding was interrupted and formula was introduced, 24 out of 27 of Group A-patients presented with AD (11 RAST positive for cow's milk proteins, 13 RAST nega-

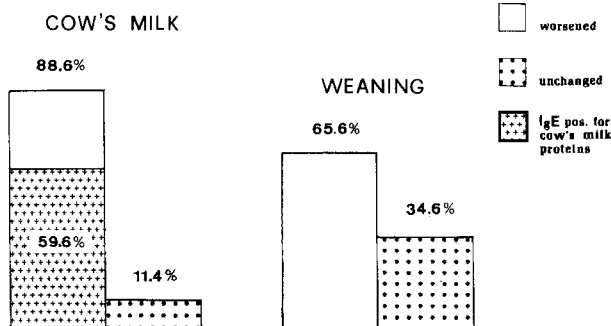


Fig. 2. Atopic dermatitis, cow's milk introduction and weaning.

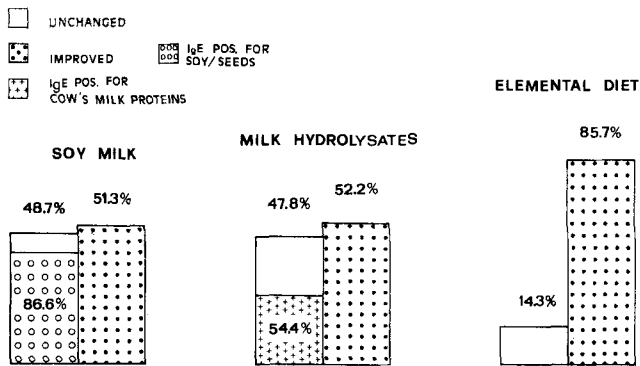


Fig. 3. Cow's milk substitutes.

tive). Cow's milk was introduced in 26/51 of Group B-infants and a worsening of AD was soon evident in 23 (17 RAST pos. for cow's milk proteins, 6 RAST neg.). It follows that milk seems to play an important role in early-onset AD (in 47/53 = 88.7%) even in those patients lacking specific IgE. (Fig. 2.)

The introduction of cereals, meat, vegetables and fruit according to a standard weaning scheme accounted for a further worsening in 42 out of 64 subjects (65.6%, 6/20 = 30% in Group A, 23/30 = 76.6% in Group B, $P < 0.01$) (Fig. 2.).

Formula substitution

Soya was employed in 76 infants with good results in 39 (51%); in 32 of the 37 non-responders soya and/or nut-specific IgE were detected.

Casein or whey proteins hydrolysates were given to 23 patients and improvement was obtained in 12 (52%); 6 out of the 11 non-responders were highly positive for each cow's milk fraction.

The elemental diet was prescribed in 21 subjects with a good response in 18 (85%). (Fig. 3).

Efficacy of the diet

The exclusion diet for the infants consisted of the administration of the substitute alone (soya

milk, hydrolysates, elemental diet) for 3 weeks. When not possible, a standard diet with a very limited number of foods was prescribed. Such a diet was totally effective in 52 out of 107 patients (48.5%), partially effective in 47 (43.9%) and inefficacious in 8 (7.4%). The diet was discontinued in the non-responders. In the responders, after 3 weeks of diet, introduction a single food was begun based on the presence of specific IgE, with consideration given to cross reactions within food and the food habits of the children. For cow's milk, the challenge after the diet-linked improvement was performed only in the doubtful cases. In the clearly intolerant patients, the sensitization was re-evaluated after 6-12 mo., according to the age and the intensity of symptoms. With such precautions and measures an equilibrated and well-tolerated diet was achieved in most of the children. In ten patients who could not be satisfactorily managed, a rotation diet was prescribed with a good response in 8.

Later-onset group

The later-onset group presented a 15-month median age of onset of AD, a mean score of AD of 2, a family history of allergy in 12 out of 23 cases (52.1%), incidence of skin allergic diseases in parents and siblings in 10 out of 12 cases (83.3%). Specific IgE were positive in 13/23 patients (56.6%); foods assayed positive in 10 out of 13 (77%). All the 10 food-positive cases had fewer than five positive assays.

Diet was effective in 10 out of 23 patients (43.5%); partially effective in 5 (21.7%), and inefficacious in 8 (34.8%).

This second group of patients differed from the early-onset group regarding:

Less severe dermatitis manifestations ($P < 0.01$);

A higher incidence of skin allergic features in parents and siblings (without any significant difference);

A minor incidence of specific IgE sensitization ($P < 0.001$);

A minor incidence of food-specific IgE sensitization ($P < 0.01$);

A minor incidence of diet-induced remissions ($P < 0.001$).

DISCUSSION AND CONCLUSIONS

When considering diet in AD in the first two years of life, some essential points must be investigated: the role of cow's milk in initiating AD and the possible substitutes, the introduction of foods other than milk, the response to a correct diet.

As for breast feeding, our data confirm that sometimes it can fail to prevent AD (6-7). When this is the case, a maternal avoidance diet can be useful, provided other factors are not at work and the infant does not present with polysensitization. Cow's milk is a major account for factor in AD by initiating or worsening the condition, but other foods (meat, cereals, vegetables, fruit) may be responsible.

The cow's milk substitutes work led to improvement in about 50% of the cases, and an elemental diet in 80% of cases.

Positive RAST can help in the dietetic management, but the relationship between specific IgE and eczema are not always clear. In our experience, a diet can improve about 50% of the cases, but in the others the age of onset of AD as well as multiple factors should be considered; it follows that diet must be tried, but not overestimated.

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