

CONCISE COMMUNICATION

The use of dietary manipulation by parents of children with atopic dermatitis

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Summary

Background In 1989 we demonstrated that 71% of children referred to our paediatric dermatology clinic with atopic dermatitis (AD) had been subject to dietary manipulation by their parents in order to manage their disease. We have re-examined our clinic population to determine whether the documented rise in the use of complementary therapy in children with skin disease has been accompanied by a rise in dietary manipulation.

Objectives To qualify and quantify the usage of dietary manipulation in children with AD in secondary care.

Methods A face-to-face structured questionnaire study of 100 children with AD.

Results The mean age of the children interviewed was 7.3 years (median 5.9, range 0.6–17.1) and ethnic origin was 59% white, 35% Indo-Asian, 3% Afro-Caribbean and 3% mixed race. Seventy-five per cent of patients (75 of 100) had tried some form of dietary exclusion; the most common foods omitted were dairy products in 48% (36 of 75), eggs in 27% (20 of 75) and cow's milk in 25% (19 of 75). Forty-one per cent of patients (41 of 100) had tried some form of dietary supplementation. The most common dietary supplement was evening primrose oil in 59% (24 of 41), of whom 13% (three of 24) felt this had helped their skin. Only 51% (38 of 75) had consulted a doctor or dietician before commencing any dietary change, but 39% (29 of 75) felt that their skin had improved as a result of this dietary manipulation.

Conclusions In comparison with our previous study, the proportion of patients excluding foods from their diet had increased from 71% to 75%. The proportion of these dietary changes that are unsupervised has remained the same, as have the food types avoided. The proportion of patients who report that unsupervised dietary manipulation is beneficial has increased from 10% to 39%.

Key words: alternative therapies, atopic dermatitis, complementary medicine, diet

As the prevalence of atopic dermatitis (AD) rises,¹ parents of children with AD are increasingly turning to complementary medicine and dietary manipulation to manage their child's skin.² We have previously shown that a high proportion of children with AD has their diet altered³ and, more recently, that a large proportion of children with AD is given complementary therapies to treat their skin.⁴ Those who attend a complementary practitioner may also be asked to manipulate their food intake. In the light of this high level of use of alternative therapies we performed a questionnaire study to qualify and quantify the current

usage of dietary manipulation in children with AD in secondary care and to identify trends in the use of dietary manipulation in children with AD.

Subjects and methods

One hundred new referrals and follow-up patients up to 16 years of age attending the paediatric dermatology outpatient department at Leicester Royal Infirmary were interviewed over a 3-month period. The diagnosis of AD was confirmed by a dermatologist (G.A.J. and R.A.C.G.B.) in accordance with the U.K. Working Party's diagnostic criteria for AD.⁵ The questionnaire was performed by a face-to-face structured interview. For infants and toddlers the questionnaire

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was directed at the accompanying parent/guardian and older patients were questioned directly. No one approached refused to participate in the study. The department is a paediatric dermatology unit serving a population of 900 000 based in a city with a high proportion of patients from ethnic minority backgrounds. Most patients from an ethnic minority in Leicester come originally from the Indian subcontinent. As in all our clinics, translators were available if needed for children or parents whose first language was not English, but no one questioned for the study required this facility.

Statistical analysis

Results were first expressed as simple percentages plus a qualitative description of comments where needed. The results were then analysed by SPSS software (Chicago, IL, U.S.A.) with simple χ^2 2×2 contingency tables for potential correlations.

Results

The response rate to the questionnaire was 100% with 100 participants interviewed. The mean age of the children interviewed was 7.3 years (median 5.9, range 0.6–17.1). Sixty per cent of patients with AD questioned were male, which compared with 53% male in the paediatric dermatology clinic as a whole. The proportions of different ethnic origin were 59% white, 35% Indo-Asian, 3% Afro-Caribbean and 3% mixed race, reflecting the high ethnicity in Leicester. Fifty-two per cent of patients (52 of 100) had other atopic disease (asthma, hay fever) and 74% (74 of 100) had a family history of atopy. The majority of children had moderate to severe AD, with 70% requiring bandaging, 76% requiring potent topical corticosteroids and 30% second-line therapy such as ultraviolet therapy, systemic steroids or ciclosporin at some stage in the course of their disease.

A total of 75% of patients (75 of 100) had tried some form of food exclusion (Table 1). Of these, 48% (36 of 75) answered that they had avoided all dairy products, 27% (20 of 75) specifically said they had avoided eggs, and 25% (19 of 75) had specifically avoided cow's milk. Twenty per cent (15 of 75) avoided food additives and colourings, which included 'E numbers' in six cases, red-coloured food in two and orange-coloured food in one. Chocolate and sweets (candy) were removed from the diet in 10 cases (13%) and, in descending order, fish, tomatoes, nuts, wheat and soft or fizzy drinks

Table 1. Foods avoided in 75 children with atopic dermatitis (percentages add up to more than 100 due to multiple food exclusions in the majority of patients)

Food excluded	Number	%
Dairy products	36	48
Eggs	20	27
Cow's milk	19	25
Food additives and colourings	15	20
Chocolate and sweets (candy)	10	13
Fish	9	12
Tomatoes	6	8
Nuts	6	8
Wheat	5	7
Soft drinks	4	5
Baked beans	2	3
Oranges	2	3
Tomato ketchup	2	3
Other (flour, chicken, ham, citrus fruit, strawberries, cucumber, tap water, fatty food)	8 (1 each)	11

(soda) in a further 30. The majority excluded more than one food type. Thirty-nine per cent (29 of 75) of those restricting foods felt that this had brought about an improvement in their AD but only 51% (38 of 75) said they had done so after consultation with a doctor or dietician.

Forty-one per cent of patients (41 of 100) had tried some form of dietary supplementation (Table 2), usually vitamins obtained from a pharmacist, health food shop or complementary practitioner. The most common food supplement was evening primrose oil (EPO) in 59% of patients (24 of 41), although only three of the 24 (13%) had found this of any benefit. Other supplements were used by 76% of patients (31 of 41), and these were either multivitamin combinations (44%, 18 of 41) or individual vitamin and mineral preparations.

Table 2. Dietary supplements given to children with atopic dermatitis

Dietary supplement	Number	%
Evening primrose oil	24	59
Multivitamins	18	44
Vitamin B	2	5
Vitamin C	2	5
Calcium	2	5
Cod liver oil	2	5
Vitamin E	1	2
Zinc	1	2
Sulphur	1	2
Olive oil	1	2
'Mineral tonic'	1	2

Discussion

This study shows that three-quarters of children attending a teaching hospital paediatric dermatology outpatient clinic for the management of AD in a city with a high proportion of patients from ethnic minorities are having their food intake manipulated without orthodox medical supervision. We had previously looked at the incidence of dietary manipulation in 73 children with AD and found that 71% of children had significantly altered their diet,³ and so there appears to have been little change in this practice in the last decade. Over half of diets were unsupervised by doctor or dietician then and remain so now. The major dietary alterations in 1989 had been the exclusion of eggs, dairy products and food additives and, again, there is little change in foods excluded. Interestingly, 13 of 75 (17%) of our present cohort specifically avoided red-coloured foods such as tomatoes, strawberries and ketchup. Red colourings and food additives such as the yellow azo dye tartrazine (E102) are often singled out by homeopathic and 'nutritionist' complementary practitioners who frequently advocate the exclusion of foods of this type in children with AD.² This presumably explains this practice in our cohort.

In our previous study the main supplementation of the diet was simply the replacement of cow's milk by soya or goat's milk, and here things have changed. The addition of EPO or borage oil is high in this cohort, as is the use of multivitamins. The use of EPO in AD has attracted much attention. Our group has previously shown that EPO lacks efficacy in AD⁶ and this has been supported by subsequent multicentre studies⁷ and by a recent systematic review.⁸ Nevertheless, the use of EPO appears to remain widespread in the population.

Another interesting point is that while less than 10% of patients restricting their diet had found this practice to be of any benefit in 1989, 39% of the current cohort told us that unsupervised dietary exclusion had improved their child's skin. We have yet to explain this finding, as we had not asked parents who had excluded or supplemented a foodstuff whether, on rechallenge, the child's dermatitis flared again.

Selection bias has been reduced in this study, as all patients approached agreed to participate. Other factors causing bias such as recall bias or the design of the study, whereby an orthodox medical practitioner asked a patient about diet, might also decrease the reported incidence so that the true figure for dietary manipulation in this population may be even higher than that reported. Factors limiting the validity of this study are

the ability to generalize from this one hospital outpatient department in a teaching hospital in a part of England where there is a high nonwhite population, to the rest of the U.K. and beyond.

The role of food in the aetiopathogenesis of AD remains controversial. Well-controlled studies have demonstrated that food allergens can induce rashes in children with AD,⁹ and many studies report that severity of AD symptoms is correlated with the presence of food allergy,¹⁰ although usually only in younger patients. Clinicians can therefore no longer be surprised that patients try to alter their diet. Although removal of allergens from the patients' diet can lead to clinical improvement, the identification of these and their subsequent avoidance can be difficult for the patient and time-consuming for the dermatologist.¹¹ Conversely, there has been long-standing concern that unsupervised dietary restriction in patients with AD can lead to nutritional deficiency, and a recent evaluation of the food intake in a series of adult patients with AD with particular consideration of self-reported food intolerance led to the authors suggesting that vitamin supplements may become mandatory in this group.¹²

We have shown that the use of food avoidance remains common in children with AD and that this usage has remained relatively stable over the last decade. However, more patients now report dietary manipulation to be of benefit. The use of dietary manipulation must be routinely inquired about when seeing children with AD.

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