

Parental Education in the Treatment of Childhood Atopic Eczema

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To evaluate the role of health education in the treatment of childhood atopic eczema, an eczema school was arranged for the parents. Fifty consecutive patients (aged 4 months-6 years 2 months) with atopic eczema of varying severity were randomly assigned into two groups; one group receiving routine information given by the physician during the medical visit, and the other group also visiting a trained nurse to receive further information on eczema treatment and practical training in controlling atopic eczema. The therapeutic effect was better in the group which had received extra guidance. We suggest that systematic training in eczema treatment should be organised as an important part of eczema treatment.

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Atopic diseases include bronchial asthma, allergic rhinoconjunctivitis, atopic eczema (AE), certain forms of gastrointestinal allergy and urticaria. According to epidemiological studies (1-4), the prevalence of these atopic diseases seems to be increasing. Atopic diseases are a major health problem and, in Sweden, asthma is the most frequent reason for chronic illness among young children (5). The cumulative incidence of AE reported from the different Nordic countries has varied between 10% and 12% (6, 7).

AE is largely a disease of early childhood, starting in 75% of cases by 12 months of age (8). Parental participation is therefore necessary in the management of the treatment. Itch and dry skin together with eczema lesions are the basic features (9, 10). The course is often subject to relapse with an uncertain prognosis (11).

Treatment must be planned individually. Therapy therefore consists of the elimination of exacerbating factors and regular topical treatment (12). In spite of careful elimination and reduction of allergens and

irritating factors, many patients need long-term maintenance treatment with emollients and topical steroids to control xerosis and eczema.

The effective topical treatment of a child with AE is dependent on good management by the parents. As suggested by Witkowski (13), it seems possible to encourage and improve compliance. Regular follow-up visits and good patient-physician relations produce better therapeutic results. Activation, information and education of the patients have also been successful in the treatment of asthma (14, 15). Based on this experience, asthma schools have become common practice in certain countries. In dermatological research, health education is seldom evaluated. In this study, we wanted to see if extra active training and information given at a single session ("nurse's lesson") could improve the therapeutic result in the treatment of AE as compared with that achieved after ordinary medical consultations.

PATIENTS AND METHODS

Fifty consecutive patients (24 girls, 26 boys, aged 4 months-6 years 2 months) from our outpatient clinic were included in the study. They all had active AE of varying severity. The diagnosis was based on the criteria of Hanifin & Rajka (16). The study was carried out as an open study. The patients were divided into two random groups. In group A, the patients received the routine information given by the physician during the medical visit. Group B, in addition, later visited a trained nurse to receive further information and practical training in the treatment of AE. The topical treatment prescribed for the two groups was comparable except for "the eczema school".

In group A, 23 children completed the study (11 girls and 12 boys aged from 4 months to 4 years 5 months; median 2 years 1 month).

In group B, 19 children completed the study (8 girls and 11 boys aged from 1 year 2 months to 6 years 2 months; median 2 years 9 months).

The parents together with the physician filled in a questionnaire in which questions were asked about past medical history and the duration and treatment of the eczema.

Procedure

The children visited the physician at monthly intervals for three months. The topical treatment was arranged to be as effective as possible and the children in both groups were prescribed emollients, topical hydrocortisone and, when indicated, also topical triamcinolone with or without combination with topical antimycotics, systemic antibiotics and antihistamines. Qualitative bacteriological samples before treatment were taken from eczematous skin lesions.

The clinical state was recorded at each visit by registering an eczema score which was based on the severity and distribution of the lesions. At each visit, photographs were also taken to document the eczema and shown to the parents at the return visits. In addition, parents were asked to bring all the tubes prescribed with them on return visits so that the amount of steroids used could be measured by weighing the tubes.

Grading of severity of eczema

An eczema score was assigned to each child, based on the type, intensity and distribution of the lesions.

The intensity was graded from 0 to 4 and erythema, lichenification, vesiculation, excoriation, papules and dryness were scored separately, as followed:

- 0 no symptoms
- 1 mild
- 2 moderate
- 3 marked
- 4 severe

Distribution was scored from 0 to 4 as follows:

- 0 no eczema
- 1 one local site affected
(symmetrical lesions always counted as one locus)
- 2 two local sites affected
- 3 three local sites affected
- 4 four or more local sites affected.

Total eczema score:

The intensity scores for each kind of lesion were multiplied by the distribution score. The maximum score was 96.

Itch was evaluated from 0 to 4:

- 0 no itch
- 1 mild itch not disturbing play or sleep
- 2 moderate itch not disturbing play or sleep
- 3 marked itch disturbing play or sleep
- 4 severe itch disturbing play or sleep

Nurse's lesson

Parents in group B participated in the "eczema school" within the first two weeks after the initial visit to the physician at the Department of Dermatology. Parents in group A participated in the intensive training after the third visit.

The session with the nurse lasted for 2 h and the following points were discussed or trained in practice:

- 1) General information about AE.
- 2) Information about environmental control. Factors known to aggravate AD, e.g. soap, wool, indoor and outdoor climate.

3) Information about topical treatment. Discussion of different kinds of emollients and corticosteroids.

- a) How to use emollients, stressing the importance of continuing the therapy after the eczema seems to have healed.
 - b) How to use topical steroids, explaining that it is sometimes necessary to start with a stronger steroid and go down gradually to milder steroids, in order to find the weakest strength capable of controlling the symptoms.
 - c) Practical advice to make the topical therapy more convenient (management individualized).
 - d) The importance of maintenance therapy.
- 4) Discussion of what can be achieved with topical treatment, to avoid unrealistic expectations.

Statistical analysis

The analyses were performed using the Mann-Whitney test and Spearman's rank correlation coefficient.

RESULTS

Of the 50 children initially included, 42 completed the study. Eight children were excluded, 3 from group A and 5 from group B. Three children had become totally symptomless and the parents were not motivated for the first follow-up visit, two were negative to topical treatment, one family was involved in a car accident, one child was hospitalized for asthma and one child was put on a cow's milk elimination diet because of cow's milk allergy. One child from group B and two children from group A could not come for the last visit after a month. They were checked later but the total eczema score was excluded from visit four.

Forty-one parents had answered the questionnaire and it was found that 12 children had been treated by two or more physicians earlier and seven children had been examined and treated by a homeopath for AE.

The duration of the eczema in group A had been from 1 month to 4 years 2 months (median 1 year 4 months) and in group B 5 months to 6 years (median 2 years).

Qualitative cultures for bacteria were performed in 19 children in group A and in 14 children in group B. In group A, 58% of the children were colonised by staphylococcus aureus, compared to 71% in group B. Two children in each group were treated with oral antibiotics because of overt clinical infection.

At the first visit, the mean total eczema score was 21.3 in group A and 26.4 in group B. The follow-up changes in score for eczema, distribution, and itch are presented in Figs. 1, 2 and 3. In both groups, a

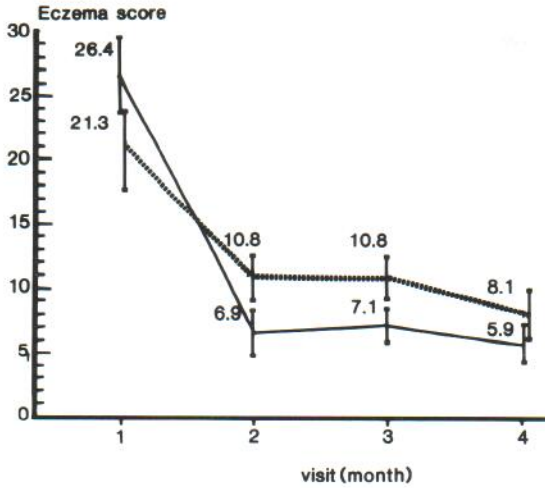


Fig. 1. The changes in eczema score during follow-up in group A and B. The decrease in the score from the first visit to the third visit was significantly greater ($p < 0.05$) in group B. Standard error of the mean (SEM) is indicated in the diagram. Group A, - Group B.

remarkable improvement was seen after one month's treatment. The mean eczema score for group B had fallen to 6.9, and for group A to 10.8. The therapeutic effect was better in group B throughout the 3 month period in terms of eczema score, itch score and distribution score. The decrease in the total eczema score from the first visit to the third visit was significantly greater ($p < 0.05$) in group B than in group A. The same tendency was seen in the scores for itch and distribution of eczema, but the differences between the groups were

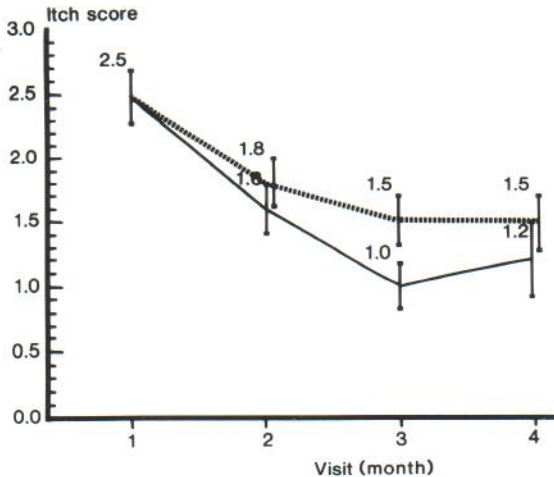


Fig. 2. The changes in distribution score during follow up in group A and B. SEM is indicated in the diagram. Group A, - Group B.

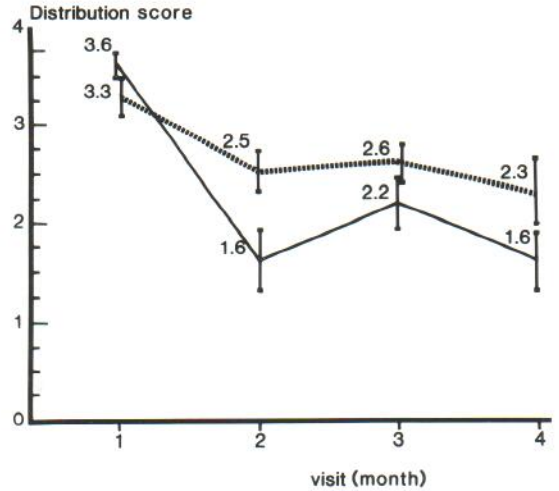


Fig. 3. The changes in itch score during follow up in group A and B. SEM is indicated in the diagram. Group A, - Group B.

not significant for these separate parameters. Itch was not included in the total eczema score since parents found it difficult to evaluate the degree of itching in the youngest children. In group A, the severity of the eczema at the first visit correlated with the degree of improvement as measured by Spearman's correlation coefficient. This correlation was not found in group B, since children with less eczema had also improved significantly.

The amount of topically applied hydrocortisone is shown in Fig.4. Initially, the consumption of hydrocortisone was significantly greater in group B ($p < 0.001$). At visit three, the amount used was still significantly higher in group B ($p < 0.01$). Fourteen children in group A and 12 children in group B were prescribed triamcinolone at the first visit. The consumption was greater in group B during the first month (median 18 g) but decreased to the last visit (median 8 g).

Parents were usually very positive about the visit to the nurse, and 19 of 20 in group B answered that they had learned something new about eczema treatment; 15 of 20 hoped for more information, such as lectures about AE.

DISCUSSION

As discussed by Milton (17) and Lasagna (18) doctors must be aware of the phenomenon of non-compliance and its consequences. The therapeutic compliance with basic therapy is one of the crucial fac-

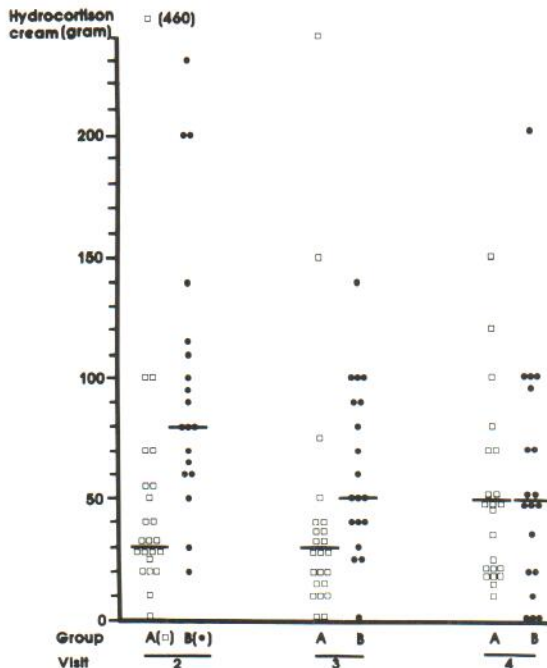


Fig. 4. Amount of hydrocortisone used in group A and B measured at return visits. Initially, the consumption of hydrocortisone was significantly greater in group B ($p < 0.001$). At visit three the amount used was still significantly higher in group B ($p < 0.01$). One value is missing from group A at visit four. The median value is indicated in the figure.

tors in the management of eczema (19). When we treat children, we are faced with the parents who will take care of the treatment. The more knowledge they receive about the disease, the better their motivation to treat it will be. Asthma schools have been found to be of great help in educating patients, giving them psychological support and increasing their compliance with therapeutic regimens (14, 15). If patients and their parents are given more time, they respond better, as has been stressed by Vicker (20). To make this information more effective, an eczema school with the help of a nurse was arranged. We wanted to evaluate the effect of better information. This could, however, only be performed as an open study; we found no reasonable way of carry out a double-blind study.

Significant improvement was found in patients after one month's treatment. However, the results showed that a better therapeutic response was achieved in those children who had taken part in the nurse's lesson. This was also reflected in their treatment manoeuvres with the prescribed regimen. The

amount of steroids used was the only quantitative parameter that we found could be measured objectively in this situation. In both groups we found a wide variation in the use of topical hydrocortisone (Fig. 4) but the amount used in group B was initially high and decreased, while the hydrocortisone consumption increased in group A after the visit to the nurse, due, as we interpreted it, to previous undertreatment of the disease. The emollients were also used more regularly and in greater amounts after the eczema school (not documented by weighing). At visit four, three children in group B with excellent clinical results used only emollients, while in group A, no child could manage with only emollients.

In group B, a favourable therapeutic response was seen in each child whereas in group A it was mainly children with severe eczema that improved. This could be explained as indicating that in patients with moderate, chronic lesions, information and reassurance were even more important than in the acute, severe cases.

The effect of the eczema school is difficult to evaluate. It is not only a decrease in eczema score that is important since small variations are difficult to relate to degree of clinical importance but the parental and even the whole family situation could also be altered by greater confidence, with more knowledge about the disease and its treatment. We found that photographs were of good help when we discussed the result of treatment.

Parents in the two groups were very positive and enthusiastic about this kind of information and many of them wanted more information, e.g. lectures. Many parents are quite depressed about their child's illness and would like more information about the nature of the disease and how the treatment works. Physicians do not generally have enough time to talk to them, and in hope of getting help many even try homeopaths. Promises are also given in many quasi-medical articles about treatment procedures that will heal the AE. These articles also add fuel to unjustified fears of conventional therapy, which may lead to the critical attitude we often meet from parents. As seen in this study and others (21), it is not unusual for parents to choose unorthodox treatment or uncontrolled dietary therapy because of poor knowledge about AE (22).

Our experience of working with the eczema school has been very rewarding. In spite of the small patient sample, our findings suggest that routine information given by the physician is not enough and that

clinical results can be further improved by more information and follow-up.

The "eczema school" could consist of three parts:

- 1) Initially, regular and frequent visits to the physician until good control of the condition is achieved. At each visit, the amount of ointment used is recorded.
- 2) Active training, as given in this study at a single session by a nurse.
- 3) Lectures about AE.

This kind of management can give the child and the parents the reassurance, information and encouragement that are so important in the treatment of AE (23).

REFERENCES

1. Morrison Smith J, Harding LK, Cumming G. The changing prevalence of asthma in school children. *Clin Allergy* 1971; 1: 57-61.
2. Taylor B, Wadsworth J, Wadsworth M, Peckham C. Changes in the reported prevalence of childhood eczema since the 1939-45 war. *Lancet* 1984; 2: 1255-257.
3. Haahtela T, Heiskala M, Suoniemi I. Allergic disorders and immediate skin test reactivity in Finnish adolescents. *Allergy* 1980; 35: 433-441.
4. Hanifin J. Epidemiology of atopic dermatitis. *Monogr Allergy* 1987; 21: 116-31.
5. Westbom L, Kornfält R. Chronic illness among children in a total population. *Scand J Soc Med* 1987; 15: 87-97.
6. Schultz Larsen F, Holm N, Henningsen K. Atopic dermatitis. A genetic-epidemiologic study in a population-based twin sample. *JAAD* 1986; 15: 487-494.
7. Åberg N, Engström I, Lindberg U. Allergic diseases in Swedish school children. *Acta Paediatr Scand* 1989; 78: 246-252.
8. Pike M, Atherton DJ. Atopic eczema. In: Brostoff J, Challacombe SJ, eds. *Food allergy and intolerance*. London: Bailliere & Tindall, 1987: 583-601.
9. Rajka G. On definition and framework of atopic dermatitis. *Acta Derm Venereol (Stockh)* 1989; Suppl 144: 10-12.
10. Rajka G. Natural history and clinical manifestations of atopic dermatitis. *Clin Rev Allergy* 1986; 4: 3-26.
11. Hanifin J. Atopic dermatitis. *JAAD* 1982; 6:1 -13.
12. Hanifin J, Cooper K, Roth H. Atopy and atopic dermatitis. *JAAD* 1986; 15: 703-706.
13. Witkowski J. Compliance: The dermatologic patient. *Int J Dermatol* 1988; 27: 608-611.
14. Lewis C, Rachelefsky G, Lewis MA. A randomized trial of ACT (asthma care training) for kids. *Pediatrics* 1984; 74: 478-486.
15. Taggart VS, et al. Adapting a self-management education program for asthma for use in an outpatient clinic. *Ann Allergy* 1987; 58: 173-178.
16. Hanifin J, Rajka G. Diagnostic features of atopic dermatitis. *Acta Derm Venereol (Stockh)* 1980; Suppl. 92: 44-47.
17. Milton D. Variations in patients compliance with doctors orders: Analysis of congruence between survey responses and results of empirical investigations. *J Med Educ* 1966; 41: 1037-1048.
18. Lasagna L. Fault and default. *N Engl J Med* 1973; 289: 267-268.
19. Rasmussen J. Advances in nondietary management of children with atopic dermatitis. *Pediatr Dermatol* 1989; 6: 210-215.
20. Vicker C. The natural history of atopic eczema. *Acta Derm Venereol (Stockh)* 1980; Suppl 92: 113-115.
21. Hederos CA. Unorthodox therapy is common among children with allergic diseases. *Läkartidningen* 1988; 85: 3580-3583.
22. Webber SA, Graham-Brown RA, Hutchinson P, et al. Dietary manipulation in childhood atopic dermatitis. *Br J Dermatol* 1989; 121: 91-98.
23. Champion RH, Parish WE. Atopic dermatitis. In: Rook RH, Wilkinson DS, Ebling FJG, Champion RH, Burton JL, eds. *Textbook of dermatology*, 4th ed. Oxford: Blackwell Scientific Publication, 1986: 419-434.