

5. Treatment success factors: diagnostic and treatment choices and patient education

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In eczema, many factors influence treatment success. This interactive session included discussion of two case histories, illustrating the range of diagnostic procedures and treatment options available in eczema, and the variety of solutions that individual clinicians might choose. When inflammation and infection are both present, a topical treatment that combines anti-inflammatory and anti-infectious actions is an excellent choice. Even if the correct diagnosis is made and the correct therapy prescribed, poor compliance with treatment will result in failure. A structured standardized atopic eczema education programme used in Germany, which has been shown to improve compliance and outcomes, is described. A combination of the doctor's skills, the use of evidence-based medicine and patient education all contribute to treatment success.

INTRODUCTION

All clinicians want to combine good medical skills with the best and most current information available when making treatment decisions for their patients. Because there are so many treatment options available, we must carefully consider the factors that define treatment success. These include outcome measures such as scores, as recorded in clinical trials; quality of life; adverse events; economic impact; disease management; and compliance.

Quality of life and adverse events are self-explanatory, but studies have shown that there is often a poor correlation between the patient's and physician's assessments of how successful the treatment has been. In many countries, economic implications are an increasingly important factor in choice of therapy, particularly for disease management in chronic conditions such as atopic eczema. Finally, patient compliance is a key determinant of whether treatment will succeed.

This article describes an interactive session during which two patient case histories were presented and audience members voted on their choice of diagnosis and therapy. Following these practical illustrations of how different clinicians may arrive at different treatment decisions, the article briefly describes a standardized atopic eczema education programme that we have developed in Germany, and the trial that we performed to determine its effectiveness.

KEYPAD VOTING

During the interactive part of the session, audience members voted anonymously from multiple-choice

alternatives using wireless keypads. The results were displayed on a screen immediately after each vote.

Seventy audience members participated in the keypad voting. The results showed the following regional splits: 39% from Northern Europe (including the UK and Ireland); 23% from Central Europe (including Germany, Switzerland, Austria and the Benelux countries); 21% from Southern Europe; 7% from the Middle East; 3% from North America; and 7% from the rest of the world. Although some geographic patterns in the results are mentioned below, it should be understood that the actual numbers representing some regions were very small.

The breakdown of audience responders by profession was as follows: dermatologists 73%; paediatricians 1%; other doctors 6%; nurses 1%; scientists 10%; and other professions 9%. Twenty-nine percent of audience responders worked in private practice; 46% in hospitals; 22% in industry; and 3% elsewhere.

CASE HISTORY 1: OCCUPATIONALLY-RELATED HAND ECZEMA

JH, a 54-year-old drilling machine operator, had an occupational accident 16 years ago that required grafting a flap of skin from his groin onto his hand. He was able to continue working for 15 years following the accident, but last year developed occupationally-related eczema in the area of the skin graft (Fig. 1a). This eczema, which was chronically relapsing, was getting worse after exposure to skin hazards at the workplace. Audience members were asked to vote on diagnosis, diagnostic procedures and treatment: the results are described in Table I.

Approximately 33% of audience responders diagnosed this case as irritant contact dermatitis, and 41% diagnosed it as allergic contact dermatitis. Participants from Northern Europe were more likely to diagnose irritant contact dermatitis, while those from North America diagnosed irritant or allergic contact dermatitis at equal rates and those from other countries were more likely to choose allergic contact dermatitis. In fact, we diagnosed both allergic and contact dermatitis at our clinic.

All of the suggested options for testing attracted votes (including no testing at all), but the highest percentage of audience responders were in favour of mandatory patch testing plus bacteriology (25%) or patch testing after treatment, plus bacteriology (24%). We performed patch testing at our clinic using standard and other work-related series, and also tested substances from



Fig. 1. Case history 1: hand of patient JH, showing (a) eczema localized to the area of grafted skin, and (b) appearance after 10 days of treatment.

the patient's workplace. The test results showed that JH had positive Type IV sensitizations against thiuram mix, tetramethyl thiuram disulfide, tetramethyl thiuram monosulfide, tetraethyl thiuram disulfide (disulfiram), dipentamethylene thiuram disulfide and nickel. Some of these products are present in rubber. The condition had started as irritant contact dermatitis due to skin contact with the rubber inside the gloves that JH wore at work, and had developed into an allergic dermatitis. The fact that the reaction was limited to the area of the skin graft suggests that the barrier function of that skin had been compromised.

Table I. *Diagnosis and treatment of occupationally-related hand eczema: results of audience polling for case history 1*

Questions and answers	Votes (%)
<i>1. What is the correct diagnosis?</i>	
Irritant contact dermatitis	32.8
Allergic contact dermatitis	41.0
Infected skin flap	14.8
Tinea manuum	3.3
Other	8.2
<i>2. What diagnostic procedures are needed?</i>	
Patch testing is mandatory	4.8
Patch testing is mandatory, plus bacteriology	25.4
Patch testing after treatment	19.0
Patch testing after treatment, plus bacteriology	23.8
Patch testing after treatment, plus bacteriology and mycology	19.0
No diagnostic procedures needed	7.9
<i>3. What treatment would you prescribe?</i>	
Potent topical corticosteroids	29.4
Mild topical corticosteroids	2.9
Potent topical corticosteroids plus UV phototherapy	0.0
Mild topical corticosteroids plus UV phototherapy	0.0
Topical anti-infective treatment plus UV phototherapy plus emollients	11.8
UV phototherapy plus emollients	0.0
Mild topical corticosteroids plus topical anti-infective treatment	47.1
Others	8.8

The most popular audience choices for therapy in this case were mild topical corticosteroids plus topical anti-infective treatment (47%) or potent topical corticosteroids (29%). Mild topical corticosteroids plus topical anti-infective treatment was the most popular choice in all regions except for the Middle East. It is not surprising that so many participants included an anti-infective component in their choice of therapy, since *Staphylococcus aureus* is commonly found in all types of eczema (1–2). In fact, JH had already been unsuccessfully treated using potent topical corticosteroids alone for several weeks. We therefore prescribed an initial course of fusidic acid together with a mild steroid, in order to address the patient's superinfected mild eczema and to supplement the anti-inflammatory properties of the corticosteroids with an additional topical anti-infective treatment. A treatment with corticosteroids alone would not have been as effective as combination therapy in this case.

Treatment was continued with cream psoralen plus ultraviolet light A (PUVA) therapy and emollients. Within 10 days, the patient's eczema had cleared (Fig. 1b).

CASE HISTORY 2: ATOPIC ECZEMA

GW, a 27-year-old man had had typical atopic eczema as a child, but had been free of it as an adult until he acquired chronic relapsing hand dermatitis 2 years ago. GW also suffered from hyperhidrosis of the hands and feet and from itchy, dry skin. Upon examination, his hands showed signs of inflammation and there was eczema on his wrists (Fig. 2). I always interpret eczema on the wrists as an indicator that the condition is atopic eczema of the hands.

Tests showed that GW had a serum IgE level of 10.5 kU/l. He responded positively to the Phadiatop test for a specific birch pollen (CAP class 1) and to prick tests for birch, hazel and alder pollen. He also had a positive patch test to epoxy resin, though this played no



Fig. 2. Case history 2: atopic eczema.

role in his current eczema. Audience members' choices for first-line treatment and additional recommended measures are described in Table II.

A wide range of treatment options is available. As can be seen, most audience responders chose either anti-inflammatory plus topical anti-infective treatment (52%) or anti-inflammatory treatment with topical corticosteroids (23%). The former was the most popular choice in all regions except North America, where most responders chose either anti-inflammatory treatment with topical corticosteroids or topical immunomodula-

tors (TIMs). TIMs, or combination therapies including TIMs, were chosen by very few European audience members, and were favoured only by those from the Middle East and North America. Typically, either corticosteroids or TIMs can be used depending on the severity and extent of eczema; however, since *S. aureus* is commonly found in atopic eczema, the inclusion of an anti-infective component will accelerate the healing process and support the anti-inflammatory treatment.

The patient was treated successfully at our clinic with a combination product containing betamethasone and fusidic acid, applied topically. This combination provides a high, rapid rate of healing in infected eczema, as has been demonstrated in several studies (2). Our own clinical experience has shown that the chosen combination is very effective and can significantly shorten time to healing.

Audience responders had a wide range of opinions on other possible recommended measures for GW. Nearly two-thirds of the audience recommended an eczema school (i.e. standardized eczema education programmes – see below), either alone or in combination with other treatment. However, very few audience members from the Middle East would recommend eczema schools, suggesting that such schools are not yet an established concept there. UV phototherapy is an effective treatment for eczema, particularly hand eczema. If hyperhidrosis is a significant cofactor of hand eczema, tap water iontophoresis should be considered in addition to topical treatment.

Tap water iontophoresis was used successfully at our clinic to improve GW's hyperhidrosis, and we also encouraged him to attend an eczema school. This last

Table II. Treatment of atopic eczema: results of audience polling for case history 2

Questions and answers	Votes (%)
<i>1. What would be your first-line treatment?</i>	
Anti-inflammatory treatment with topical corticosteroids	23.3
Anti-inflammatory plus topical anti-infective treatment	51.7
TIMs	6.7
Anti-inflammatory treatment with topical corticosteroids plus TIMs	5.0
Anti-inflammatory plus topical anti-infective treatment plus TIMs	11.7
Other	1.7
<i>2. In addition, would you recommend</i>	
Eczema school	36.1
UV phototherapy	16.4
Tap water iontophoresis	3.3
Eczema school plus tap water iontophoresis	9.8
UV phototherapy plus tap water iontophoresis	4.9
Eczema school plus UV phototherapy plus tap water iontophoresis	19.7
Other	9.8

TIMs: topical immunomodulators.

measure is very important, because correct diagnosis and choice of therapy do not ensure success unless the patient complies with treatment.

COMMENT ON THE CASE HISTORY VOTING

Most questions attracted a wide range of answers, and apart from the regional variations described above, this wide range appeared across all regions. A wide variety of answers was also seen among dermatologists, who comprised the largest proportion (73%) of audience members. It is reasonable to assume that all respondents would want to provide their patients with the best possible care, and that they all have an interest in keeping up with the evidence, demonstrated by the fact that they were attending a scientific congress. While the audience did not have as full a clinical picture as they would have had in real life, the variety of responses illustrates how several doctors faced with a similar case may choose different treatment solutions.

CONTENTS OF AN ECZEMA SCHOOL COURSE

Compliance is a key factor in achieving treatment success. As a result, "eczema schools", or standardized eczema education programmes, have been developed in several countries, with the goal of increasing patients' understanding of their condition and its treatment and improving their subsequent compliance. The rest of this article briefly describes a programme of this type that we have developed in Germany.

Our standardized atopic eczema education programme, which has been proven effective in a multicentre clinical trial (3), consists of 6 once-weekly 2-h sessions. Although several educational interventions have been developed for adult patients with atopic dermatitis over the years (4), the German Atopic Dermatitis Intervention Study (GADIS) is the first to demonstrate the efficacy of educational intervention in a large, randomized, controlled clinical trial. The trial covered only courses directed at patients aged up to 18 years, but in Germany there are also eczema schools for adults.

Each 2-h session is led by members of a multi-professional team that may include a dermatologist, paediatrician, psychologist, dietician and nurse (Table III). Each team member receives 40 h of training before participating, and a detailed training manual specifies the content of each lesson. The lessons are age-related and may be attended by the parents of children aged 3 months to 7 years; by children aged 8–12 years with parents attending separate sessions; by adolescents aged 13–18 years; or by adult patients. This strategy maximizes patient and parent education, and can complement a symptom-oriented therapeutic approach. It

Table III. *Structure and contents of the standardized atopic eczema education programme*

Session	Team	Topics
1	Dermatologist/Paediatrician + Psychologist	Introduction Basic medical information about atopic eczema Relaxation techniques
2	Psychologist	Stress management Dealing with itching and scratching Sleep disturbance
3	Nurse	Recognition and avoidance of triggering factors Daily skin care
4	Dermatologist/Paediatrician	Stage-related treatment of symptoms Alternative therapies
5	Dietician	General child nutrition Food allergies in atopic eczema Different forms of diets
6	Dermatologist/Paediatrician + Psychologist	Issues of coping Self-management plan Problems in transfer to daily routine

is particularly appropriate for atopic eczema, where consideration of psychological and nutritional aspects and topical and systemic therapy combinations may be required to address the underlying multi-factorial pathophysiology of this chronic disease. In addition to treating the symptoms of atopic eczema in childhood and adolescence, providing educational support for parents can be an important factor in achieving a positive long-term outcome.

The programme covers medical, nutritional and psychological issues. The first session provides introductory information on atopic eczema and teaches relaxation techniques, which can help patients to cope with their disease. An important topic in the fourth session is "stage-related treatment of symptoms", which discusses how long patients should self-treat before seeing their physicians. A plan for self-management is included in the sixth session. Taken as a whole, the programme helps patients to take control of their disease by teaching them to manage it effectively (5). It also reassures patients that treatments are safe and effective, and helps to alleviate the "steroid phobia" exhibited by some parents. Patients are taught to apply topical treatments properly, and are motivated to continue their treatment (including appropriate modified treatment when the eczema is in remission).

Participants are encouraged to share personal experiences and exercise newly learned skills in all programme sessions. The course does not specify a particular treatment regimen; individual therapy remains the responsibility of patients' doctors.

Table IV. Differences in changes in severity of eczema at one-year follow-up between an intervention group who attended an eczema school, and a control group who did not. Data from Staab et al. (3)

Age group		Difference in change of score (95% CI): Control group – intervention group		p-value
3 months to 7 years (Intervention: n=274; Control: n=244)	Total severity score ^a	-5.2 (-8.2 to -2.2)		0.0002
	Objective severity score ^a	-4.2 (-6.8 to -1.7)		0.0009
	Subjective severity	-1.1 (-1.9 to -0.3)		<0.001
8–12 years (Intervention: n=102; Control: n=83)	Total severity score ^a	-8.2 (-13.6 to -2.8)		0.003
	Objective severity score ^a	-6.7 (-11.2 to -2.1)		0.005
	Subjective severity	-2.1 (-3.4 to -0.8)		<0.001
13–18 years (Intervention: n=70; Control: n=50)	Total severity score ^a	-14.5 (-21.2 to -7.9)		<0.0001
	Objective severity score ^a	-9.9 (-15.5 to -4.3)		<0.0001
	Subjective severity	-2.1 (-3.5 to -0.7)		<0.0022

^aScoring of atopic dermatitis scale.

EFFECTIVENESS OF THE STRUCTURED EDUCATION PROGRAMME

A multicentre, randomized controlled trial conducted at 7 hospitals in Germany examined whether attendance at the education programme had an effect on the long-term outcome of atopic eczema (3, 5, 6). Information was collected from 992 families with children (aged 3 months to 18 years) who had moderate to severe atopic eczema. The children were split into 3 groups according to age, were randomized to attend the 6-week education course or to receive no education, and were followed up at one year. Outcome measures included severity of eczema according to the atopic dermatitis scale (7), and subjective severity according to standardized questionnaires.

At one year, severity of eczema and subjective severity had improved significantly in the groups that had received education compared with the control groups (Table IV), so that the benefits of education were shown to be long-lasting. In terms of the goal of achieving better disease management and health behaviour, these are very promising results.

The results also showed that poor compliance, which is a major cause of treatment failure, can be improved through education. Patients/parents need access to clear, consistent and informed advice about their disease and the benefits and proper use of treatment.

CONCLUSION

A combination of the doctor's skills, use of evidence-based medicine and patient education all contribute to treatment success.

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DISCUSSION

Q: Is the efficacy of fusidic acid in atopic eczema due to its antimicrobial effect or due to a possible anti-inflammatory effect?

Leung: This is a good question, but, to my knowledge, fusidic acid does not have intrinsic anti-inflammatory effects, and this is borne out by the results of the studies that examined fusidic acid and steroids as single components or in combination.