RESEARCH LETTER

Improving Patient Education With an Eczema Action Plan: A Randomized Controlled Trial

A major challenge to atopic dermatitis (AD) management lies in its complex treatment, which must be tailored for both acute exacerbations and long-term maintenance. The addition of a written eczema action plan (EAP) to the routine verbal instruction (VI) may enhance patients' understanding of AD and facilitate treatment adherence.[1] This randomized controlled study was designed to evaluate the effect of a written EAP on patient and caregiver understanding of AD, distress level regarding treatment regimen, and preference for the addition of an EAP compared with those receiving traditional in-office VI.

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Methods. The study was approved by the New England Institutional Review Board (IRB No. 11-137; IORG registration No. IRB00000755), registered at ClinicalTrials.gov (NCT01660217), and conducted at a private dermatology office. The study schema flow diagram is shown in the **Figure**. Thirty-seven participants were randomized to receiving either VI or EAP (eAppendix 2; http://www.jamaderm.com) at the end of a clinic visit. The EAPs were tailored to each patient given their age, location, and disease severity. After receiving either VI or EAP, the participants completed surveys (eAppendixes 3 and 4) on their self-perceived understanding, comfort, and anxiety level regarding AD management. The initial VI group then crossed over and received an EAP, and their outcomes were assessed again. The effect of the EAP on participants' perception of AD management was compared with that of VI. Their responses were recorded on a numeric scale of 0 to 10, with 10 indicating the most positive self-perception. The control group participants were asked whether they preferred VI alone, the EAP alone, or both, and to list reasons for their preference.

Results. The baseline demographic features of the study population are summarized in **Table 1**. The mean patient self-perception scores indicated that, compared with VI only, an EAP significantly improved the participants' understanding of their individualized treatment plan (8.0 vs 9.4) ($P=.02$), benefits and risks of the prescribed medication (7.1 vs 8.7) ($P=.02$), anatomic location of medication use (8.3 vs 9.7) ($P=.03$), duration of treatment (7.6 vs 9.7) ($P<.01$), recognizing AD exacerbating factors (7.0 vs 8.8) ($P=.02$), and adjusting treatment based on disease severity (6.6 vs 9.1) ($P<.01$). The interventional group participants also reported feeling significantly more comfortable about their treatment plan (8.2 vs 9.7) ($P<.01$) and less anxious about caring for AD at home (0.7 vs 3.5) ($P<.01$). Mean patient response scores indicated no statistical differences in the understanding of eczema (7.2 vs 8.4) ($P=.07$) or the ability to recognize disease remission (8.6 vs 7.5) ($P=.10$) between the 2 groups.

The control group that initially received VI crossed over to receive EAP 10 minutes after receiving VI. These participants reported similar improvement in all aspects of AD management compared with receiving VI alone (**Table 2**). All control group participants preferred to have their providers use both VI and a written EAP during their in-office visits. Most indicated that an EAP provides helpful visualization, a

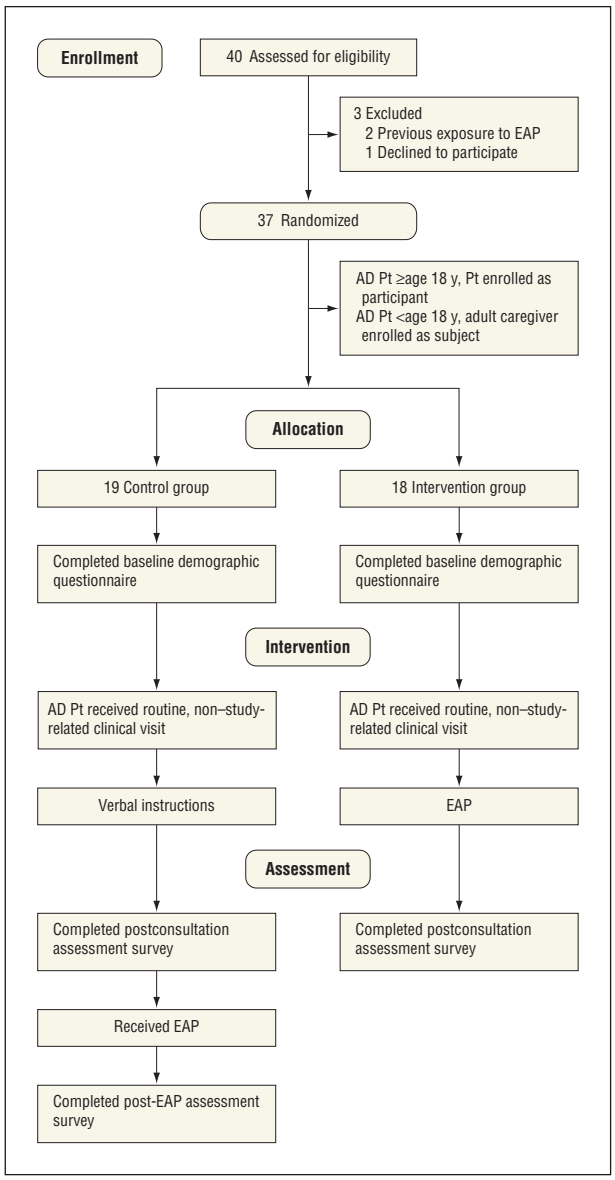

Figure. Group randomization and study schema flow diagram. AD indicates atopic dermatitis; EAP, eczema action plan; Pt, patient.

stepwise treatment approach (n = 13, 68%), and a daily reminder (n = 15, 80%). Sixteen participants (84%) also believed that an EAP decreases confusion on treatment modification with respect to disease fluctuation.

Table 1. Demographic Characteristics of the AD Control and Intervention Groups

Patient Characteristic	Patients With AD[a] Control (n = 19)	Intervention (n = 18)	*P* Value
Sex			
Female	8 (42)	9 (50)	.60
Male	11 (58)	9 (50)	
Age, mean (SD), y	41.1 (18)	37.2 (9.7)	.40
Adult patient	8 (42)	10 (55.6)	.20
Caregiver of pediatric patient	11 (58)	8 (44.4)	.20
Highest education completed			
High school	1 (5)	1 (5.6)	.20
Some college	5 (26)	1 (5.6)	
College	13 (68)	16 (88.9)	
Employment status			
Unemployed	5 (26)	8 (44.4)	.40
Employed full time	9 (47)	7 (38.9)	
Employed part time	1 (5)	2 (11.1)	
Student	1 (5)	1 (5.6)	
Retired	3 (19)	0	
Time since AD diagnosis, mean (SD), mo	82.3 (30.0)	92.8 (48.0)	.80
Disease control on current regimen, self-perception score, mean (SD)[b]	4.4 (3.0)	4.0 (4.0)	.70
IGA			
0 (Clear)	0	0	.80
1 (Almost clear)	5 (26)	7 (39)	
2 (Mild disease)	11 (58)	7 (39)	
3 (Moderate disease)	3 (16)	3 (17)	
4 (Severe disease)	0	1 (6)	
5 (Very severe disease)	0	0	

Abbreviations: AD, atopic dermatitis; IGA, investigator's global assessment score.
[a] Unless otherwise noted, data are reported as number (percentage) of patients.
[b] Patient self-perception of AD management ranged from 0 to 10, with 10 indicating the most positive self-perception.

Comment. Improvement in methods for patient education needs to parallel the rising disease burden of AD. Though some authors have proposed the use of a written action plan to improve AD outcome,[1-3] this is the first randomized controlled study on the utility of an EAP as an instruction tool. This is also an EAP interventional study that examined both an adult and pediatric population.

Evaluation of the VI vs EAP understanding scores confirmed the use of an EAP as an effective education tool. Participants who received an EAP reported a significant decrease in anxiety and increase in comfort about AD self-management. This finding is in concordance with a previous quality improvement study on the clinical utility of EAPs for parents of children with AD.[3]

The EAP may bring even greater educational and psychosocial benefits to a less educated population or where comprehension may be impaired due to language barriers. Additionally, since patients with more severe disease often require more complicated management plans, EAPs may be especially helpful in those cases.

In our experience, the use of an EAP lengthens the initial office visit by 3 to 5 minutes, but improves understanding and comfort with the plan. This has potential to reduce future consultation time, improve treatment outcomes and quality of life, and reduce economic burden. However, determining whether the self-reported benefits of an EAP from this study lead to long-term clinical success will require future studies with longer follow-up, expanded measurement parameters, and methods that separate the EAP from the educational material to fully answer these questions.

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Table 2. Summary and Comparison of Responses With EAP Use vs VI Only

Management Area	Patient Understanding Score, Mean (SD)[a] Control (VI) (n = 19)	Intervention (EAP) (n = 18)	Control, After Addition of EAP (VI + EAP)	*P* Value Control vs Intervention (VI vs EAP)	Control, Before EAP vs Control After EAP (VI vs VI + EAP)
Eczema	7.2 (2.6)	8.4 (1)	9.4 (0.8)	.07	<.01[b]
Daily treatment plan	8.0 (2.5)	9.4 (0.9)	9.9 (0.2)	.02[b]	<.01[b]
Benefits/risks of medication	7.1 (2.4)	8.7 (1.2)	9.4 (0.6)	.02[b]	<.001[b]
Application location	8.3 (2.6)	9.7 (0.6)	9.8 (0.4)	.03[b]	.02[b]
Duration of treatment	7.6 (2.7)	9.7 (0.6)	9.8 (0.4)	<.01[b]	<.01[b]
Exacerbating factors	7.0 (2.8)	8.8 (1.4)	9.2 (1.1)	.02[b]	<.01[b]
Remission recognition	7.5 (2.2)	8.6 (1.8)	9.6 (0.6)	.10	<.001[b]
Adjust treatment based on AD severity	6.6 (2.9)	9.1 (1.3)	9.7 (0.5)	<.01[b]	<.001[b]
Comfort with treatment plan	8.2 (2.2)	9.7 (0.6)	9.8 (0.4)	<.01[b]	<.01[b]
Anxiety for AD care at home	3.5 (3.4)	0.7 (0.9)	1.7 (1.8)	<.01[b]	.046[b]

Abbreviations: AD, atopic dermatitis; EAP, eczema action plan; IGA, investigator's global assessment score; VI, verbal instruction.
[a] Patient self-perception of AD management ranged from 0 to 10, with 10 indicating the most positive self-perception.
[b] Statistically significant finding.

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PRACTICE GAPS

Engaging Patients in Eczema Care From Planning Through Implementation

Although the use of visual aids and action plans is not new in chronic disease management, their use in the dermatologic setting is relatively novel. Engaging patients with eczema in their treatment planning is essential because the patients have a disease that is incurable and relies heavily on patient management of triggers and symptoms. As demonstrated by Shi et al,[1] patients find a visual aid helpful and acceptable when discussing treatment for their eczema. More than mere instructions, an action plan details daily management, avoidance of triggers, and handling exacerbations. It is not currently known if dermatologists currently give instructions to patients that focus solely on routine or include other parts of an action plan. One practice gap is that we do not know what proportion of dermatologists think of eczema as a disease that merits the creation of a patient action plan and is well suited to this paradigm of management.

A second practice gap highlighted by Shi et al[1] is related to the use of patient educational materials. It is well known that patient recall is not perfect, and even patients who understand their treatment plan at the time of the visit may forget important components later on. Many clinicians rely solely on spoken instructions; however, research has found that, generally, patient recall is enhanced when the spoken word is augmented with written instructions.[2]

Much work has gone into design and testing of patient education materials. Although excellent materials may exist about atopic dermatitis, these are not tailored for the individual patient and his or her symptoms and treatment plan. Clinicians are often concerned that tailoring materials will require extra time. However, the clarity that is gained may save later phone calls and office visits to correct misunderstood information. If clinicians believe that current materials are inadequate for their practice, simple rules related to plain language and health literacy concerns are readily available.[3]

An additional gap when giving instructions regarding topical medications is failing to provide physical or visual demonstrations, which may be even more important than verbal communication. Clinicians need to keep in mind that they are asking patients to remember procedural (ie, physical) information and that encoding of memories is enhanced by acting out the procedure.[4] Showing patients how to apply medications and having them demonstrate such application may increase the chances that the medications are applied appropriately and result in better adherence to the treatment plan.

There are many barriers to engaging patients in this manner. Finding or revising patient materials, changing one's strategy for interacting with patients, and perhaps most importantly, treating patients as equals in this process are not easy tasks. Yet patients have a vested interest in keeping their disease under control, and measures that could empower them to do so have the potential for lasting impact.

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