



Figure 1. Clinical photograph of AA during dupilumab treatment.

improvement of his AD was seen, and the appearance of uninflamed, nonscarring, and even circular patches of alopecia was described.

Fungal microscopy and polymerase chain reaction did not identify any dermatophytes or yeast. In view of the possibility of false-negative findings, he was nevertheless treated with ketoconazole shampoo 2%. Despite this reaction, our patient chose to remain on dupilumab treatment because of the satisfied outcome and improvement of AD. The patient reported gradual improvement of AA after an additional 3 weeks of treatment.

This case is the second occurrence reported worldwide of a patient treated with dupilumab for AD, who developed AA. Because dupilumab is improved as a newly targeted biological treatment of AD, it is important to be aware of any potential adverse reaction.

One may, however, question whether the AA that has now been described by 2 patients is accurately interpreted as an adverse effect, or if rather, it represents a relapse of an underlying subclinical AA. The timeline for the AA (1-week posttreatment) seems short for a medication-induced AA. Alopecia areata is a common and chronic skin disease with an unknown etiology, which raises the possibility of an independent occurrence.

Another argument for considering the AA of our patient as sporadic is the fact that the patient reported gradual improvement of AA after an additional 3 weeks of dupilumab.

There are some case reports suggesting that dupilumab may be a proper treatment of AA.⁴ This could be due to common pathways that are activated in both AA and AD, such as T helper 17 and IL-13, which is significantly upregulated in both AD and AA lesions compared with nonlesional skin.⁵

There is therefore a need of more studies to understand the impact of dupilumab on AA.

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Validation of an Evidence-based Educational Smartphone Application for Atopic Dermatitis

To the Editor:

With a lifetime prevalence of 20% in the United States, atopic dermatitis (AD) is the most burdensome skin condition in the United States.¹ With mean adherence to recommended treatments at 32%, incomplete use of mainstay therapy may contribute to the high morbidity observed.² Inadequate education about eczema and treatments significantly affects adherence. As mobile technology becomes ubiquitous, patients are seeking smartphone applications (apps) as educational resources in managing chronic medical conditions such as AD.

Because patient education is crucial in adherence, we wanted to understand the role of evidence-based apps in patient education on AD. We hypothesized that patients would prefer educational materials for AD in app form over the traditional paper format.

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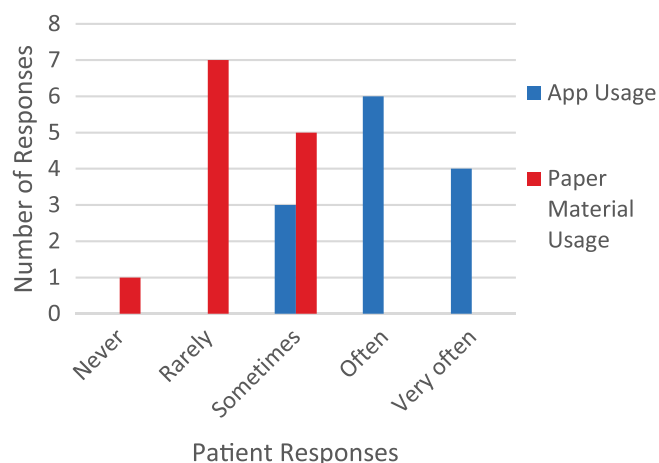


Figure 1. Subjective data on app versus paper material use after 4 weeks of use. Participants were asked how often they used the app versus paper material.

Our app, EczemaDoc, was created with 6 main learning objectives. Application contents included (1) causes, (2) exacerbating factors, (3) treatment, (4) product recommendations, (5) helpful websites, and (6) references. Contents were sourced from the American Academy of Dermatology guidelines (*Journal of the American Academy of Dermatology* 2014), the National Eczema Association, and educational handouts used in the pediatric dermatology clinic at Children's Medical Center in Dallas, Texas. The app contained an internal tracker to quantify usage.

Both app and paper materials were distributed to parents of patients (because of young age of patients) with a new diagnosis of AD at Children's Medical Center in Dallas, Texas. Patients aged 0 to 18 years with English-speaking parents possessing an app-capable smartphone were included. Patients with an existing AD app downloaded were excluded as this exhibited a preference for app materials with usage patterns potentially differing from average patients. A uniform script was used when enrolling patients, gathering data, and distributing materials.

Results were obtained via internal tracker and survey of parent preference at 4 weeks after enrollment. Demographics were

obtained at study onset. Of 13 study participants, 8 were African American; 2, Hispanic; and 3, white. Fifty-four percent were female; 46% were male. Fifteen percent of study participants were aged 0 to 1 year; 39%, 1 to 2 years; 23%, 2 to 4 years; and 23%, 4 to 8 years. Thirty-nine percent of patients had mild AD; 45%, moderate; and 15%, severe. Of the 13 parents of patients enrolled, 100% preferred the app to paper materials, and 100% felt the app helped them learn about and manage eczema. Ninety-two percent of parents reported that the app was “easy” or “very easy” to use, and 8% were “neutral.” Sixty-two percent of participants rated app content “very useful” versus 38% rating it “somewhat useful”; 23%, 46%, and 31% of the patients reported using the app “sometimes,” “often,” and “very often,” respectively (Fig. 1). Objective data supported these subjective ratings, showing that 23% opened the app 0 to 1 times; 23%, 2 to 3 times; and 54%, 4 times or more.

Our preliminary results suggest that parents of young patients (<8 years old) with AD prefer receiving educational materials in a smartphone app versus paper handouts. Although a small study, these results indicate a cultural shift in preference for instant, portable access to medical information. Smartphone apps are one method of supplying this information and aid physicians in providing patients with quick access to vetted, up-to-date educational materials and therapeutic recommendations.

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