Dupilumab for Dyshidrotic Eczema With Secondary Improvement in Eosinophilic Interstitial Lung Disease

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PRACTICE **POINTS**

- Dupilumab can be considered for treatment of refractory dyshidrotic eczema.
- Dupilumab may provide secondary efficacy in patients with dyshidrotic eczema who also have an eosinophilic condition such as eosinophilic pneumonia.

To the Editor:

Biologic medications are increasingly utilized in adults with moderate to severe atopic dermatitis (AD) that is inadequately controlled with topical medication. By targeting the IL-4 receptor alpha subunit, dupilumab inhibits the biologic effects of IL-4 and IL-13, resulting in remarkable improvement in disease and quality of life for many patients with refractory AD.[1]

In 2017, the US Food and Drug Administration approved dupilumab for use in AD, asthma, and chronic rhinosinusitis. However, there is evidence of the drug's off-label efficacy in conditions such as eosinophilic annular erythema.[2] We present a patient with dyshidrotic eczema treated with dupilumab who experienced contemporaneous secondary improvement in chronic eosinophilic pneumonia (CEP) and interstitial lung disease (ILD).

A 45-year-old man was referred to our dermatology clinic for chronic hand dermatitis refractory to increasing strengths of topical corticosteroids. He had a history of progressive shortness of breath of unknown cause, which began 2 years prior, and he was being followed at our institution's ILD clinic. Earlier pulmonary function testing revealed a restrictive pattern with interstitial infiltrates seen on chest computed tomography. A lung biopsy demonstrated features of fibrotic nonspecific interstitial pneumonitis with superimposed eosinophilic pneumonia. His pulmonary symptoms had progressively worsened; over a period of several months, the supplemental oxygen requirement had increased to 6 L at rest and 12 L upon exertion. Prednisone therapy was initiated, which alleviated respiratory symptoms; however, the patient was unable to tolerate a gradual wean of the medication, which rendered him steroid dependent at 30 mg/d.

Along with respiratory symptoms, the patient reported symptoms consistent with an autoimmune process, including dry eyes. Muscle weakness and tenderness also were noted. Ultimately, a diagnosis of anti–PL-7 (anti-threonyl-transfer RNA synthetase) antisynthetase syndrome was rendered by identification of anti–PL-7 antibodies and an elevated level of creatinine kinase.

Physical examination at our clinic revealed subtle palmar scaling on the hands and multiple small clear vesicles on the lateral aspects of the digits (Figure, A), consistent with dyshidrotic eczema. He initially was treated with clobetasol propionate ointment 0.05%. Despite adherence to this high-potency topical corticosteroid, he experienced only minimal improvement over a period of 3 months. Dupilumab was started at standard dosing—600 mg at initiation, followed by 300 mg every 2 weeks. The patient

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reported rapid improvement in dyshidrotic eczema over several months with near-complete resolution (Figure, B).

Concurrent with initiation and continued use of dupilumab, without other changes in his medication regimen, the patient noted gradual improvement in respiratory symptoms. At 6-month follow-up he reported notable improvement in respiratory function and quality of life. He then tolerated a gradual wean of prednisone to 10 mg/d, with a similar reduction in supplemental oxygen.

A, Palmar scaling and multiple small clear vesicles on the lateral aspects of the digits prior to initiation of dupilumab. B, Near-complete resolution of dyshidrotic eczema with dupilumab.

Off-label use of dupilumab for various eosinophilic conditions has shown promising efficacy. Our patient experienced improvement in CEP shortly after initiation of dupilumab, enabling weaning of prednisone, which has a well established adverse effect profile associated with long term use.[3,4] In comparison, dupilumab generally is well tolerated, with rare ophthalmologic complications and injection-site reactions.[5]

One case report suggested that CEP may represent a potential rare adverse effect of dupilumab initiation.[6] However, prior to initiation of dupilumab, that patient had poorly controlled asthma requiring frequent oral corticosteroid therapy. It is possible that CEP was subclinical prior to initiation of dupilumab and became more noticeable once the patient was weaned from corticosteroids, which had served as an indirect treatment.[6] Nonetheless, more research is needed to definitively establish the efficacy of dupilumab in CEP prior to more widespread use.

Irrespective of the potential efficacy of dupilumab for the treatment of CEP, our case highlights the growing body of evidence that dupilumab should be considered in the treatment of dyshidrotic eczema, particularly in cases refractory to topical treatment.[7] When a systemic medication is preferred, dupilumab likely represents an option with a relatively well-tolerated adverse effect profile compared to traditional systemic treatments for dyshidrotic eczema.

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