

Successful Use of Dupilumab for Recalcitrant Atopic Dermatitis in an HIV Patient

Approved for the treatment of moderate to severe atopic dermatitis (AD), dupilumab represents a monoclonal antibody against interleukin 4 (IL-4) receptor α that blocks signaling from IL-4 and IL-13, essential mediators of the T helper 2 (T_H2) pathway. To date, all clinical trials investigating the use of dupilumab excluded patients with human immunodeficiency virus (HIV).¹ Herein, we describe the use of dupilumab in a patient with AD and concomitant HIV infection.

A 50-year-old man with well-controlled HIV and self-cleared hepatitis C virus presented for management of severe AD since childhood. Previous trials of high-potency topical corticosteroids, topical antibiotics, oral antihistamines, and bleach baths did not provide significant relief. Physical examination revealed excoriated scaly papules coalescing into plaques on the lower back, buttocks, arms, and legs with an Investigator Global Assessment Scale of 3. Because his AD remained refractory to topical steroids, the decision to start dupilumab was considered.

He had a 15-year history of HIV, now well controlled on emtricitabine-tenofovir alafenamide and dolutegravir with a most recent CD4 count of 665/ μ L and undetectable HIV-1 viral load. After consultations with infectious disease and allergy/immunology and an in-depth conversation with the patient regarding the benefits, risks, and adverse events, it was decided to start dupilumab with a standard loading dose of 600 mg and maintenance dosing of 300 mg every 2 weeks for treatment of his recalcitrant AD.

Two weeks after the loading dose, the patient noted a painful ulcer on the right perianal skin. A viral culture was sent, and the patient was empirically started on valacyclovir 500 mg twice daily for 7 days because of suspected herpes simplex virus (HSV) infection, although the HSV culture was negative. The patient had a notable history of anal dysplasia but no history of HSV. Two months after initiation of dupilumab, the patient had almost complete resolution of his AD (Investigator Global Assessment Scale 1). His HIV has remained well controlled with a CD4 count of 860/ μ L and an undetectable HIV-1 viral load at his last follow-up visit (4 months after dupilumab initiation).

This is the first published case on the use of dupilumab in an atopic patient with HIV. The initial Food and Drug

Administration approval for dupilumab excluded patients with immunosuppression based on an “empiric approach from experience with other biologic drugs, and prior to dupilumab's safety profile being more fully understood.”¹ As an immunomodulator of the T_H2 inflammatory pathway, dupilumab is unique from other biologic drugs and does not have any known relevant pharmacokinetic interactions to validate the exclusion of patients with HIV. In accord, the current dupilumab package insert does not list HIV status as a contraindication.²

Four months after initiation, dupilumab does not seem to significantly affect our patient's CD4 count or viral load. However, it is unknown whether dupilumab was associated with the suspected perianal HSV. This medication may offer potential benefit to patients with well-controlled HIV because it was associated with decreased incidence of skin infections and eczema herpeticum in AD adults without HIV in a meta-analysis.³ Although the mechanism of action is not fully understood, it is hypothesized that restoration of the skin barrier and resolution of the aberrant immune response may reduce the incidence of skin infection.³

In addition, specific blockade of T_H2 cytokines may further be beneficial to patients with HIV. In patients with environmental allergies and HIV, allergens and activating HIV proteins alike may elicit immunoglobulin E through IL-4 and IL-13 secretion.⁴ Not surprisingly, there is a high prevalence of reported atopic diseases and elevated total immunoglobulin E in patients with HIV.⁵ This case report is limited by the small sample size of 1 patient and the relatively short duration of follow-up of 4 months. Although future studies are necessary to further investigate the long-term effect, the present case suggests that use of dupilumab in patients with HIV can offer substantial relief of underlying AD and does not significantly alter the CD4 count and HIV viral load in the immediate setting.

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Patch Testing in the African American Population: A 10-Year Experience

To the Editor:

There are few studies looking at patch testing in the African American (AA) population and how it differs from the white population.^{1,2} The heterogeneous appearance of allergic contact dermatitis (ACD) and patient skin pigmentation may result in diagnostic difficulty. We report our patch test clinic experience in the AA population for a 10-year period.

This study included 139 patients who self-identified as AA or black and were patch tested between January 2003 and December 2012 in the Department of Dermatology, Cleveland Clinic Foundation. Patients were patch tested and relevance determined according to the methods previously described by the North American Contact Dermatitis Group (NACDG) using Finn Chamber on Scanpore tape (Epitest; OY, Hyrla, Finland).³ Readings were performed at day 2 (D2) and again between D4

and D7. Each of the 139 patients was tested with the standard screening series of the NACDG.

The average age was 45.0 (range, 10–91 years), with 106 female patients (76.8%). One hundred three patients (74.1%) had at least 1 positive result from patch testing. There were a total of 282 positive results. Most positive results had probable (24.11%) and possible (24.46%) relevance. Definite relevance was observed in 7.09% of the positive results. Tables 1 and 2A–C show the relevance of the positive results. Most patients (53.6%) had a reported history of atopy (allergic rhinitis, childhood eczema, or asthma). Nickel sulfate (27.5%), fragrance mix (18.1%), bacitracin (13.0%), balsam of Peru (*Myroxylon pereirae*) (12.3%), and *p*-phenylenediamine (PPDA) (10.9%) were the most common sensitizers. The face (31.2%) and hands (21.7%) were the most commonly affected sites; nearly a quarter of patients (22.5%) had more than 1 affected area. Twenty-one patients (15.1%) had occupationally relevant positives. Most patients (56.11%) received a final diagnosis of ACD.

We observed several differences in the clinical presentation in our study cohort, as well as patch test reactions, in AA patients with ACD. The dermatitis appears more lichenified and hyperpigmented and can be missed if the index of clinical suspicion is not high. There is often delay by other dermatologists in referral of these patients for patch testing. The lack of erythema and an early papular response seen at the site of positive patch test reactions makes interpretation more difficult, requiring experience and viewing with different lighting angles.

Many cases of occupation-related dermatitis were due to rubber gloves used in factories, salons, or housekeeping. Our study showed a high rate of sensitization to PPDA, similar to that reported in an earlier study from our department,⁴ as well as that found in a recent observational study evaluating hand dermatitis in the Nigerian population.⁵ The 10.9% of our patients with a positive patch test reaction to PPDA is higher compared with the NACDG data (5.5%) from a similar time.³ This is possibly

TABLE 1. Clinical Relevance of All Positive Results (N = 282)

Relevance	No. Positive Results (%)
Definite*	20 (7.09)
Probable†	68 (24.11)
Possible‡	69 (24.46)
Past	41 (14.53)
Unknown	77 (27.3)
Not documented	7 (2.48)

*Relevance will be considered definite if a use test with the putative item containing the suspected allergen is positive or positive patch to object/product.

†Relevance will be considered probable if the substance identified by patch testing can be verified as present in the known skin contactants of the patient.

‡Relevance will be considered as possible if the patient is exposed to circumstances in which skin contact with the materials known to contain the putative allergen will likely occur.

J.S.T. has consulted for Johnson and Johnson, Bayer, Kao Brands, and Equinox Group; received royalties from Decision Support in Medicine; and owns common stock in AstraZeneca, Cigna, Johnson and Johnson, Merck, and Opko Health; a nondependent child is an employee of Pfizer. The other authors have no funding or conflicts of interest to declare.

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