Apremilast and Phototherapy for Treatment of Psoriasis in a Patient With Human Immunodeficiency Virus

Shivani P. Reddy, MD; Erica Lee, BS; Jashin J. Wu, MD

PRACTICE **POINT**

- Apremilast may be considered as a first-line therapy in the human immunodeficiency virus population due to decreased immunosuppression.

To the Editor:

A 50-year old man with Fitzpatrick skin type IV, human immunodeficiency virus (HIV), fatty liver disease, and moderate psoriasis (10% body surface area [BSA] affected) currently treated with clobetasol spray and calcitriol ointment presented with persistent psoriatic lesions on the trunk, arms, legs, and buttocks. His CD4 count was 460 and his HIV RNA count was 48 copies/mL on polymerase chain reaction 2 months prior to the current presentation. He had been undergoing phototherapy 3 times weekly for the last 5 months for treatment of psoriasis.

At the current presentation, he was started on an apremilast starter pack with the dosage titrated from 10 mg to 30 mg over the course of 1 week. He was maintained on a dose of 30 mg twice daily after 1 week and continued clobetasol spray, calcitriol ointment, and phototherapy 3 times weekly with the intent to reduce the frequency after adequate control of psoriasis was achieved. After 3 months of treatment, the affected BSA was 0%. He continued apremilast, and phototherapy was reduced to once weekly. Phototherapy was discontinued after 7 months of concomitant treatment with apremilast after clearance was maintained. It was reinitiated twice weekly after a mild flare (3% BSA affected). After 20 total months of treatment, the patient was no longer able to afford apremilast treatment and presented with a severe psoriasis flare (40% BSA affected). He was switched to acitretin with a plan to apply for apremilast financial assistance programs.

Psoriasis treatment in the HIV population poses a challenge given the immunosuppressed state of these patients, the risk of reactivation of latent infections, and the refractory nature of psoriasis in the setting of HIV. Two of the authors (S.P.R. and J.J.W.) previously reported a case of moderate to severe psoriasis in a patient with HIV and hepatitis C who demonstrated treatment success with apremilast until it was discontinued due to financial implications.[1] Currently, apremilast is not widely used to treat psoriasis in the HIV population. The National Psoriasis Foundation 2010 guidelines recommended UV light therapy for treatment of moderate to severe psoriasis in HIV-positive patients, with oral retinoids as the second-line treatment.[2] There remains a need for updated guidelines on the use of systemic agents for psoriasis treatment in the HIV population.

Apremilast, a phosphodiesterase 4 inhibitor, is an oral therapy that restores the balance of proinflammatory and anti-inflammatory cytokines by inhibiting inflammatory cytokine (eg, tumor necrosis factor α, IFN-γ, IL-2, IL-12, IL-23) secretion and stimulating anti-inflammatory cytokine (eg, IL-6, IL-10) production. In 2015, the

Dr. Reddy is from the Department of Dermatology, Kaiser Permanente Los Angeles Medical Center, California. Ms. Lee is from the John A. Burns School of Medicine, University of Hawaii, Honolulu. Dr. Wu is from the Dermatology Research and Education Foundation, Irvine, California.
Dr. Reddy and Ms. Lee report no conflict of interest. Dr. Wu is an investigator for AbbVie, Amgen Inc, Eli Lilly and Company, Janssen Pharmaceuticals, and Novartis. He also is a consultant for AbbVie; Almirall; Amgen Inc; Bristol-Myers Squibb; Celgene Corporation; Dermira Inc; Dr. Reddy's Laboratories Ltd; Eli Lilly and Company; Janssen Pharmaceuticals; LEO Pharma; Novartis; Promius Pharma; Regeneron Pharmaceuticals, Inc; Sun Pharmaceutical Industries, Ltd; UCB; and Valeant Pharmaceuticals North America LLC. He also is a speaker for AbbVie; Celgene Corporation; Novartis; Regeneron Pharmaceuticals, Inc; Sun Pharmaceutical Industries, Ltd; UCB; and Valeant Pharmaceuticals North America LLC.
Correspondence: Jashin J. Wu, MD (jashinwu@gmail.com).

phase 3 ESTEEM 1[3] and ESTEEM 2[4] trials demonstrated the efficacy of apremilast 30 mg twice daily for treatment of psoriasis. In both trials, the psoriasis area and severity index 75 response rate at week 16 was significantly higher with apremilast compared to placebo alone (33.1% and 28.8% vs 5.2% and 5.8%, respectively; $P<.001$ for both trials). Apremilast also was noted to improve difficult-to-treat nail, scalp, and palmoplantar psoriasis.[3,4]

Use of other systemic agents such as tumor necrosis factor α inhibitors and ustekinumab has been reported in HIV-positive patients.[5-7] There is no current data on IL-17 and IL-23 inhibitors. Acitretin generally is recommended as a second-line agent in HIV patients given its lack of immunosuppression[2]; however, methotrexate and cyclosporine should be avoided given the risk of opportunistic infections.[8]

Apremilast is a promising therapy with a favorable safety profile that should be considered as an adjuvant treatment to first-line agents such as phototherapy in HIV-positive patients. Apremilast has been successfully used in an HIV patient with a concomitant chronic hepatitis C infection.[1] Systemic medications such as apremilast should be managed in coordination with infectious disease specialists with close monitoring of CD4 levels and viral loads as well as prophylactic agents.

REFERENCES

1. Reddy SP, Shah VV, Wu JJ. Apremilast for a psoriasis patient with HIV and hepatitis C. *J Eur Acad Dermatol Venereol*. 2017;31:e481-e482.
2. Menon K, Van Voorhees AS, Bebo BF Jr, et al. Psoriasis in patients with HIV infection: from the medical board of the National Psoriasis Foundation [published online July 31, 2009]. *J Am Acad Dermatol*. 2010;62:291-299.
3. Papp K, Reich K, Leonardi CL, et al. Apremilast, an oral phosphodiesterase 4 (PDE4) inhibitor, in patients with moderate to severe plaque psoriasis: results of a phase III, randomized, controlled trial (Efficacy and Safety Trial Evaluating the Effects of Apremilast in Psoriasis [ESTEEM] 1). *J Am Acad Dermatol*. 2015;73:37-49.
4. Paul C, Cather J, Gooderham M, et al. Efficacy and safety of apremilast, an oral phosphodiesterase 4 inhibitor, in patients with moderate-to-severe plaque psoriasis over 52 weeks: a phase III, randomized controlled trial (ESTEEM 2). *Br J Dermatol*. 2015; 173:1387-1399.
5. Lindsey SF, Weiss J, Lee ES, et al. Treatment of severe psoriasis and psoriatic arthritis with adalimumab in an HIV-positive patient. *J Drugs Dermatol*. 2014;13:869-871.
6. Saeki H, Ito T, Hayashi M, et al. Successful treatment of ustekinumab in a severe psoriasis patient with human immunodeficiency virus infection. *J Eur Acad Dermatol Venereol*. 2015;29:1653-1655.
7. Paparizos V, Rallis E, Kirsten L, et al. Ustekinumab for the treatment of HIV psoriasis. *J Dermatolog Treat*. 2012;23:398-399.
8. Kaushik SB, Lebwohl MG. Psoriasis: which therapy for which patient: focus on special populations and chronic infections [published online July 11, 2018]. *J Am Acad Dermatol*. 2019;80:43-53.