Brodalumab in an Organ Transplant Recipient With Psoriasis

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Immunocompromised patients, such as organ transplant recipients, require careful benefit-risk consideration when selecting a systemic agent for psoriasis. Brodalumab, an IL-17RA antagonist, was used to treat a patient with psoriasis who had undergone solid organ transplant with excellent response and good tolerability. Further studies are needed to evaluate the benefits and risks of using biologic treatments in patients with psoriasis who are organ transplant recipients.

PRACTICE POINTS
- Immunocompromised patients, such as organ transplant recipients, require careful benefit-risk consideration when selecting a systemic agent for psoriasis.
- Brodalumab, an IL-17RA antagonist, was used to treat a patient with psoriasis who had undergone solid organ transplant with excellent response and good tolerability.
- Further studies are needed to evaluate the benefits and risks of using biologic treatments in patients with psoriasis who are organ transplant recipients.

The treatment landscape for psoriasis has evolved rapidly over the last decade. Biologic therapies have demonstrated robust efficacy and acceptable safety profiles among many patients with moderate to severe plaque psoriasis. However, the use of biologics among immunocompromised patients with psoriasis rarely is discussed in the literature. As new biologics for psoriasis are being developed, a critical gap exists in the literature regarding the safety and efficacy of these medications in immunocompromised patients. Per American Academy of Dermatology–National Psoriasis Foundation guidelines, caution should be exercised when using biologics in patients with immunocompromising conditions. In organ transplant recipients, the potential risks of combining systemic medications used for organ transplantation and biologic treatments for psoriasis are unknown.

In the posttransplant period, the immunosuppressive regimens for transplantation likely will improve psoriasis. However, patients with organ transplant and psoriasis still experience flares that can be challenging to treat. Prior treatment modalities to prevent psoriasis flares in organ transplant recipients have relied largely on topical therapies, posttransplant immunosuppressive medications (eg, cyclosporine, tacrolimus, mycophenolate mofetil) that prevent graft rejection, and systemic corticosteroids. We report a case of a 50-year-old man with a recent history of liver transplantation who presented with severe plaque psoriasis and psoriatic arthritis.

Case Report
A 50-year-old man presented to the dermatology clinic with moderate to severe plaque psoriasis and psoriatic arthritis that had been present for 15 years. His plaque psoriasis covered approximately 40% of the body surface area, including the scalp, trunk, arms, and legs. In addition, he had diffuse joint pain in the hands and feet; a
radiograph revealed active psoriatic arthritis involving the joints of the fingers and toes.

One year prior to presentation to our dermatology clinic, the patient underwent an orthotopic liver transplant for history of Child-Pugh class C liver cirrhosis secondary to untreated hepatitis C virus (HCV) and alcohol use that was complicated by hepatocellular carcinoma. He acquired a high-risk donor liver that was HCV positive with HCV genotype 1a. Starting 2 months after the transplant, he underwent 12 weeks of treatment for HCV with glecaprevir-pibrentasvir. Once his HCV treatment course was completed, he achieved a sustained virologic response with an undetectable viral load. To prevent transplant rejection, he was on chronic immunosuppressive regimens that increase their risk for infection and malignancies. For example, high doses of immunosuppressants predispose these patients to reactivation of viral infections, including BK and JC viruses. In addition, the use of brodalumab for psoriasis in organ transplant recipients has not been previously reported in the literature. A few case reports have been published on the successful use of etanercept and ixekizumab as biologic treatment options for psoriasis in transplant patients.

Special Considerations for Brodalumab—Brodalumab is an immunomodulatory biologic that binds to and inhibits IL-17RA, thereby inhibiting the actions of IL-17A, F, E, and C. The blockade of IL-17RA by brodalumab has been shown to result in reversal of psoriatic phenotype and gene expression patterns. Brodalumab was chosen as the treatment in our patient because it has a rapid onset of action, sustained efficacy, and an acceptable safety profile. Brodalumab is well tolerated, with approximately 60% of patients achieving clearance long-term. Candidal infections can occur in patients with brodalumab, but the rates are low and they are reversible with antifungal treatment.

The use of brodalumab for psoriasis in organ transplant recipients has not been previously reported in the literature. A few case reports have been published on the successful use of etanercept and ixekizumab as biologic treatment options for psoriasis in transplant patients. In addition to choosing an appropriate biologic for psoriasis in transplant patients, transplant providers may evaluate the choice of immunosuppression regimen for the organ transplant in the context of psoriasis. In a retrospective analysis of liver transplant patients with psoriasis, Föroncewicz et al found cyclosporine, which was used as an antirejection immunosuppressive agent in the post-transplant period, to be more effective than tacrolimus in treating recurrent psoriasis in liver transplant recipients.

Our case illustrates one example of the successful use of brodalumab in a patient with a solid organ transplant. Our patient’s psoriasis and symptoms of psoriatic arthritis greatly improved after initiation of brodalumab. In the post-transplant period, the patient did not develop graft-vs-host disease, infections, malignancies, depression, or suicidal ideation while taking brodalumab.

Conclusion
It is important that the patient, dermatology team, and transplant team work together to navigate the challenges and relatively unknown landscape of psoriasis treatment in organ transplant recipients. As the number of organ transplant recipients continues to increase, this issue will become more clinically relevant. Case reports and future prospective studies will continue to inform us regarding the role of biologics in psoriasis treatment posttransplantation.

REFERENCES