Psoriasis with End Stage Renal Disease Successfully Treated with Ustekinumab: A Case Report

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ABSTRACT

Many biologic agents are available to treat psoriasis, however only a few reports investigate the efficacy and safety of these agents in patients with psoriasis complicated by kidney failure. In this report we detail a case of severe plaque psoriasis complicated with end-stage renal disease (ESRD), successfully treated with ustekinumab without need for dose adjustment.

INTRODUCTION

Psoriasis is a chronic inflammatory disease of the joints and skin, presenting as scaly erythematous dry plaques.¹ The pathophysiological link between psoriasis and other chronic inflammatory conditions is thought to be driven by T cell and cytokine activation.² Ustekinumab is a human monoclonal antibody that blocks the IL-12 and IL-23 cytokines, which play a role in the development of psoriasis.³ For renally-eliminated compounds, acute and chronic kidney injury, can result in adverse effects and may cause drug toxicity. We report a case of a psoriasis patient who was treated with the recommended dose of ustekinumab with no observable side effects despite simultaneous kidney failure.

CASE PRESENTATION

A 34-year-old caucasian woman with a 30+ pack-year smoking history has been seen for 17 years by our department for severe plaque psoriasis primarily of the scalp, elbow, and thigh. She was initially treated topically with tacrolimus and tazarotene as well as alefacept followed by cyclosporine with minimal to moderate improvement. Patient’s psoriasis ultimately cleared when initiated on etanercept and later ustekinumab when patient was concomitantly diagnosed with inflammatory bowel disease (IBD). Unfortunately, several years later patient developed an unrelated post-streptococcal IgA nephropathy that ultimate progressed to end-stage renal disease (ESRD) requiring hemodialysis (HD). During the continual decline of her renal function and even when eventually needing HD, we continued therapy with the same dose of ustekinumab that successfully kept both her psoriasis and IBD under control.
control. She eventually received a kidney transplant in 2019.

**DISCUSSION**

Chronic plaque psoriasis is an inflammatory disorder that commonly requires long-term treatment, including the use of biologic agents. As an IL-17 and IL-23 inhibitor, ustekinumab is an immunosuppressant that precisely blocks specific molecules from causing inflammation in the skin and joints, thereby calming inflammatory diseases such as psoriasis and IBD. In the limited number of cases of individuals with both psoriasis and renal dysfunction, no cases observed that psoriasis or the biologic agents affected the progression of kidney injury or failure.4

The patient's kidney failure seems to have been caused by factors unrelated to her psoriasis and biologic treatment. The patient's IgAN was most likely a sequelae of a *streptococcal* infection. Extensive research has shown that the IgA-binding peptides triggered by a *streptococcal* infection can deposit in the mesangial matrix and glomerular basement membrane, leading to kidney failure.5-6 Furthermore, the patient was a significant chronic smoker, a habit that may independently lead to various medical maladies, one being glomerular injury.7

Taken together, despite the many possible contributing factors to her kidney failure, the patient was treated with none-dose-adjusted ustekinumab. Despite patient’s renal dysfunction, she tolerated ustekinumab without adverse effects, renal or otherwise. This suggests that ustekinumab may be a safe therapeutic choice for severe plaque psoriasis in individuals with renal dysfunction.8

**CONCLUSION**

The use of ustekinumab to treat psoriasis may be a therapeutic option for patients who have renal dysfunction and may not require renal dose-adjustments.

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