BRIEF ARTICLES

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

Kaylee Fisher[1], Harry Meister[1], Nahla Shihab MD[1], Mark Lebwohl MD[1]

[1]Department of Dermatology, Icahn School of Medicine at Mount Sinai, New York, NY

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. 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 sequalae 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.

Conflict of Interest Disclosures: None

Funding: None

Corresponding Author:
Nahla Shihab, MD
Icahn School of Medicine at Mount Sinai
Department of Dermatology
5 E 98th street
New York, NY, 10029
Phone: 212-241-9728
Fax: 212-987-1197
Email: nahla.shihab@gmail.com

References:

1. Stelara (ustekinumab) FDA Approval History [Internet]. Drugs.com. [cited 2019Jul25]. Available from: https://www.drugs.com/history/stelara.html
2. Yacoub R, Habib H, Lahdo A, Al Ali R, Varjabedian L, Atalla G, et al. Association between smoking and chronic kidney disease: a case control study [Internet]. BMC public health. BioMed Central; 2010 [cited 2019 Jul23]. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3004836/
3. Ma C, Panaccione R, Khanna R, Feagan BG, Jairath V. IL12/23 or selective IL23 inhibition for the management of moderate-to-severe Crohn's disease? Best Pract Res Clin Gastroenterol. 2019 Feb - Apr;38-39:101604. Doi: 10.1016/j.bpg.2019.02.006. Epub 2019 Feb 19. Review. PubMed PMID: 31327402.
4. Nimmannitya K, Tateishi C, Mizukami Y, Hamamoto K, Yamada S, Goto H, Okada S, Tsuruta D. Successful treatment with ustekinumab of psoriasis vulgaris in a patient undergoing hemodialysis. J Dermatol. 2016 Jan;43(1):92-4. Doi: 10.1111/1346-8138.12989. Epub 2015 Jun 24. PubMed PMID: 26103788
5. Schmitt R, Carlsson F, Mörgelin M, Tati R, Lindahl G, Karpman D. Tissue deposits of IgA-

binding streptococcal M proteins in IgA nephropathy and Henoch-Schonlein purpura [Internet]. The American journal of pathology. American Society for Investigative Pathology; 2010 [cited 2019Jul23]. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2808069/

6. Cha YJ, Lim BJ, Kim BS, Kim Y, Yoo TH, Han SH, et al. Smoking-Related Renal Histologic Injury in IgA Nephropathy Patients [Internet]. Yonsei medical journal. Yonsei University College of Medicine; 2016 [cited 2019Jul23]. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4696955/
7. Yacoub R, Habib H, Lahdo A, Al Ali R, Varjabedian L, Atalla G, et al. Association between smoking and chronic kidney disease: a case control study [Internet]. BMC public health. BioMed Central; 2010 [cited 2019Jul29]. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3004836/
8. Yamamoto R, Nagasawa Y, Shoji T, Iwatani H, Hamano T, Kawada N, Inoue K, Uehata T, Kaneko T, Okada N, Moriyama T, Horio M, Yamauchi A, Tsubakihara Y, ImaiE, Rakugi H, Isaka Y. Cigarette smoking and progression of IgA nephropathy. Am J Kidney Dis. 2010 Aug;56(2):313-24. doi: 10.1053/j.ajkd.2010.02.351. Epub 2010 May 14. PubMed PMID: 20471735.