Psoriasis: Targets and Therapy

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CASE REPORT

Successful Treatment with Secukinumab in a Psoriasis Patient on Hemodialysis

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Abstract: Moderate to severe psoriasis has been reported as an independent risk factor for IgA nephropathy (IgAN). IgAN is characterized by episodic microscopic hematuria, which can progress to end-stage renal disease (ESRD). Managing therapeutic interventions for psoriasis patients requiring dialysis due to ESRD presents significant challenges. We present a case of severe plaque psoriasis in a patient concurrently diagnosed with IgAN who is dependent on hemodialysis. Over the past two months, his condition has worsened without any identifiable triggers. Physical examination revealed generalized scaly plaques on the scalp, trunk, and extremities, resulting in a Psoriasis Area Severity Index (PASI) score of 19.2. Laboratory tests confirmed end-stage renal insufficiency, with no other abnormalities detected. Consequently, the patient was prescribed subcutaneous secukinumab following a standard regimen. He achieved complete resolution of symptoms after eight weeks of treatment and experienced no recurrence during a one-year follow-up. His kidney-related parameters remained stable during secukinumab therapy. To summarize, this case report discusses a patient with severe psoriasis who also has concurrent IgAN and ESRD, successfully treated with secukinumab. It reinforces the rapid efficacy and enduring safety of secukinumab in managing psoriasis in hemodialysis-dependent patients with IgAN comorbidity. Zeno Fratton et al has reported that an interleukin (IL)-17A/F inhibitor effectively treats moderate-to-severe psoriasis in patients with chronic kidney disease (CKD). However, further studies are necessary to develop evidence-based guidelines for biologic selection within this vulnerable population.

Keywords: psoriasis, IgA nephropathy, end-stage renal disease, hemodialysis, secukinumab

Introduction

Psoriasis is a chronic immune-mediated inflammatory disorder characterized by recurrent erythematous plaques. It is also associated with various multiorgan comorbidities, including cardiovascular disorders, gastrointestinal pathologies, and metabolic diseases.[1,2] Recent studies have identified severe psoriasis as an independent risk factor for chronic kidney disease (CKD) and end-stage renal disease (ESRD).[3,4] The management of psoriasis in patients with impaired renal function presents special challenges due to the nephrotoxic potential of certain treatments and the need for dose adjustments. Although several biologic agents have emerged as viable treatment options for these patients, there is limited real-world evidence regarding the clinical utility of interleukin-17 (IL-17) inhibitors in individuals with CKD or ESRD.[5] The efficacy and safety of standard dosing of IL-17 inhibitors in psoriasis patients with concurrent CKD or ESRD require further investigation. Here, we present a case of severe plaque psoriasis concurrently associated with IgA nephropathy (IgAN), successfully managed with secukinumab during maintenance hemodialysis, demonstrating sustained efficacy and an acceptable safety profile over a 12-month follow-up period.

Case Report

A 48-year-old male with a two-decade history of plaque psoriasis was referred to our hospital due to disease exacerbation over the past two months, with no obvious triggers. His medical history included a diagnosis of IgAN at age 33, which

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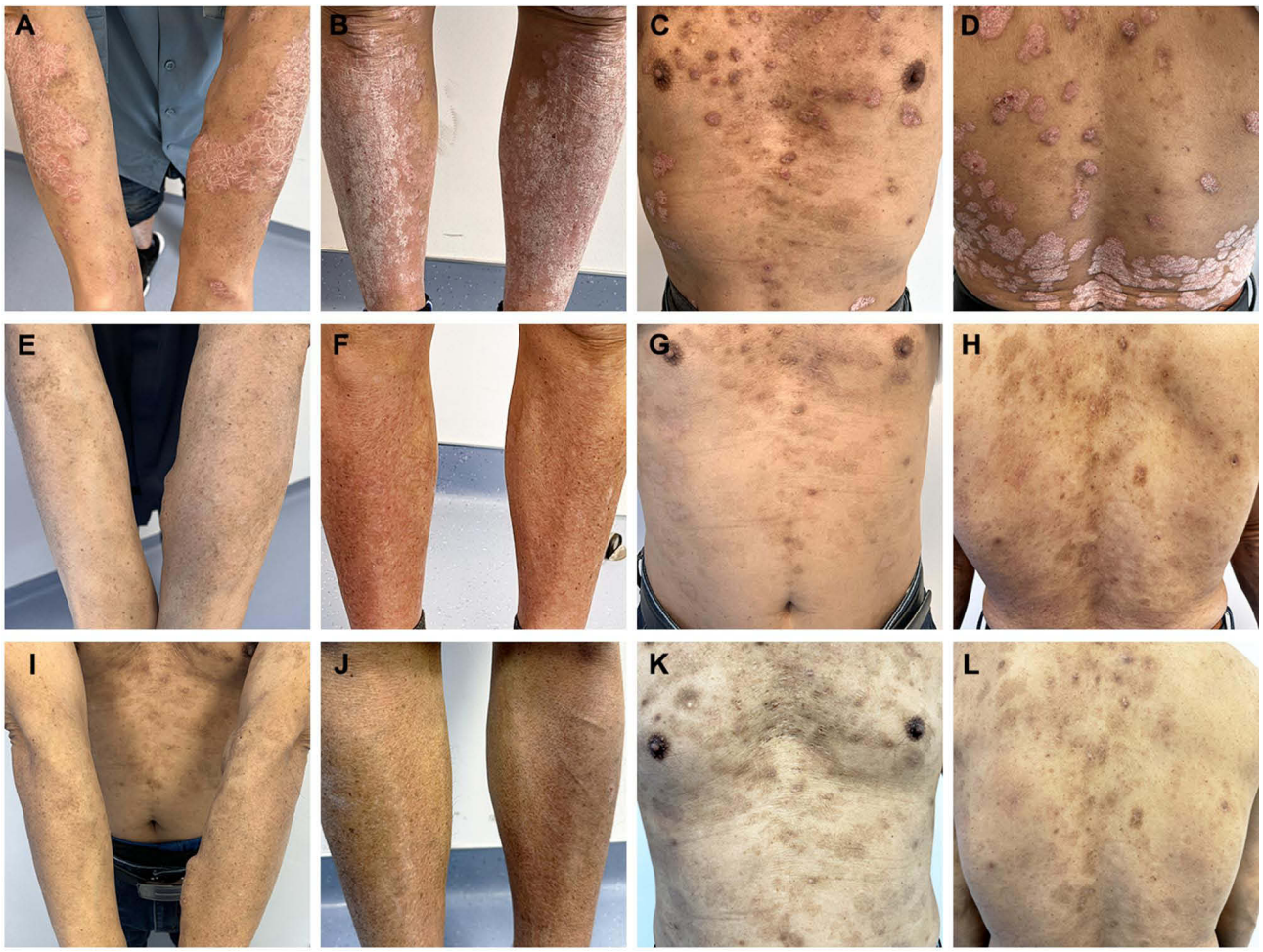

Figure 1 (**A–D**) Clinical presentation of the patient before treatment; (**E–H**) Image of the patient 8 weeks after initial treatment with secukinumab; (**I–L**) Photograph of the patient 12 months after secukinumab treatment.

progressed to ESRD, necessitating thrice-weekly hemodialysis for the past seven years. The patient reported no pain or swelling in any joints. Physical examination revealed generalized scaly plaques on the scalp, trunk, and extremities (Figure 1A–D), with a Psoriasis Area and Severity Index (PASI) score of 19.2. Laboratory results confirmed end-stage renal insufficiency: serum creatinine of 1182.50 μmol/L (equivalent to 13.36 mg/dL; reference range: 44–133), an estimated Glomerular Filtration Rate (eGFR) of 5.35 mL/min/1.73m², and blood urea nitrogen of 24.35 mmol/L (reference: 1.8–7.1). Complete blood cell counts, liver function tests, and infectious disease screenings (including hepatitis B/C serology, HIV testing, and tuberculosis interferon-gamma release assay) were unremarkable.

Following a multidisciplinary consultation, subcutaneous secukinumab was administered according to a standard regimen (300 mg once weekly for weeks 0–4, followed by 300 mg every four weeks). Complete resolution (PASI-100 response) was achieved at week 8 (Figure 1E–H), with sustained PASI 0 during the one-year follow-up (Figure 1I–L). Serial assessments of renal function revealed stable parameters, including a serum creatinine level of 1304 μmol/L (equivalent to 14.74 mg/dL), an eGFR of 5.34 mL/min/1.73 m², and a blood urea nitrogen level of 23.85 mmol/L. These findings are consistent with the patient's baseline hemodialysis-dependent status. No treatment-related adverse events, including infections, were documented.

Discussion

Recent studies have indicated that a significant number of individuals diagnosed with psoriasis also have secondary IgAN. Emerging evidence suggests that moderate to severe psoriasis may be an independent risk factor for IgAN.[6] IgAN

is characterized by the accumulation of IgA in the glomerular mesangium, which is manifested by episodic proteinuria and hematuria.[6] The mechanisms underlying the association between psoriasis and IgAN remain unclear. One hypothesis posits that IL-17, a key cytokine of psoriasis, stimulates B-cell activation and results in aberrant glycosylation of IgA1. This process may lead to glomerular immune complex deposition in IgAN.[7] The pathophysiological overlap between psoriasis and IgAN provides a rationale for IL-17 inhibition in psoriasis patients with comorbid IgAN. Furthermore, previous studies have documented the successful use of IL-17 inhibitors in treating psoriatic patients with IgAN, leading to improvements in both psoriasis and IgAN.[7,8] These cases offer valuable insights for developing future treatment strategies for this population.

Although IgAN can progress to CKD and ESRD, other conditions such as nephrotic syndrome, diabetic nephropathy, atherosclerosis, and hypertension may also contribute to CKD and ESRD in psoriasis patients with comorbidities.[4] Managing psoriasis in patients with ESRD who require dialysis is particularly challenging, as appropriate psoriasis treatments must be selected carefully. While acitretin has been reported to be effective and safe in these patients, the improvement of skin lesions is limited, and monitoring of alkaline phosphatase and bilirubin levels is necessary.[9] Consequently, alternative therapies are warranted for these individuals. Given that several case reports have documented the successful and safe use of biologic therapy for patients on hemodialysis, we selected secukinumab for our patient.[10,11] Secukinumab, a fully human IgG1-κ monoclonal antibody targeting interleukin-17A (IL-17A), is particularly promising because it is not removed by hemodialysis and its metabolism is unaffected by renal function.

We summarized the clinical information and outcomes of previous reports concerning psoriasis patients undergoing hemodialysis who received biological therapy, as presented in Table 1.[10–22] TNF-α inhibitors typically require a duration of 8–24 weeks to achieve PASI-100 response in hemodialysis patients.[14] Moreover, IL-12/23 blockade (ustekinumab)

Table 1 Reported Cases with Biologic Therapy in Psoriatic Patients Undergoing Hemodialysis

References	Age (Years)	Sex	Disease	Biologic	Outcome	Adverse Event	Renal Function
Cassano et al[12]	69	M	Severe plaque psoriasis	Etanercept	PASI-100 response at week 24 (PASI 21 to PASI 0.8)	None	NA
De Unamuno Bustos et al[13]	65	M	Severe plaque psoriasis	Ustekinumab	PASI-100 response at week 24 (PASI 15 to PASI 0)	None	Stable
Kusakari et al[14]	46	M	Severe plaque psoriasis	Adalimumab	PASI-100 response at week 8 (PASI 18 to PASI 0)	None	Stable
Umezawa et al[15]	68	M	Severe plaque psoriasis	Ustekinumab	PASI-100 response at week 16 (PASI 10.4 to PASI 0)	None	Stable
Umezawa et al[15]	64	M	Severe plaque psoriasis	Ustekinumab	PASI-100 response at week 16 (PASI 12.4 to PASI 0)	None	Stable
Umezawa et al[15]	57	M	Severe plaque psoriasis	Ustekinumab	PASI-90 response at week 16 (PASI 17.2 to PASI 2)	None	Stable
Michelerio et al[21]	48	M	Severe plaque psoriasis	Ustekinumab	PASI-90 response at week 12	None	NA
Shibata et al[18]	61	F	Erythrodermic psoriasis	Secukinumab	PASI-100 response after 2 months (PASI 22 to PASI 0)	None	NA
Ikuma et al[16]	60	F	Severe plaque psoriasis	Secukinumab	PASI-100 response at week 8 (PASI 49.8 to PASI 0)	None	NA
Mukai et al[11]	60	M	Severe plaque psoriasis	Secukinumab	PASI-90 response after 4 months (PASI 31 to unknown)	None	NA
Pizzatti et al[10]	44	M	Erythrodermic psoriasis	Secukinumab	PASI-100 response after 8 weeks (PASI 31.5 to PASI 0)	None	NA
Zhu et al[17]	59	M	Severe plaque psoriasis	Ixekizumab	PASI-100 response after 3 months (PASI 10 to PASI 0)	None	NA

(*Continued*)

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Table 1 (Continued).

References	Age (Years)	Sex	Disease	Biologic	Outcome	Adverse Event	Renal Function
Zhu et al[17]	39	F	Severe plaque psoriasis	Ixekizumab	PASI-100 response after 4 months (PASI 16 to PASI 0)	None	NA
Koike et al[19]	48	M	Severe plaque psoriasis	Ixekizumab	PASI-100 response at week 4 (PASI 21.6 to PASI 0)	None	NA
Bernardini et al[20]	43	M	Severe plaque psoriasis	Bimekizumab	PASI-100 response at week 4 (PASI 11 to PASI 0)	None	Stable
Buononato et al[22]	65	M	Severe plaque psoriasis	Bimekizumab	PASI-100 response at week 4 (PASI 23.2 to PASI 0)	None	NA

demonstrates PASI-90 or PASI-100 response by week 16.[15,21] Although limited case reports show complete clearance of skin lesions at week 4, a retrospective study in plaque-type psoriasis with CKD reports that about 50% patients achieved PASI-100 response at week 16 after treatment with bimekizumab, an interleukin (IL)-17A/F inhibitor.[5,20,22] Additionally, ixekizumab, another IL-17 inhibitor, has achieved complete clearance within 1 to 3 months.[17,19] According to previous case reports, secukinumab can achieve a PASI-100 clearance as early as 8 weeks.[16,18] Our case establishes secukinumab's superior efficacy in terms of rapidity, suggesting a class-specific therapeutic advantage. Although no serious infections or other adverse events were noted in these patients, routine monitoring remains essential due to their immunocompromised status.

In conclusion, this case substantiates the rapid efficacy and durable safety of secukinumab in managing psoriasis for hemodialysis-dependent patients with IgAN comorbidity. Prospective multicenter studies are warranted to establish evidence-based guidelines for biologic selection in this vulnerable population.

Abbreviations

CKD, chronic kidney disease; ESRD, end-stage renal disease; IgAN, IgA nephropathy; PASI, Psoriasis Area and Severity Index.

Ethical Statements

The patient has given consent to publish his case details and picture. No institutional approval was required to publish this case.

Disclosure

The authors declare no conflict of interest.

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