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Case Series

Secukinumab efficacy in the treatment of various types of psoriasis: A case series

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ABSTRACT

The aim of this article is to describe our experience in a tertiary care medical college hospital with secukinumab in the treatment of various types of psoriasis as a case series of 10 patients. All the patients showed significant improvement in psoriasis area severity index and dermatology life quality index scores with no major adverse event reported during the period of study for 6 months duration. Secukinumab may be effective and safe for the treatment of all types of psoriasis with rapid onset of action and improvement in the quality of life.

Keywords: Psoriasis, Morphological types, Secukinumab

INTRODUCTION

Psoriasis is one of the most common chronic, inflammatory, and T-cell-mediated autoimmune proliferative skin disorders that predominantly involve the skin, nails, and joints. In India, the prevalence of psoriasis varies from 0.44% to 2.8%, and it is twice more common in males compared to females.[1]

Multiple researches are being undergone to know the exact etiopathogenesis of the disease of which the concept of combined helper T-cells (Th1) and Th17 mediated inflammatory pathway has gained more importance now. Understanding about the Th17 and Th22 cells and their distinct sets of cytokines (interleukin [IL] 23, IL-22) has led to the development of multiple new biological therapies.[2] Secukinumab is a human monoclonal immunoglobulin G antibody that blocks the IL-17A ligand. The present approved dosing regimen for psoriasis vulgaris is 300 mg subcutaneous at weeks 0, 1, 2, 3, and 4, followed by monthly maintenance dosing starting at week 8. For psoriatic arthritis, the dosage is 150 mg by subcutaneous injection with initial dosing at weeks 0, 1, 2, 3, and 4 followed by monthly maintenance dosing.[3]

CASE REPORTS

We report our experience with secukinumab in 10 patients with various types of psoriasis who did not respond to the previous conventional therapies. Ten patients with various types of psoriasis such as psoriasis vulgaris, psoriatic erythroderma, psoriatic arthritis, pustular psoriasis, palmoplantar psoriasis, and nail psoriasis with psoriasis area severity index (PASI) and dermatology life quality index (DLQI) more than 10 showed lack of efficacy or intolerance to the conventional treatment options treated with secukinumab. All of them underwent the necessary pre-drug investigations

and they were adequately monitored after initiation of therapy. Clinical evaluation for the assessment of disease severity was done at 4, 12, 20, and 24 weeks. The response was measured using a 75% reduction from baseline in the PASI-75 and DLQI measures. The adverse events were recorded.

Eight of 10 patients achieved PASI 75/100 at week 6–12, retaining the effect for 24 weeks of treatment, with improvement in their quality of life. In addition to the improvement of skin symptoms, there was improvement in arthritis and nail changes. In one patient, there was recurrence of scalp lesions. The adverse reactions noted were diarrhea and oral candidiasis.

Case summaries are presented in Table 1.

- Case 1: Patient with psoriasis vulgaris for 6 years on intermittent methotrexate 7.5 mg weekly once and narrow band ultraviolet B therapy phototherapy was started secukinumab and he achieved PASI-75 after 8 weeks of treatment. At week 24, he had a PASI of 6.5. No adverse effect was reported throughout the treatment
- Case 2: Patient with psoriatic erythroderma for 7 years on intermittent methotrexate up to 10 mg weekly once showed good improvement with secukinumab at week 4 and achieved PASI-75 at week 12. No adverse effect was reported [Figure 1]
- Case 3: Patient with chronic plaque type psoriasis for 4 years on systemic acitretin 25 mg and topical calcipotriol with baseline PASI of 34.2 achieved PASI-75 at week 8 of secukinumab therapy. He complained of loose stools as adverse effect after the second dose of induction phase which settled during the maintenance phase
- Case 4: Patient with psoriatic arthritis involving proximal interphalangeal joints of both hands was treated with methotrexate 15 mg once weekly and non-steroidal anti-inflammatory drugs for the past 3 years. With secukinumab at psoriatic arthritis dose the pain and swelling improved at week 4 along with improvement in DLQI from 11 to 4 [Figure 2]
- Case 5: Patient with psoriasis vulgaris and severe scalp involvement treated with secukinumab and topical coal tar therapy concurrently. After 20 weeks on secukinumab, the patient achieved significant skin clearance. However, there was recurrence in the scalp lesions once the induction phase was over
- Case 6: Patient with psoriasis vulgaris on topical steroid therapy and methotrexate 7.5 mg weekly

Table 1: Case summaries.

Case	Sex	Age	Weight	Previous treatment	Baseline PASI	PASI 75 at week	Baseline DLQI	DLQI at 24 weeks	Dosing regimen used
1	M	50	74	MTX and NBUVB	33.3	8	12	5	Psoriasis regimen#
2	M	39	82	MTX	28	12	13	3	Psoriasis regimen
3	M	42	85	Retinoid	34.2	8			Psoriasis regimen
4	F	33	56	MTX and NSAIDS	22	12	17	4	Psoriatic arthritis regimen*
5	F	48	67	MTX and topical coal tar	38	20	14	4	Psoriasis regimen
6	M	58	98	MTX and topical steroids	18	8	12	5	Psoriasis regimen
7	M	27	78	Retinoid,	24.8	12	16	4	Psoriasis regimen
8	F	51	63	cyclosporine, and MTX	28.7	16	15	4	Psoriasis regimen
9	M	46	93	Retinoid and intralesional steroids	19.6	12	11	3	Psoriasis regimen
10	F	52	70	Retinoid and topical steroids	14	12	14	3	Psoriasis regimen

PASI: Psoriasis area severity index, DLQI: Dermatology life quality index, MTX: Methotrexate, NBUVB: Narrow band ultraviolet therapy, NSAIDS: Non-steroidal anti-inflammatory drugs, #Psoriasis regimen-300 mg SC at weeks 0, 1, 2, 3, and 4, followed by monthly maintenance, *Psoriatic arthritis Regimen-150 mg SC at weeks 0, 1, 2, 3, and 4 followed by monthly maintenance

once with minimal improvement showed PASI 90 after 16 weeks of secukinumab with no adverse event reported

- Case 7: Patient with psoriasis vulgaris treated with oral acitretin 25 mg and topical steroids showed significant improvement in DLQI after the induction phase of secukinumab without any adverse event
- Case 8: Patient with pustular psoriasis who developed repeated flare ups while on the treatment with systemic cyclosporine 50 mg or methotrexate up to 10 mg weekly once intermittently was adequately controlled after secukinumab therapy with no adverse event reported throughout the treatment [Figure 3]
- Case 9: Patient with severe psoriatic nail changes previously treated with intralesional steroid therapy and oral acetretin showed 80% reduction in nail psoriasis severity index at week 12 without any evidence of adverse event [Figure 4]
- Case 10: Patient with palmoplantar psoriasis previously treated with topical steroid and oral acitretin on initiation of secukinumab therapy developed oral candidiasis after the induction phase, which improved with antifungal therapy. She achieved complete response after 12 weeks with improvement in DLQI.

DISCUSSION

Various studies have been conducted to know the efficacy and safety of secukinumab in psoriasis vulgaris. However, there are only few reports on the efficacy of secukinumab in other types of psoriasis. Among them, FIXTURE study showed that in moderate to severe psoriasis secukinumab provided faster onset of action and sustained higher clinical efficacy, compared to etanercept.[4] In GESTURE study, the largest randomized controlled trial in palmoplantar psoriasis, and secukinumab demonstrated the greatest efficacy to date for treating difficult-to-treat psoriasis.[5]

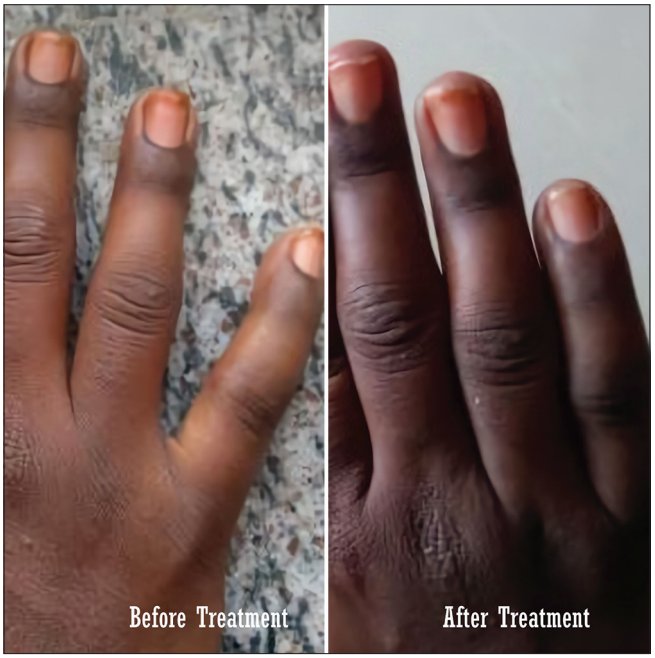

Figure 2: Psoriatic arthritis before and after treatment.

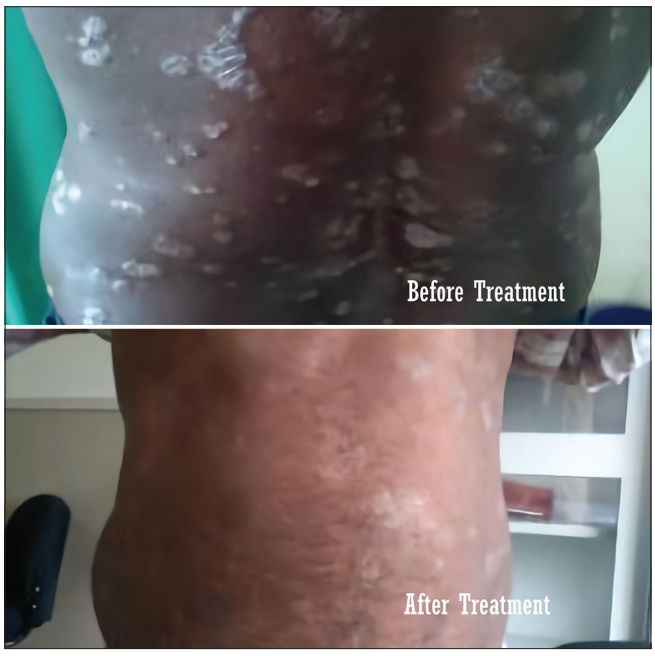

Figure 1: Psoriatic erythroderma before and after treatment.

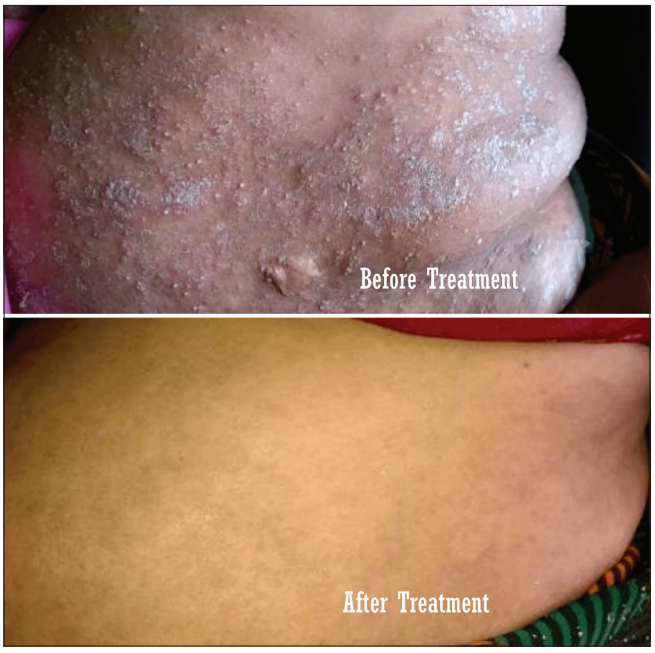

Figure 3: Pustular psoriasis before and after treatment.

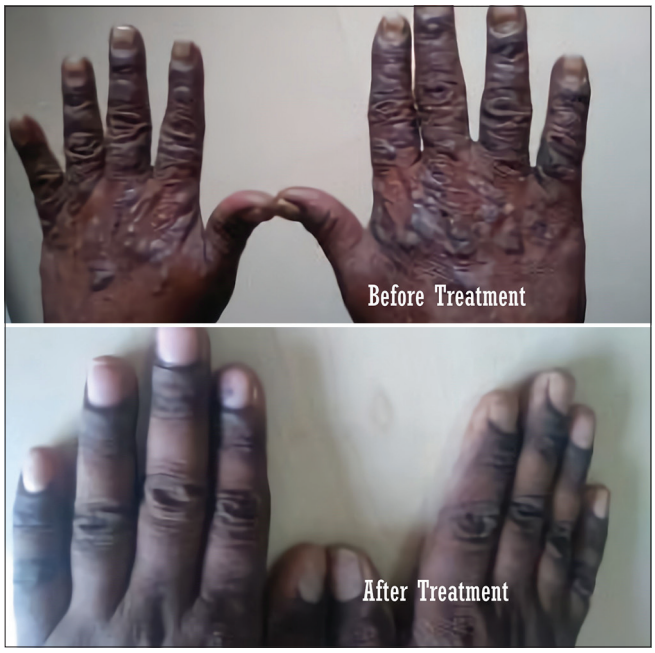

Figure 4: Psoriatic nail changes before and after treatment.

The results of TRANSFIGURE study evaluating secukinumab in nail psoriasis stated that the responses for PASI 75 and modified Investigator's Global Assessment score were significantly higher for secukinumab compared to placebo.[6]

All the above studies provide evidence that secukinumab has several advantages such as greater and sustained efficacy, rapid onset of action, and disease-modifying potential with improvement in the quality of life. It can be started for all patients of moderate to severe psoriasis with PASI >10, including those with history of treatment failure, difficult-to-treat patterns of psoriasis (nail, scalp, and palmoplantar psoriasis), psoriatic arthritis, psoriasis associated with comorbidities, and those with impaired quality of life, DLQI >10.[7]

The various drugs that act on IL-17A related psoriasis pathogenesis are secukinumab, ixekizumab, and brodalumab. Secukinumab is a recombinant fully human monoclonal antibody that binds and neutralizes the proinflammatory cytokine IL-17A and has a molecular weight of 150 kDa and a bioavailability of 73%. The mean elimination half-life was estimated around 27 days with very minimal excretion in urine.[8]

The Food and Drug Administration approved indications are moderate to severe plaque psoriasis, psoriatic arthritis, ankylosing spondylitis, rheumatoid arthritis, nail psoriasis, and palmoplantar psoriasis. It is also used for various off label indications such as pustular psoriasis, chronic noninfectious uveitis, and erythrodermic psoriasis.[9] The recommended dosage consists of induction phase with 300 mg SC injection at weeks 0, 1, 2, 3, and 4, followed by monthly maintenance dosing of 300 mg 4 weekly. For psoriatic arthritis, the recommended dosage is 150 mg on week 0, 1, 2, 3, 4 and 4 weekly thereafter.

The pre-drug monitoring includes the following investigations such as complete blood count (CBC), liver function tests, renal function tests, viral markers for human immunodeficiency virus, hepatitis B virus, and hepatitis C virus, markers to rule out active or latent tuberculosis (TB) with chest X-ray, mantoux, interferon-gamma release assay, blood sugar, electrocardiogram, urine routine, and urine pregnancy test in females. After initiation of therapy, CBC has to be monitored at 4 weeks and then every 12 weeks thereafter. Liver enzymes repeated after 4 weeks, 12 weeks, and then, every 3 months.

The various adverse events reported are injection site reactions and infections such as upper respiratory infections, candidiasis, oral herpes, and diarrhea.[10] Other less common events reported were hypersensitivity, headache, neutropenia, and formation of anti-drug antibodies.[11] Although it is a pregnancy category B drug, more studies are needed to establish its efficacy and safety in pregnancy and lactation. Live or live attenuated vaccines are contraindicated during induction and maintenance phases and for 6 months after stopping the therapy.[12] There have been reports of worsening of chronic inflammatory bowel disease and chronic hepatitis B infection with secukinumab injection. It is relatively safe with respect to TB reactivation provided prophylactic ATT given for patients with latent TB infection before initiation of secukinumab therapy.[13] No significant difference was observed in congestive heart failure incidence or major adverse cardiovascular events associated with secukinumab administration.[14] Increased risk of suicidal behavior noted with IL-17 inhibitor brodalumab rather than secukinumab. No increased risk of malignant and unspecified tumors in patients treated with secukinumab in various clinical trials.[15]

CONCLUSION

With this case series, we like to conclude that more than 80% of the patients who received secukinumab developed rapid clearance of the disease with improvement in DLQI. No major adverse event was noted. Secukinumab is a safe and effective drug in the treatment of various types of psoriasis apart from psoriasis vulgaris.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Conflicts of interest

There are no conflicts of interest.

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