

Case Series

The safety and efficacy of tofacitinib in 16 patients with adult-onset atopic dermatitis – a single-center experience

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ABSTRACT

Atopic dermatitis (AD) is an inflammatory condition manifesting with itchy lesions over the body. The distribution and morphology of the lesions differ with age. Adults usually present with lichenification or atypical lesions like head-neck dermatitis, hand eczema, prurigo lesions and seborrheic dermatitis-like lesions. It is a diagnosis of exclusion mainly based on the history and clinical findings. Tofacitinib is a Janus Kinase (JAK) 1 and 3 antagonist. It alters the cytokine expression, thereby suppressing the inflammatory cascade. It has been recently used as an off-label indication in atopic dermatitis with promising outcome. 16 patients of adult-onset AD were started on oral tofacitinib (5 mg twice daily) after relevant baseline investigations were within normal limits. The drug was prescribed for 3 months, and the response was assessed every month based on the improvement in Eczema Area and Severity Index (EASI), SCORing Atopic Dermatitis (SCORAD), Dermatology Life Quality Index (DLQI) and Peak Pruritus Numerical Rating Scale (PP-NRS). All patients showed a considerable reduction in SCORAD, with 10 patients achieving EASI 75 and 3 patients achieving EASI 50. There was significant alleviation of pruritus in all the patients. Tofacitinib was well-tolerated by all patients with minimal side effects. Two patients experienced mild derangement of lipid profile, one developed neutropenia, and two had herpes zoster reactivation. The limitations of the study are a smaller sample size, shorter duration of follow-up and a lack of placebo-control group. This case series suggests tofacitinib to be a remarkable treatment option in AD. Further studies need to be performed to establish its role as a potent steroid-sparing immunosuppressive in AD.

Keywords: Adult-onset atopic dermatitis, Atopic dermatitis, Janus Kinase inhibitors, Tofacitinib

INTRODUCTION

Atopic dermatitis (AD) is a chronic inflammatory skin condition usually seen in children but can also occur in adults. AD varies clinically with age. Infants and young children have scalp, face, and extensor involvement, whereas there is a predominant flexural association in older children and adults. Adults with AD may have a chronic, persistent, or relapsing-remitting course since childhood or may clinically present in adulthood. Adult-onset AD describes its manifestations in people aged more than 18 years. Unlike the infantile or childhood phase, the adult AD patients can present with lesions of varying morphology, thereby mimicking other diseases, which makes it a diagnostic challenge.

Tofacitinib is a janus kinase (JAK) inhibitor that acts mainly by inhibiting JAK-1 and 3 pathways. It is a novel drug and has been tried with beneficial effects in various inflammatory dermatoses. The advent of JAK-signal transducers and activator of transcription (STAT) inhibitors has opened another avenue for the treatment of AD. Various studies have established the role of baricitinib, upadacitinib, and abrocitinib

in AD. However, the effectiveness of oral tofacitinib is yet to be established. Hence, this study aims to assess the potency of oral tofacitinib in adult-onset AD.

CASE SERIES

A total of 16 patients of age ≥ 18 years with moderate-to-severe AD who were clinically diagnosed as per Hanifin and Rajka criteria, and classified according to SCORing AD (SCORAD) and eczema area and severity index (EASI) score, were included. The disease had a chronic course of ≥ 6 months, and prior treatment with corticosteroids (topical and oral), anti-histamines, and other immunosuppressives (methotrexate and cyclosporine) for ≥ 3 months had a transient and minimal effect. The patients presented with lesions of varying morphology, including prurigo, seborrheic dermatitis-like lesions, palmoplantar eczema, lichenified lesions, and nummular eczema [Table 1]. Other differentials of seborrheic dermatitis and psoriasis were excluded based on history, cutaneous presentation, and non-specific biopsy findings. Patch testing was done to rule out air-borne or

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Table 1: Adult-onset atopic dermatitis: General characteristics and clinical presentation.

No.	Age/Sex	Disease duration	Presentation	Distribution	Serum immunoglobulin E levels
1	35/Female	2.5 years	Lichenification, thick plaques	Flexural predominance.	Raised
2	29/Female	2 years	Seborrheic dermatitis-like lesions	Face, neck, chest, and trunk.	Raised
3	40/Male	1.5 years	Palmoplantar eczema with lichenified plaques	Palms and soles and upper and lower limbs.	Normal
4	38/Male	2 years	Palmoplantar eczema with nummular eczema over the legs	Palms and soles and legs.	Normal
5	52/Male	2 years	Prurigo-like lesions	Bilateral upper and lower limbs.	Normal
6	33/Female	1 year	Seborrheic dermatitis-like lesions	Neck, chest, and trunk.	Raised
7	32/Male	1.5 years	Lichenification with nummular eczema	Bilateral upper and lower limbs and Flexural predominance.	Raised
8	48/Female	1 year	Prurigo-like lesions	Body and predominantly over the upper and lower extremities.	Normal
9	25/Female	7 months	Photosensitive eczematous lesions	Neck, upper back, and extensor aspect of bilateral upper limbs.	Normal
10	25/Male	11 months	Seborrheic dermatitis-like lesions	Face, neck, chest, and trunk.	Normal
11	48/Female	1 year	Photosensitive dermatitis with nummular eczema	Face, neck, upper back, and bilateral upper limbs.	Raised
12	26/Female	2 years	Prurigo-like lesions	Bilateral upper and lower limbs.	Raised
13	37/Female	1.5 years	Eczema with fissuring	Palms and soles	Normal
14	42/Male	4 years	Prurigo-like lesions	Body and predominantly over the upper and lower extremities.	Normal
15	36/Female	2.5 years	Palmoplantar and nummular eczema	Palms and soles and lower limbs.	Raised
16	40/Male	3 years	Eczematous lesions	Bilateral upper and lower limbs and trunk.	Normal

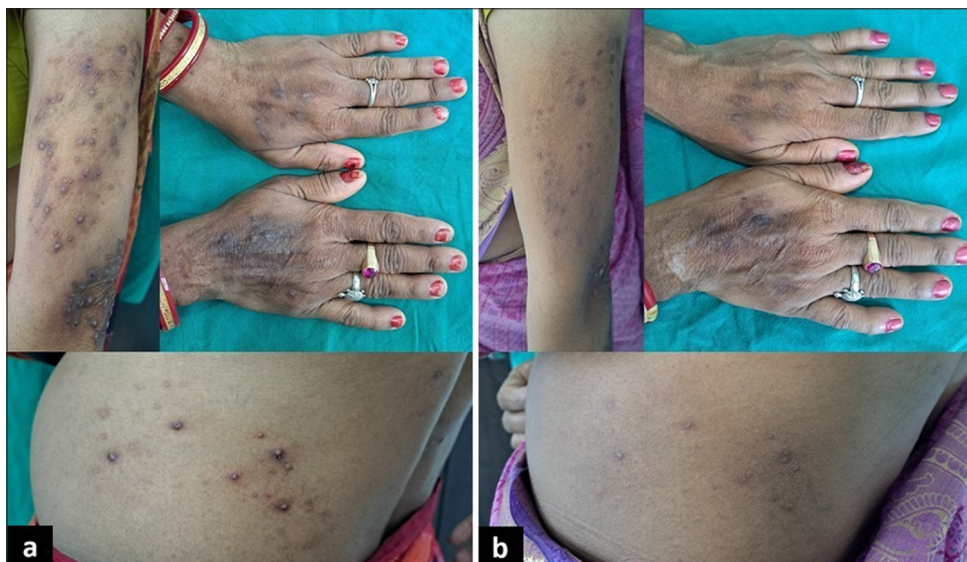


Figure 1: Prurigo-like lesions over the bilateral dorsum of hands, arms, and trunk in a female patient with adult-onset atopic dermatitis. (a) At baseline, (b) After 3 months of oral tofacitinib.

allergic contact dermatitis. Serum immunoglobulin E (IgE) levels were assessed at baseline.

The patients were planned for oral tofacitinib, for which a panel of tests, which included complete blood count (CBC),

liver and renal function tests (liver function test [LFT] and renal function test [RFT]), fasting lipid profile, serological testing for hepatitis B, hepatitis C, human immunodeficiency virus, tuberculosis testing (Mantoux and Quantiferon TB gold tests), and pregnancy test were performed. Tofacitinib was started orally at a 5 mg twice-daily dose along with moisturizers after the reports came within normal limits. The patients were followed up every month for 3 months while on treatment. Clinical response was assessed based on the improvement of EASI, SCORAD, dermatology life quality index (DLQI), and peak pruritus numerical rating scale (PP-NRS). The patients were also evaluated for any flares or adverse effects to the drug. CBC, LFT, and RFT were repeated after 1 month of treatment and then at the end of 3 months thereafter to look for any derangements. Tofacitinib was then tapered to once daily, then alternate days, twice weekly dosing for the next 3-6 months, and then stopped.

RESULTS

The study group included 7 males and 9 females. Their ages ranged from 23-58 years. The average duration of illness was 1.8 years, the shortest being 7 months and the longest being 4 years. 7 patients had raised serum IgE levels. At the initial visit, the mean EASI was 21.9 and the mean SCORAD was 49.7.

The patients were started on tofacitinib and followed up monthly to monitor disease activity. The mean EASI reduced to 5.5, and SCORAD to 17.7 ($p < 0.0001$ in unpaired t-test). 10 patients showed >75% reduction in EASI score, and three patients showed around 50% reduction in EASI score. There was a reduction of ≥ 4 points in PP-NRS in all patients with notable alleviation of pruritus. All patients showed a significant improvement in the quality of life, with the mean DLQI reducing from 16 to 4.92 [Table 2 and Figures 1-3]. Tofacitinib was well-tolerated by 13 patients, with minimal

Table 2: Baseline characteristics and treatment outcomes with oral tofacitinib.

No.	EASI (at baseline)	EASI (at 4 weeks)	EASI (at 8 weeks)	EASI (at 12 weeks) (%)	SCORAD (at baseline)	SCORAD (at 12 weeks)	PP-NRS (at baseline)	PP-NRS (at 12 weeks)	DLQI (at baseline)	DLQI (at 12 weeks)
1	24.7	16.5	11.2	8.1 (67)	41.75	15.75	9	5	17	5
2	23	17	8	7 (52)	56	18	7	1	18	7
3	20.1	12	9.6	3.6 (82)	40.95	21.5	10	2	16	3
4	28.5	18.5	11.2	7.1 (75)	51	16.5	9	4	15	4
5	23	16.5	9.5	7 (50)	61.55	28.25	10	1	19	7
6	31	26.6	16.5	7.5 (76)	66.85	20.15	9	3	18	5
7	20.6	18	12.7	5.6 (73)	54.1	20.45	8	3	14	6
8	18	12.4	7.1	4 (78)	44.7	13.5	9	2	17	5
9	29	20.6	11.2	8.4 (71)	39.7	16.2	10	3	15	7
10	13	8.4	4	2 (80)	54.7	15.2	9	4	14	4
11	20.7	12.7	8.8	3 (86)	46.3	14.5	9	1	15	3
12	17	11.6	9.6	3.9 (77)	41.75	15.75	8	2	16	4
13	16	12.8	8.8	4 (75)	46.3	14.3	10	2	14	4

EASI: Eczema area and severity index, SCORAD: SCORing atopic dermatitis, PP-NRS: Peak pruritus numerical rating scale, DLQI: Dermatology life quality index



Figure 2: Hyperkeratotic bilateral hand eczema in a male patient of adult-onset atopic dermatitis. (a) At baseline, (b) After 2 months of oral tofacitinib, (c) After 3 months of oral tofacitinib.

side effects (gastrointestinal intolerance, mild derangement of lipid profile). Tofacitinib had to be discontinued in 3 patients. One patient developed neutropenia at 1 month of starting tofacitinib. Two patients had herpes zoster reactivation, which presented with vesicles and pustules over an erythematous background following a dermatomal distribution with severe pain. Two patients showed mild lipid profile derangement. They were advised to take a once-daily dose of tofacitinib along with a hyperlipidemic diet focusing on lower cholesterol and triglycerides, more soluble fiber, and increased unsaturated fat intake. Furthermore, one patient was advised oral atorvastatin.

DISCUSSION

AD is a chronic cutaneous condition characterized by intensely pruritic lesions. It is usually seen in early childhood and may progress to old age or may arise *de novo* in adults. The terminology “adult-onset AD,” coined by Bannister *et al.* in 2000, describes individuals manifesting with AD at a later age of ≥ 18 years.^[1] According to the global research on AD in adults, its prevalence ranges from 2% to 17.6%, with increased incidence in developed countries.^[2] Based on the serum IgE levels, AD can be classified as extrinsic (raised IgE) and intrinsic (normal levels of IgE). Extrinsic AD usually presents with flexural lichenification, whereas follicular and nummular lesions are predominant in intrinsic AD.^[3] Moreover, the environmental and physical factors that cause AD in adults differ from those in infants and children, thereby leading to the different patterns of involvement and morphologies in

older age groups. Unlike flexural predilection in childhood, adults can present with nummular eczema, prurigo-like lesions, lichen simplex, psoriasiform, seborrheic dermatitis-like lesions, photodermatoses, airborne contact dermatitis-like plaques, palmoplantar eczemas, lichenoid, and erythrodermic lesions. It commonly involves the hands in females and the eyelids in males.^[4]

Hanifin and Rajka criteria or the UK Working Party’s diagnostic criteria have been instrumental in the diagnosis of AD in the pediatric population. However, its validity in diagnosing adult-onset AD still remains to be tested. A few features in the criteria are inconsistent with adult presentation and may hinder the diagnosis. Hence, adult-onset AD is essentially a diagnosis of exclusion. Conditions such as seborrheic dermatitis, psoriasis, allergic contact dermatitis, scabies, and lymphoma should be ruled out to reach the diagnosis.^[5-7]

Emollients and antihistamines are the mainstay of treatment in all forms of AD. Systemic corticosteroids, immunosuppressives, and biologics are considered in severe and refractory cases. Appropriate therapy should be chosen based on the severity of the condition, presence of comorbidities, and patient profile.

JAK-STAT pathway leads to activation of various inflammatory cytokines such as interleukins -4, 5, 13, and tumor necrosis factor-alpha, which are implicated in AD. JAK inhibitors block the pathway, thereby downregulating the expression of these cytokines. It has been tried in AD with promising results. Tofacitinib is a small molecule immunomodulator that acts by

Table 3: Review of literature on oral tofacitinib in adult atopic dermatitis.

Year	Authors	Number of patients	Dosage	Outcome	Remarks
Our study		13	5 mg twice daily for 6-9 months	10 patients achieved EASI 75, and 3 patients achieved EASI 50 by 3 months	Tofacitinib showed a promising response, with adverse effects including neutropenia, herpes zoster reactivation, and dyslipidemia.
2015	Levy <i>et al.</i> ^[8]	6	5 mg twice daily for 8-29 weeks	Near-complete remission	None of the patients developed any adverse effects.
2020	Berbert <i>et al.</i> ^[9]	1	5 mg twice daily for 16 months	Complete remission	Tofacitinib showed near-complete clearance of disease by 3 months of treatment, with one episode of herpes simplex infection.
2021	Peterson and Vesely ^[10]	1	5 mg twice daily for 4 months along with dupilumab	Complete remission	Tofacitinib-dupilumab combination showed disease clearance without any adverse effects.
2022	Duraisamy <i>et al.</i> ^[11]	12	5 mg twice daily for 1 month	Complete remission in 10 patients	This study found tofacitinib to be an efficacious treatment option in refractory eczema.
2024	Dhar <i>et al.</i> ^[12]	16	5 mg twice daily for 6 months	62.5% patients achieved EASI 75	In this study, tofacitinib showed significant improvement, with dyslipidemia in 3 patients and altered bleeding time in 2 patients.

EASI: Eczema area and severity index



Figure 3: Photosensitive eczematous lesions over the face and neck in a female patient of adult-onset atopic dermatitis. (a) At baseline, (b) After 3 months of oral tofacitinib.

inhibition of the JAK-STAT pathway (JAK 1 and 3 inhibition). Moreover, it also modulates the barrier integrity and regulates the peripheral nerves, which cause pruritus.

Topical cream formulation of ruxolitinib has received approval for mild-to-moderate AD, whereas systemic JAK inhibitors such as abrocitinib and upadacitinib have been approved by the Food and Drug Administration (FDA) for moderate-to-severe AD. Baricitinib was approved in the European Union and Japan due to its impressive results. However, studies on the off-label use of tofacitinib in AD are scarce and have been mentioned in Table 3.^[8-12] Like the previous studies, our case series suggests that tofacitinib is a good steroid-sparing alternative in the therapeutic armamentarium of AD. However, it is not devoid of side effects and has yet to receive approval. The FDA has issued a boxed warning regarding increased incidences of thromboembolism, malignancies, major adverse cardiovascular events, and infections such as tuberculosis and hepatitis. Hence, regular follow-ups with detailed history-taking, clinical examination, and consistent monitoring of laboratory parameters are of paramount importance, especially when administered in the adult and elderly population.

Limitations

Smaller sample size and the shorter duration of follow-up prevented us from making any definite conclusions about the duration of remission and long-term safety of treatment with tofacitinib. Moreover, the lack of a placebo-control group and a smaller demographic population also limited our study.

CONCLUSION

Tofacitinib was safe, efficacious, and well-tolerated by most of the patients as observed in our study. The promising

results with this molecule suggest that it can be considered as an upcoming cost-effective therapeutic option in severe AD. Further randomized controlled studies are required to validate the findings.

Ethical approval: Institutional review board approval is not required.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patients have given their consent for their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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REFERENCES

1. Bannister MJ, Freeman S. Adult-onset atopic dermatitis. *Australas J Dermatol* 2000;41:225-8.
2. Sacotte R, Silverberg JI. Epidemiology of adult atopic dermatitis. *Clin Dermatol* 2018;36:595-605.
3. Kulthanan K, Boochangkool K, Tuchinda P, Chularojanamontri L. Clinical features of the extrinsic and intrinsic types of adult-onset atopic dermatitis. *Asia Pac Allergy* 2011;1:80-6.
4. Thappa DM, Malathi M. Is there something called adult onset atopic dermatitis in India?. *Indian J Dermatol Venereol Leprol* 2013;79:145-7.
5. Ricci G, Dondi A, Patrizi A. Useful tools for the management of atopic dermatitis. *Am J Clin Dermatol* 2009;10:287-300.
6. Tanei R, Katsuoka K. Clinical analyses of atopic dermatitis in the aged. *J Dermatol* 2008;35:562-9.
7. Ozkaya E. Adult-onset atopic dermatitis. *J Am Acad Dermatol* 2005;52:579-82.

8. Levy LL, Urban J, King BA. Treatment of recalcitrant atopic dermatitis with the oral Janus kinase inhibitor tofacitinib citrate. *J Am Acad Dermatol* 2015;73:395-9.
9. Berbert Ferreira S, Berbert Ferreira R, Scheinberg MA. Atopic dermatitis: Tofacitinib, an option for refractory disease. *Clin Case Rep* 2020;8:3244-7.
10. Peterson DM, Vesely MD. Remission of severe atopic dermatitis with dupilumab and rescue tofacitinib therapy. *JAAD Case Rep* 2021;10:4-7.
11. Duraisamy P, Jagadeesan S, Thomas J. Tofacitinib in the treatment of refractory eczemas -a case series. *J Dermatolog Treat* 2022;33:2873-5.
12. Dhar S, De A, Sarda A, Godse K, Lahiri K. Real-world efficacy and

safety of oral tofacitinib in patients with refractory moderate to severe atopic dermatitis: A multicenter retrospective study. *Indian J Dermatol* 2024;69:292-5.

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