

Effective treatment of alopecia universalis with oral upadacitinib



Soundos Youssef, MD, and Lindsey A. Bordone, MD

Key words: alopecia areata; alopecia universalis; JAK inhibitor; Janus kinase inhibitor; upadacitinib; treatment efficacy.

INTRODUCTION

Alopecia areata (AA) is a noncicatricial form of hair loss. While reversible, AA is characterized by substantial disease burden and psychosocial impairment. Patients currently have no curative therapies to effectively treat their physical and mental concerns. Janus kinase inhibitors (JAKIs) have been showing positive results in several AA trials.^{1,2} Upadacitinib is a selective JAK-1 inhibitor used to treat moderate to severe rheumatoid arthritis and psoriatic arthritis unresponsive to first-line therapies.^{3,4}

CASE REPORT

A 67-year-old man presented to our dermatology clinic at Columbia University Medical Center with an abrupt onset of alopecia universalis. He had lost all of his scalp, face, and body hair over a period of 6 months. His condition was refractory to intralesional and oral steroids. The patient complained of severe eye irritation due to lack of eyebrows and eyelashes. He reported severe pruritus all over his skin since developing alopecia universalis. He exhibited significant functional impairment due to his disease, marked by sleep disturbance, difficulty engaging in daily activities, and trouble socializing. On physical examination, his scalp, eyebrows, and eyelashes had no hair (Severity of Alopecia Tool score was 100%) (Fig 1, A). His beard and bilateral arms and legs were hairless. All fingernails displayed dystrophy. His medical history was notable for hypertension, hyperlipidemia, and coronary artery disease treated with triple coronary bypass surgery at

Abbreviation used:

AA: alopecia areata
JAKI: Janus kinase inhibitor

the age of 37 years. The patient was a nonsmoker. He was able to get insurance coverage of upadacitinib and was put on 15 mg extended release once daily since mid-February 2021 after approval by his cardiologist.

After 3 months of treatment, the patient presented for follow-up. His skin was still extremely itchy and he complained of coldness in his extremities due to lack of body hair. On examination, his eyebrows and eyelashes had a 50% regrowth. His scalp showed 80% hair regrowth (Severity of Alopecia Tool score was down to 20%), and his beard had 40% regrown (Fig 1, C). His nails had significant dystrophy with normal nails proximally. One month later (after 4 months of therapy), the patient presented with full hair regrowth on all hair-bearing regions (Severity of Alopecia Tool score reduced to 0%) and his nails started growing normally. The pruritus was attributed to small fiber neuropathy and resolved after seeing a neurologist and starting gabapentin. The patient did not have any side effects except for a transient elevation in serum lipase and amylase levels, which subsided.

The patient stopped taking upadacitinib in June 2021 (after 4 months of treatment) without tapering the dose (15 mg daily). He maintained his full hair

From the Department of Dermatology, Columbia University Irving Medical Center, New York, New York.

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Correspondence to: Lindsey A. Bordone, MD, Department of Dermatology, Columbia University Irving Medical Center, 161

Fort Washington Avenue, New York, NY 10032. E-mail: lab87@cumc.columbia.edu.

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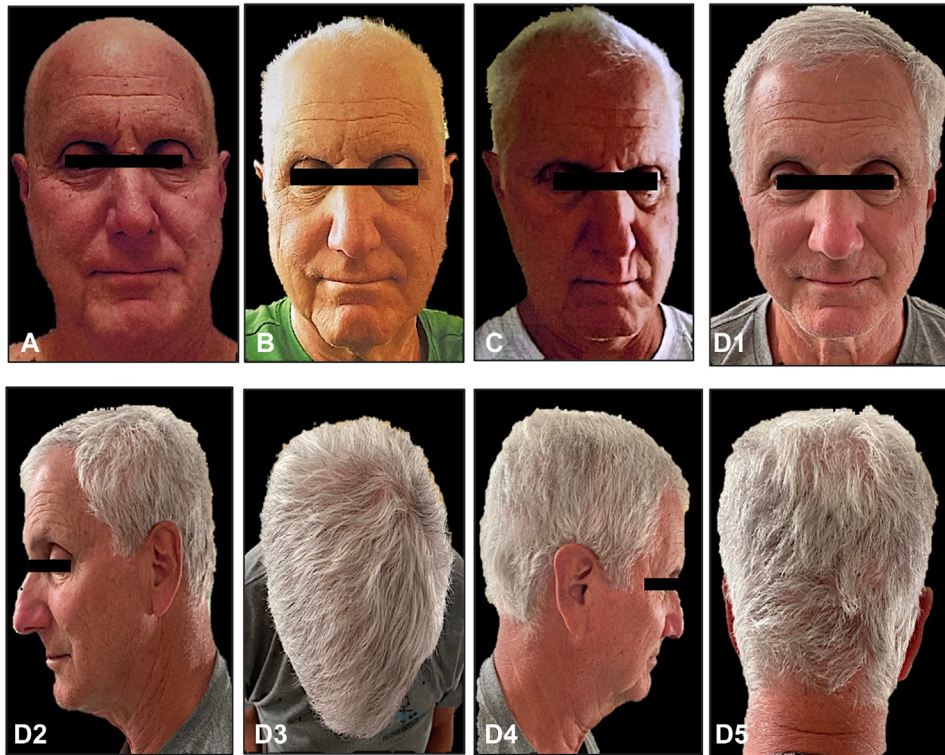


Fig 1. Patient with alopecia universalis achieving full scalp, beard (shaved here), eyebrow, and eyelash hair regrowth with oral upadacitinib. **A**, pre-treatment (2021); **B**) 2 months on treatment (2021); **C**) 3 months on treatment (2021); **(D1-5)** 3 months on treatment (2022).

regrowth off medication for up to 6 months. In January 2022, he had a stressful trip to Africa and reported losing some hair again. He thus went back on 15 mg upadacitinib extended release daily in March 2022. The patient is still taking the medication and has reached full hair regrowth of the scalp, beard, eyelashes, and eyebrows in July 2022 (3 months after reinstating therapy). The patient's hair color is white, rendering it less conspicuous in the photographs, especially on the face (Fig 1, D1-5).

DISCUSSION

Numerous case reports and clinical trials reported positive outcomes in patients with AA treated with JAKIs,⁵ including upadacitinib.⁶ A study found an increased risk of venous thromboembolic events in patients with rheumatoid arthritis taking baricitinib and tofacitinib. This risk faded 1 month following exposure.⁷ Conversely, the SELECT phase III clinical program (5 randomized controlled trials) for rheumatoid arthritis found no difference in the rate of venous thromboembolic events among patients receiving upadacitinib, methotrexate, or adalimumab.⁸ When comparing the findings of the post hoc analysis⁷ to those of the SELECT phase III trial,⁸ we may suggest that upadacitinib seems to have a better

cardiovascular safety profile relative to baricitinib and tofacitinib. This could explain why our patient, while having a strong cardiovascular disease risk profile, was tolerating upadacitinib so well without suffering any venous thromboembolic events or adverse events. As this is only 1 case report, no definite conclusions may be drawn, but it is a paving stone for future studies.

We obtained the patient's consent form about publishing all photographic materials (Fig 1). The patient started responding to oral upadacitinib as soon as 2 months following treatment initiation (Fig 1, B). He achieved full response after 4 months in 2021 and after 3 months since reinstatement in 2022 (Fig 1, D1-5). The patient denied any side effects while on therapy but rather expressed psychosocial improvement. He only had a brief, self-resolving rise in amylase and lipase levels during the 2021 treatment course.

AA is a chronic and highly debilitating dermatologic condition that has otherwise had a deficit in effective Food and Drug Administration–approved therapeutic options prior to the introduction of JAKIs and the latest approval of baricitinib.¹ Studies exploring the use of oral upadacitinib in patients with AA are lacking. One recent case report found AA improvement in a patient with concomitant atopic dermatitis.⁹ Similarly, our case report demonstrates a promising role for oral

upadacitinib in a 67-year-old man, with a known history of cardiovascular disease, and whom has been struggling with severe, recalcitrant alopecia universalis. Complete hair regrowth was sustained for 6 months after discontinuing treatment and attained again 3 months after resuming therapy. Nonetheless, the treatment duration (4 months in 2021, 3 months and counting in 2022) and surveillance period (17 months) are relatively short for us to be able to make any inference regarding the safety of oral upadacitinib. The patient will continue to be routinely monitored for drug tolerability through laboratory investigation and symptomatic evaluation during follow-up visits in clinic.

Keeping in mind the Food and Drug Administration's safety communication,¹⁰ caution must be undertaken when prescribing patients JAKIs with vigilant symptomatic and laboratory monitoring. In light of the paucity of literature focusing on the use of upadacitinib for the treatment of AA, larger studies with a longer follow-up period and higher level of evidence (randomized controlled trials) are critical to confirm its efficacy and assess its long-term safety profile.

Conflicts of interest

None disclosed.

REFERENCES

1. King B, Ohyama M, Kwon O, et al, BRAVE-AA Investigators. Two phase 3 trials of baricitinib for alopecia areata. *N Engl J Med*. 2022; 386(18):1687-1699. <https://doi.org/10.1056/NEJMoa2110343>
2. Ibrahim O, Bayart CB, Hogan S, Piliang M, Bergfeld WF. Treatment of alopecia areata with tofacitinib. *JAMA Dermatol*. 2017;153(6): 600-602. <https://doi.org/10.1001/jamadermatol.2017.0001>
3. McInnes IB, Anderson JK, Magrey M, et al. Trial of upadacitinib and adalimumab for psoriatic arthritis. *N Engl J Med*. 2021; 384(13):1227-1239. <https://doi.org/10.1056/NEJMoa2022516>
4. Mease PJ, Lertratanakul A, Anderson JK, et al. Upadacitinib for psoriatic arthritis refractory to biologics: SELECT-PsA 2. *Ann Rheum Dis*. 2021;80(3):312-320. <https://doi.org/10.1136/annrheumdis-2020-218870>
5. Phan K, Sebaratnam DF. JAK inhibitors for alopecia areata: a systematic review and meta-analysis. *J Eur Acad Dermatol Venereol*. 2019;33(5):850-856. <https://doi.org/10.1111/jdv.15489>
6. Gambardella A, Licata G, Calabrese G, De Rosa A, Alfano R, Argenziano G. Dual efficacy of upadacitinib in 2 patients with concomitant severe atopic dermatitis and alopecia areata. *Dermatitis*. 2021;32(15):e85-e86. <https://doi.org/10.1097/DER.0000000000000780>
7. Gouverneur A, Avouac J, Prati C, et al. POS0225 risk of major cardiovascular event across JAK inhibitor treated patients: analysis of a National Claim Database. *Ann Rheum Dis*. 2021;80: 331-332.
8. Cohen SB, van Vollenhoven RF, Winthrop KL, et al. Safety profile of upadacitinib in rheumatoid arthritis: integrated analysis from the SELECT phase III clinical programme [published correction appears in *Ann Rheum Dis*. 2021 May; 80(5):e83]. *Ann Rheum Dis*. 2021;80(3):304-311. <https://doi.org/10.1136/annrheumdis-2020-218510>
9. Cantelli M, Martora F, Patruno C, Nappa P, Fabbrocini G, Napolitano M. Upadacitinib improved alopecia areata in a patient with atopic dermatitis: a case report. *Dermatol Ther*. 2022;35(4):e15346. <https://doi.org/10.1111/dth.15346>
10. United States Food and Drug Administration. FDA requires warnings about increased risk of serious heart-related events, cancer, blood clots, and death for JAK inhibitors that treat certain chronic inflammatory conditions. Accessed July 18, 2022. <https://www.fda.gov/drugs/drug-safety-and-availability/fda-requires-warnings-about-increased-risk-serious-heart-related-events-cancer-blood-clots-and-death>