Journal of Dermatological Treatment

ISSN: 0954-6634 (Print) 1471-1753 (Online) Journal homepage: www.tandfonline.com/journals/ijdt20

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To cite this article: Carlo A. Vignoli, Luigi Gargiulo, Luciano Ibba, Anna Balato, Mauro Barbareschi, Stefania Barruscotti, Giulia Bazzacco, Francesco Bellinato, Vittoria G. Bianchi, Valeria Boccaletti, Raffaele D. Caposiena Caro, Silvia M. Ferrucci, Alessandro Fraghì, Elisabetta Fulgione, Giuseppe Gallo, Paolo Gisondi, Isotta Giunipero di Corteranzo, Piergiorgio Malagoli, Angelo V. Marzano, Santo R. Mercuri, Diego Orsini, Pietro Quaglino, Simone Ribero, Antonio Costanzo & Alessandra Narcisi (2025) Baricitinib for the treatment of severe alopecia areata: results from a 52-week multicenter retrospective real-world study, Journal of Dermatological Treatment, 36:1, 2444494, DOI: 10.1080/09546634.2024.2444494

To link to this article: https://doi.org/10.1080/09546634.2024.2444494

Published online: 06 Jan 2025.

JOURNAL OF DERMATOLOGICAL TREATMENT
2025, VOL. 36, NO. 1, 2444494
https://doi.org/10.1080/09546634.2024.2444494

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BRIEF REPORT

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Baricitinib for the treatment of severe alopecia areata: results from a 52-week multicenter retrospective real-world study

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ABSTRACT

Purpose of the article: Baricitinib, a JAK 1/2 inhibitor, is approved for treating severe alopecia areata (AA). This study aimed to evaluate the long-term effectiveness and safety of baricitinib in a real-world setting over 52 weeks.

Materials and methods: This multicenter retrospective study included 96 adult patients diagnosed with severe AA from 11 Italian Dermatology Units. All patients received 4 mg of baricitinib daily. Effectiveness was assessed using the Severity of Alopecia Tool (SALT) score, with the primary endpoint defined as achieving a SALT score ≤ 20 at week 52. Secondary endpoints included achieving a Clinician-Reported Outcome (ClinRO) score of 0 or 1 for eyebrow (ClinRO EB) and eyelash hair loss (ClinRO EL), with a ≥ 2-point improvement from baseline.

Results: After 52 weeks, 61.5% of patients achieved a SALT score ≤ 20. Additionally, 67.6% and 69.7% of patients attained ClinRO EB and ClinRO EL scores of 0 or 1, respectively, with a ≥ 2-point improvement. No significant adverse safety events were reported during the study.

Conclusions: The study confirms the long-term effectiveness and safety of baricitinib for severe AA in a real-world setting. These findings align with clinical trial results and reinforce baricitinib's role as a viable treatment option for severe AA.

ARTICLE HISTORY
Received 31 October 2024
Accepted 12 December 2024

KEYWORDS
Alopecia areata; baricitinib; ClinRO; JAK inhibitors; SALT

Introduction

Alopecia areata (AA) is a chronic immune-mediated disease that causes non-scarring hair loss on the scalp, face, and body (1). In this condition, the loss of the hair follicle's immune privilege contributes to immune system dysregulation, leading to inflammation and hair follicle damage, with key roles played by interferon-gamma (IFN-gamma), Interleukin-15 (IL-15) and Janus kinase (JAK) (2).

Baricitinib, an oral reversible inhibitor of JAK 1 and 2, has gained approval for the treatment of severe AA based on the result of two randomized phase-III clinical trials, BRAVE-AA1 and BRAVE-AA2 (3). JAK inhibition, particularly with baricitinib, has proven effective in restoring hair growth in alopecia areata, specifically in severe forms with a Severity of Alopecia Tool (SALT) score of ≥50, indicating more than 50% scalp hair loss (4). Although limited by a short follow-up, recent studies have supported the role of baricitinib in treating severe AA in a real-world clinical setting (5). Nonetheless, due to variable patient responses, treatment of alopecia areata may necessitate more extended observation periods (6,7).

In order to further evaluate the long-term effectiveness and safety profile of baricitinib in adults with severe AA, we conducted a multicenter retrospective study following patients for at least 52 weeks of continuous treatment with baricitinib 4 mg.

Materials and methods

This retrospective observational study was conducted on adult patients diagnosed with severe AA who were treated with baricitinib. The study included patients with a SALT score of 50 or

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higher (range 0 to 100, with 0 representing no scalp hair loss and 100 complete scalp hair loss), who were eligible for systemic therapy in accordance with clinical guidelines, having either shown an inadequate response or intolerance to other treatment options or for whom alternative therapies were deemed unsuitable. The study population included patients who attended eleven Italian Dermatology Units. All enrolled patients were over 18 years old and were tested for viral hepatitis and latent tuberculosis before starting baricitinib, as per the Summary of Product Characteristics of the drug (8). Routine blood tests, including complete blood count, liver enzymes, and lipid profile, were conducted at baseline, at week 4, 16 and then as needed, according to individual patient's characteristics. The dermatological examination was conducted at weeks 0, 8, 16, 24, 32, 36, 44 and 52. Only patients who completed the 52-week follow-up were included in the final analysis.

Data were collected from October 2022 to July 2024, with approval from the hospital's institutional review board. Informed written consent was obtained from all participants.

Patients' characteristics, including gender, age, weight, body mass index (BMI), proportion of patients with alopecia universalis, cardiovascular comorbidities (arterial hypertension, obesity, type 2 diabetes mellitus, hypercholesterolemia), concomitant autoimmune thyroiditis and atopic background (medical history or current atopic dermatitis, allergic rhinitis, allergic conjunctivitis, or allergic asthma) were obtained from electronic medical records.

Patients received baricitinib in monotherapy at a dosage of 4 mg orally once daily, according to the summary of product characteristics of the drug, as no patients over 65 years of age were included (8). The primary outcome was assessed by the percentage of patients achieving a SALT score of 20 or less at the end of the 52-week follow-up period. Secondary outcomes included the proportion of patients achieving a Clinician-Reported Outcome (ClinRO) Measure for Eyebrow Hair Loss™ (ClinRO EB) score of 0 or 1 and a ClinRO Measure for Eyelash Hair Loss™ (ClinRO EL) score of 0 or 1, both with $a \geq 2$-point improvement from baseline among patients with initial scores of 2 or 3 at week 52[3]. In addition, we evaluated the percentage of patients who achieved SALT score ≤ 20, ClinRO EB 0/1, and ClinRO EL 0/1 at weeks 8, 16, 24, 32, 36, and 44.

Safety was evaluated by monitoring adverse events (AEs), serious adverse events (SAEs), and clinical laboratory tests. AEs were categorized and reported throughout the study period.

Descriptive statistics were used to summarize these results. In particular, categorical data were presented as absolute frequencies and percentages, while continuous variables were expressed as means and standard deviations (SD). A paired one-tailed t-test was performed to evaluate whether the difference in patient weight between the start and the end of the observation period was statistically significant. A p-value ≤ 0.05 was considered statistically significant.

Microsoft Excel and STATA SE 17.0 were used to produce statistical analyses, figures, and tables.

Results

Ninety-six adult patients were included in the study, with a mean age of 41.0 years (SD: 13.0). The cohort consisted of 59 females (61.5%) and 36 males (38.5%), with disease duration ranging from 1 year to 54 years (mean: 12.3 years; SD 12.2). At baseline, the mean weight and BMI were 67.7 kg (SD 11.0) and 23.4 Kg/m^2 (SD 3.1), respectively. The mean SALT score at baseline was 84.5 (SD 18.6). Of the patients, 46 (47.9%) presented with a severe form of alopecia areata (SALT score 50–94), and 50 suffered from very severe disease (SALT score 95–100). A total of 40 patients (41.7%) were clinically diagnosed with alopecia universalis (hair loss of the entire body). Baseline ClinRO scores for eyebrow and eyelash loss of 2 or higher were assessed in 62 (64.6%) and 77 (80.2%) patients, respectively. Additional demographic characteristics of our population at baseline are provided in Table 1.

Table 1. Demographic and clinical characteristics of the patients at baseline.

Number of patients	96 N (%)
Female	59 (61.5)
AA < 4 years	22 (22.9)
AA ≥ 4 years	74 (77.1)
Patients with alopecia universalis	40 (41.7)
Autoimmune thyroiditis	23 (24)
At least one cardiometabolic comorbidity	9 (9.4)
At least one atopic comorbidity	24 (25)
Severe AA (SALT 50–94)	46 (47.9)
Very severe AA (SALT 95–100)	50 (52.1)
ClinRO Measure for Eyebrow Hair Loss TM score ≥ 2	62 (64.6)
ClinRO Measure for Eyelash Hair Loss TM score ≥ 2	77 (80.2)
	Mean (SD)
Age, years	41.0 (13.0)
Disease duration, years	12.3 (12.2)
Weight, kg	67.7 (11.0)
BMI, Kg/m2	23.4 (3.1)
SALT score at baseline	84.5 (18.6)

AA: alopecia areata; ClinRO: clinician-reported outcome; SALT: severity of alopecia tool; SD: standard deviation; BMI: body mass index.

The percentage of patients achieving a SALT score of 20 or less increased steadily over time, rising from 7.7% at week 8 to 56.2% at week 36, and culminating in 61.5% (59 out of 96 patients) at the end of the 52-week follow-up (Figure 1). Among those with very severe baseline disease receiving baricitinib 4 mg, 56% reached a SALT score of ≤20.

Significant improvements were also observed in eyebrow and eyelash regrowth throughout the follow-up. Among patients with baseline ClinRO scores for eyebrow loss of 2 or 3, the percentage achieving a score of 0 or 1 with $a \geq 2$-point improvement from baseline increased from 5.8% at week 8 to 61.8% at week 36 and 67.6% at week 52. Similarly, for eyelash regrowth, the percentage achieving a ClinRO EL score of 0 or 1 rose from 4.6% at week 8 to 61.9% at week 36 and 69.7% at week 52 (Figure 2).

Among the 96 patients, treatment-emergent AEs (TEAEs) were reported in 50% of patients. The most common clinical AEs (affecting at least 3% of the study participants) included upper respiratory tract infections, headache, acne, and asthenia. The most common laboratory AEs were hypercholesterolemia, blood cell count abnormalities, elevated blood creatine phosphokinase (CPK), and hypertriglyceridemia.

At the start of the study, the patients' mean weight was 67.7 kg (SD: 11.0), which increased to 69.5 kg (SD: 12.2) after one year of treatment with baricitinib (p-value = 0.008). Thirty-one patients (32.3%) experienced weight gain during the study period.

All TEAEs were mild or moderate in severity, and no SAEs were reported during the study. Additional AEs occurring during our study are shown in Table 2.

Discussion

Baricitinib is the first oral JAK inhibitor approved for the treatment of severe AA (8). Phase-III clinical trials have demonstrated the efficacy and safety profile of baricitinib for the treatment of AA, with initial real-world reports being recently published. Given the chronic-relapsing nature of the disease, evaluating the effectiveness

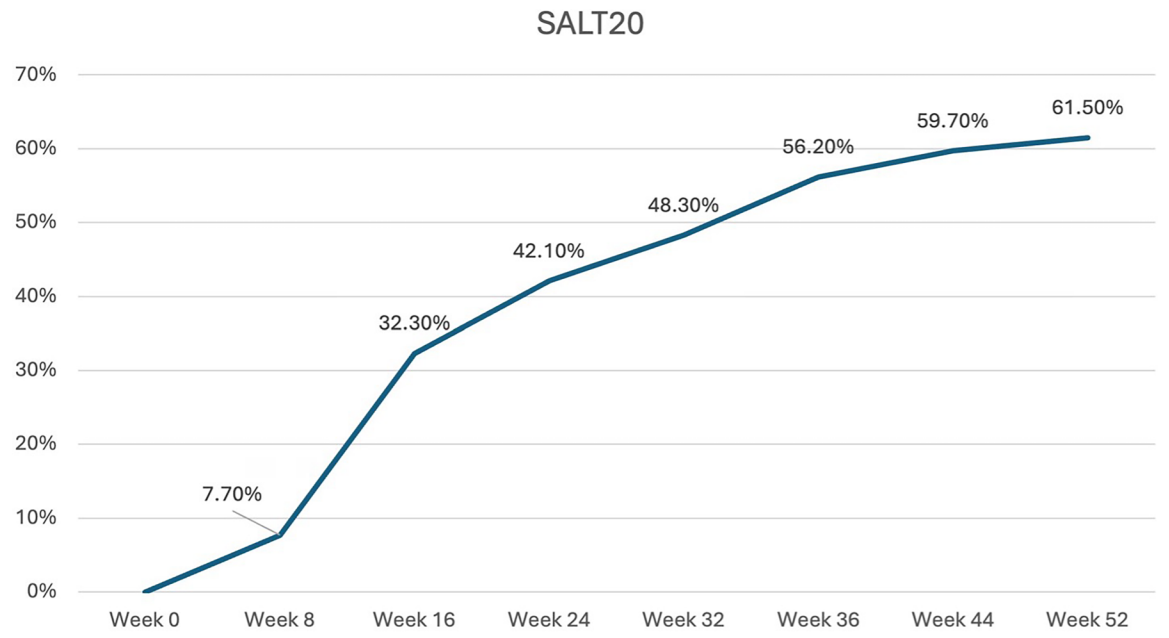

Figure 1. Percentage of patients who achieved a SALT score ≤ 20 throughout the study period.
SALT: severity of alopecia tool

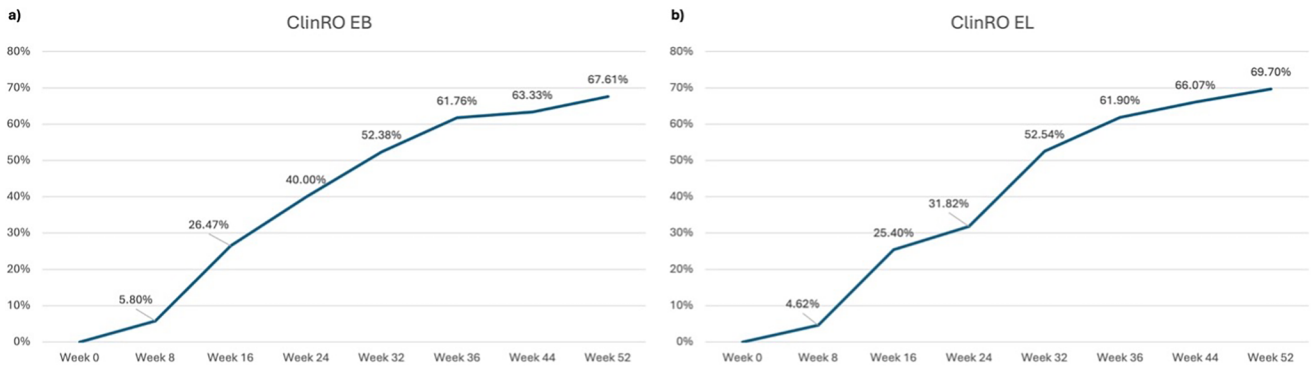

Figure 2. Percentage of patients who achieved a ClinRO EB (2a) and a ClinRO EL (2b) of 0 or 1 throughout the study period.
ClinRO EB: clinician-reported outcome measure for eyebrow hair loss™; ClinRO EL: clinician-reported outcome measure for eyelash hair loss™

Table 2. Adverse events reported throughout the study period.

Clinical AEs	N (%)
URTIs	4 (4.2)
Headache	4 (4.2)
Acne	3 (3.1)
Asthenia	3 (3.1)
Laboratory AEs	**N (%)**
Hypercholesterolemia	22 (22.9)
Blood cell count abnormalities	10 (10.4)
Elevated CPK	8 (8.3)
Hypertriglyceridemia	6 (6.3)

AEs: adverse events; CPK: creatine phosphokinase; URTIs: upper respiratory tract infections.

and safety of baricitinib in the long term is crucial. Our study confirmed that baricitinib is effective in treating AA in adults, showing similar or higher clinical responses compared with clinical trials in terms of SALT20 throughout the study period (3,7). Compared with the BRAVE-AA studies, our population at baseline had a lower mean SALT, which could be accountable for the better clinical outcomes that our patients experienced at week 52 and also at intermediate follow-up visits (7). As a matter of fact, we observed that patients with very severe AA (including those affected by alopecia totalis and alopecia universalis) achieved lower responses throughout the study period compared with those with severe AA. In particular, clinical responses were slower in more severe patients. Regarding eyebrows and eyelashes in our study, the clinical outcomes were comparable with the results of phase-III studies (3,6,7). To date, real-world data on the effectiveness of baricitinib on AA of eyelashes and eyebrows are very limited (5).

Regarding safety, no severe AEs emerged throughout the 52 weeks. The safety profile of baricitinib was consistent with both clinical trials and real-world experiences on baricitinib across different dermatological indications (AA and atopic dermatitis) (3,5–9). In our study, the patients experienced weight gain during the 52 weeks, but the pathophysiological mechanism of this phenomenon is still unclear.

Our study has a few limitations, the first being its retrospective design. Moreover, the involvement of different clinicians could produce heterogeneous clinical examinations. Regarding safety, it is

known that the rate of TAEs is often underestimated in clinical practice, especially regarding mild AEs. However, this is one of the largest and longest real-world experiences on baricitinib to date, including the analyses of the improvement in CLinRO of eyebrows and eyelashes.

In conclusion, our study supports the long-term effectiveness of baricitinib in patients with severe AA. Our study associated a very severe clinical picture at baseline with slower clinical responses. No significant safety findings emerged, but most of the patients reported weight gain. Further research is needed to discuss the role of baricitinib in the long-term management of severe AA and its potential in combination therapy scenarios.

Acknowledgments

This work was partially supported by "Ricerca Corrente" funding from the Italian Ministry of Health to IRCCS Humanitas Research Hospital. We acknowledge the use of ChatGPT (OpenAI, version 4o) for the language improvement of this manuscript.

Authors' contributions

L. Gargiulo has been a consultant and/or speaker and has participated to advisory boards for Abbvie, Almirall, Eli Lilly, Pfizer, Sanofi and UCB Pharma.

L. Ibba has been a consultant for Almirall.

A. Balato has received honoraria for participation in advisory boards, meetings, or as speaker for AbbVie, Celgene, Janssen-Cilag, Eli Lilly, Novartis Pharma, Pfizer, Sanofi-Genzyme, and UCB Pharma.

V. Boccaletti has been a consultant and/or speaker for Sanofi, Eli Lilly, and La Roche Posay.

R. D. Caposiena Caro has been a consultant and/or speaker for Eli Lilly, Pfizer, and Novartis.

S. Ferrucci has been a consultant and/or speaker for Amgen, Sanofi, Eli Lilly, Leo Pharma, Abbvie, Novartis, and Menarini.

G. Gallo has been a speaker for Eli Lilly and Pfizer.

P. Malagoli has been a speaker for AbbVie, Lilly, Novartis, Janssen-Cilag, Celgene, LeoPharma, and Almirall.

A. V. Marzano reports consultancy/advisory boards disease-relevant honoraria from AbbVie, Boehringer-Ingelheim, Novartis, Pfizer, Sanofi and UCB.

S. Ribero has served as advisory board member and/or consultant and has received fees and speaker's honoraria or has participated for clinical studies for AbbVie, Almirall, Leo Pharma, Eli Lilly, Novartis, Pfizer and Sanofi Genzyme.

A. Costanzo has served as an advisory board member, consultant and has received fees and speaker's honoraria or has participated in clinical trials for Abbvie, Almirall, Biogen, LEO Pharma, Lilly, Janssen, Novartis, Pfizer, Sanofi Genzyme, and UCB-Pharma.

A. Narcisi has served on advisory boards, received honoraria for lectures and research grants from Almirall, Abbvie, Leo Pharma, Celgene, Eli Lilly, Janssen, Novartis, Sanofi-Genzyme, Amgen and Boehringer Ingelheim.

C. Vignoli, M. Barbareschi, S. Barruscotti, G. Bazzacco, F. Bellinato, Vittoria G. Bianchi, A. Fraghì, E. Fulgione, P. Gisondi, I. Giunipero di Corteranzo, S.R. Mercuri, D. Orsini, and P. Quaglino have nothing to declare.

Ethical approval

Institutional review board approval was exempted, as the study procedures did not deviate from standard clinical practice. All included patients had provided written informed consent for the retrospective analysis of their clinical data. The study was conducted in accordance with the Helsinki Declaration of 1964 and its later amendments.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

The author(s) reported there is no funding associated with the work featured in this article.

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Data availability statement

Additional data supporting the findings of this manuscript are available on reasonable request to the corresponding author.

References

1. Pratt CH, King LE, Jr, Messenger AG, et al. Alopecia areata. Nat Rev Dis Primers. 2017;3(1):17011. doi: 10.1038/nrdp.2017.11.
2. Xing L, Dai Z, Jabbari A, et al. Alopecia areata is driven by cytotoxic T lymphocytes and is reversed by JAK inhibition. Nat Med. 2014;20(9):1043–1049. doi: 10.1038/nm.3645.
3. King B, Ohyama M, Kwon O, et al. Two Phase 3 Trials of Baricitinib for Alopecia Areata. N Engl J Med. 2022;386(18):1687–1699. doi: 10.1056/NEJMoa2110343.
4. Meah N, Wall D, York K, et al. The Alopecia Areata Consensus of Experts (ACE) study: results of an international expert opinion on treatments for alopecia areata. J Am Acad Dermatol. 2020;83(1):123–130. doi: 10.1016/j.jaad.2020.03.004.
5. Gargiulo L, Ibba L, Vignoli CA, et al. Effectiveness and safety of baricitinib in patients with severe alopecia areata: a 36-week multicenter real-world experience. J Dermatolog Treat. 2023;34(1):2268764. doi: 10.1080/09546634.2023.2268764.
6. Kwon O, Senna MM, Sinclair R, et al. Efficacy and Safety of Baricitinib in Patients with Severe Alopecia Areata over 52 Weeks of Continuous Therapy in Two Phase III Trials (BRAVE-AA1 and BRAVE-AA2). Am J Clin Dermatol. 2023;24(3):443–451. doi: 10.1007/s40257-023-00764-w.
7. King B, Shapiro J, Ohyama M, et al. When to expect scalp hair regrowth during treatment of severe alopecia areata with baricitinib: insights from trajectories analyses of patients enrolled in two phase III trials. Br J Dermatol. 2023;189(6):666–673. doi: 10.1093/bjd/ljad253.
8. European Medicines Agency. Olumiant (baricitinib): summary of product characteristics; 2017. https://www.ema.europa.eu/en/medicines/human/EPAR/olumiant. Accessed 2024 Oct 10.
9. Gargiulo L, Ibba L, Malagoli P, et al. Management of Patients Affected by Moderate-to-Severe Atopic Dermatitis with JAK Inhibitors in Real-World Clinical Practice: an Italian Delphi Consensus. Dermatol Ther (Heidelb). 2024;14(4):919–932. doi: 10.1007/s13555-024-01135-x.