Characterizing Loss of Response **Occurring in a Small** Scan the QR code for a list of Number of Patients **During 3 Years of Long-Term Maintenance Therapy With Baricitinib 4-mg: Results From BRAVE-AA1 and** -AA2 Trials

Maryanne Senna¹, Susan Taylor², Bianca Piraccini^{3,4}, Jerry Shapiro⁵, Najwa Somani⁶, Jakub Jedynak⁶, Samuel Ogwu⁶, Andrew Buchanan⁶, Brittany Craiglow⁷, Manabu Ohyama⁸

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OBJECTIVE

In this post hoc analysis, we characterize patterns of loss of response during maintenance treatment (Weeks 52-152) among the 10.9% (n=14) of patients who demonstrated loss of response (SALT score >20) at Week 152 and explore differences between patients who lost versus maintained response

CONCLUSIONS

- A small number of patients (12 patients) experienced true loss of response during long-term maintenance therapy with baricitinib 4-mg
 - Two additional patients experienced loss of response due to treatment interruption
- Time to loss of response was variable and showed no obvious patterns
- Half of those who lost response (unrelated to treatment interruption) experienced maximal worsening to no greater than SALT score ≤ 40
- Definitive identification of risk factors for loss of response is not possible due to small sample size; however, the following were observed:
- Higher disease severity and chronicity among those who lost response
- Antecedent COVID-19 infection or vaccine among some patients who lost response
- A full review of patient narratives to identify other potential antecedent factors was not performed
- Future research is needed to confirm what factors potentially trigger loss of response on baricitinib monotherapy and to determine the potential role of adjunctive therapies in mitigating this risk



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BACKGROUND

- Alopecia areata (AA) can have a waxing and waning course with relapses even while on treatment^{1,2}
- In its most severe presentations, AA can be chronic and difficult to treat³
- Baricitinib, an approved systemic therapy for severe AA, demonstrated a high level of sustained efficacy (89.1%) through 152 weeks among patients who achieved a SALT score ≤20 at Week 52 following treatment with once-daily baricitinib 4-mg in the (BRAVE-AA1 and BRAVE-AA2) Phase 3 trials⁴

Methods

BRAVE-AA1 and BRAVE-AA2 Study Design:^a Characterization of Patterns in Loss of Response During Maintenance Treatment With Continuous Baricitinib 4-mg (Weeks 52-152)^b



Key Eligibility Criteria: BRAVE-AA1 and BRAVE-AA2

- Male (≥18 to ≤60 years) or female (≥18 to ≤70 years)^a
- Hair loss involving ≥50% of the scalp, assessed with SALT score
- Current episode of AA >6 months to <8 years^b
- No spontaneous improvement in the 6 months before screening
- Not primarily a "diffuse" type of AA

No concomitant treatments for AA allowed^c ^aDifferent upper age limits were included for male and female patients based on differences in the prevalence of concomitant androgenetic alopecia: Patients who had AA for ≥8 years could be enrolled if episodes of regrowth, spontaneous or under treatment, had been observed on the affected areas over the past 8 years; Oral/topical minoxidil or finasteride was allowed if on stable dose for ≥12 months and bimatoprost ophthalmic solution was allowed if on stable dose for ≥8 weeks

SALT Score⁵

- The SALT score is a weighted sum of the percentage of hair loss in the 4 quadrants of the scalp (left side, right side, top, and back), ranging from 0 (no hair loss) to 100 (complete hair loss)
- SALT scores with subscripts refer to percent improvement from baseline (eg, SALT₃₀= \geq 30% improvement from baseline in total SALT score)
- SALT score interpretation
- SALT score 0=no hair loss
- SALT score 100=complete hair loss
- SALT score ≤20=20% or less hair loss (80% scalp coverage)

Assessments and Statistical Analyses

- response at Week 152
- SALT score ≤20)
- the timing and extent of scalp hair loss for these patients
- interruptions were examined as potential antecedents to the loss of considered







Left Side: Right Side: 18% 18%

Patient records were reviewed to identify patients who demonstrated loss of

- Loss of response was defined as SALT score >20 at Week 152 (ie, loss of

Descriptive statistics were used to summarize baseline characteristics and

 Occurrence of COVID-19 infections, other serious infections, and treatment response; baseline demographics and clinical characteristics were also

Results

Baseline Demographics and Patient Characteristics of Baricitinib 4-mg Week 52 Responders

	BARI 4-mg Week 52 Responders ^a	
	Response Maintained	Response Lost
	(N=115)	(N=14)
Age, years	37.0 (12.6)	34.1 (8.7)
Female, n (%)	71 (61.7)	9 (64.3)
Race, n (%)		
White	60 (52.2)	11 (78.6)
Asian	45 (39.1)	3 (21.4)
Black or African American	7 (6.1)	0
Other	3 (2.6)	0
BMI, kg/m ²	25.4 (4.9)	24.7 (3.1)
Duration of AA since onset, years	10.2 (10.3)	13.6 (10.5)
Duration of current AA episode	2.8 (2.5)	4.4 (3.7)
<4 years, n (%)	91 (79.1)	7 (50.0)
≥4 years, n (%)	24 (20.9)	7 (50.0)
Patients with atopic background ^b	46 (40.0)	4 (28.6)
SALT score	79.3 (18.9)	86.4 (20.9)
SALT score category, n (%)		
Severe – non-AT (SALT score 50-94)	74 (64.3)	5 (35.7)
Very severe – consistent with AT (SALT score 95-100)	41 (35.7)	9 (64.3)
ClinRO Eyebrow score ≥2, n (%)	70 (60.9)	10 (71.4)
ClinRO Eyelash score ≥2, n (%)	61 (53.0)	7 (50.0)

^aBARI 4-mg-treated patients with SALT score <20 at W52; ^bAtopic background is defined as medical history or current atopic dermatitis, allergic rhinitis, allergic conjunctivitis or allergic asthma.

Note: Data are mean (SD) unless stated otherwise Baseline Current Episode Baseline Very Severe Baseline ClinRO **Baseline Atopy** Duration ≥4 Years AA (SALT Score 95-100) Eyebrow Score ≥2, % of Patients % of Patients % of Patients % of Patients^a 71% 64% 61% 50% 40% 36% 21%



Sample size is small, which is a limitation, but shows some numerical differences in baseline disease characteristics between those losing (10.9%, n=14/129) and those maintaining (89.1%, n=115/129) treatment response ^aA ClinRO or PRO score of 2 indicates significant gaps in eyebrow(s)/eyelashes, and a score of 3 indicates no notable eyebrow(s)/eyelashes.

Time to Loss of Response Among Baricitinib 4-mg Week 52 Responders Initial and Maximum SALT Score in Patients With Loss of Response (N=14) Time to Loss of Response^a (N=14) Patients were observed to lose response either early or late during maintenance treatment patients had ቴ 4 0-0 O Maximal worsening SALT score of SALT score after at time of response loss f response 52 56 60 64 68 78 88 104 120 136 152 60 80 100 Week 20 40 SALT Score

^aLoss of response defined as SALT score >20. Notes: Time to loss of response may not reflect actual time at which SALT score <20 was lost because most patients waited until their next clinic visit to be reassessed. Time intervals between clinic visits were extended from every 4 weeks through W68 to every 16 weeks after W88. Data for patients who discontinued the study treatment were set as missing for all subsequent visits. LOCF was used to impute missing data

References: 1. McKenzie PL, Castelo-Soccio L. J Am Acad Dermatol. 2022;86:683-685. 2. Rossi A, et al. J Cosmet Dermatol. 2021;20:3753-3757. 3. King B, et al. J Am Acad Dermatol. 2021;85:847-853. 4. Senna M, et al. Poster presented at: AAD 2024. Poster 49690. 5. Olsen EA, et al. J Am Acad Dermatol. 2004;51:440-447. Abbreviations: AA=alopecia areata; AT=alopecia totalis; BARI=baricitinib; BMI=body mass index; ClinRO=clinician-reported outcome; COVID-19=coronavirus disease 2019 ITT=intent-to-treat; LOCF=last observation carried forward; PRO=patient-reported outcome: SALT=Severity of Alopecia Tool: SD=standard deviation: W=Week

Notes: Time to loss of response may not reflect actual time at which SALT score ≤20 was lost because most patients waited until their next clinic visit to be reassessed. Time intervals between clinic visits were extended from every 4 weeks through W68 to every 16 weeks after W88 Disclosures: M. M. Senna has served on advisory boards and/or has been a consultant for: Arena Pharmaceuticals, Concert Pharmaceuticals, Eli Lilly and Company, and Pfizer; and is a clinical trial investigator for: Concert Pharmaceuticals and Eli Lilly and Company; S. Taylor has been an investigator for: Concert Pharmaceuticals, Croma-Pharma, Eli Lilly and Company, Immune Tolerance Network, and Pfizer; has been a consultant, speaker, and/or advisory board member for: AbbVie Arcutis, Beiersdorf, Biorez, Cantec Pharmaceuticals, Evolus, Galderma Laboratories, Glo Getter Aesthetics, Johnson & Johnson, L'Oreal, LuminDx, Medscape/WebMD, Scientis, and Vichy Laboratories; and has received book royalties from: McGraw Hill; B. Piraccini has received honoraria from or been a consultant for: Almirall, Eli Lilly and Company, ISDIN, Pfizer, and Vichy Laboratoires; J. Shapiro is a consultant or clinical trial investigator for: Pfizer; and is a consultant for: Eli Lilly and Company; N. Somani, J. Jedynak, S. Ogwu, and A. Buchanan are employees and shareholders of: Eli Lilly and Company; B. Craiglow has received fees and/or honoraria from: Concert Pharmaceuticals, Eli Lilly and Company, Incyte Corporation, Pfizer Regeneron, and Sanofi Genzyme; M. Ohyama has received lecture and advisory fees from: AbbVie GK, Bristol Myers Squibb Japan, Eli Lilly Japan K.K., Pfizer Japan, Rohto Pharmaceutical, and Taisho Pharmaceutical; and has received research grants from: Advantest Corporations, Maruho, Shiseido, and Sun Pharma Japan

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COVID-19 Vaccinations, COVID-19 Infections, and Treatment Interruptions During Maintenance Period Among Patients Who Lost Response Between Week 52 and Week 152

One patient had interruption in treatment

- beginning at Week 136^a
- One patient was discontinued from treatment due to adverse event
- Seven patients had none of the prespecified details regarding loss of response

Six patients who lost response had received a COVID-19 vaccination and/or experienced a COVID-19 infection during the maintenance period^{a,b}



^aPatient who had treatment interruption at W136 had also received a COVID-19 vaccine; ^bFour patients received a COVID-19 vaccine and no COVID-19 infection; One patient experienced a COVID-19 infection and no COVID-19 vaccine; One patient experienced a COVID-19 infection and subsequently received a COVID-19 vaccine.

Notes: Causation cannot be determined between these events and loss of response. Sample size was small. Analysis of the ITT population for COVID-19 infection or vaccine was not performed. Patient narratives were not reviewed for other potential antecedent event

Individual Patient Trajectories From Week 52 Through Week 152

^aPatient's treatment was interrupted from W136 through W152; ^bPatient's treatment was withdrawn after 58 weeks due to adverse event; ^cPatient trajectory shows LOCF data

¹Lahey Hospital and Medical Center, and Harvard Medical School, Boston, USA, ²Perelman School of Medicine, University of Pennsylvania, Philadelphia, USA, ³Dermatology Unit, IRCCS Azienda Ospedaliero-Universitaria di Bologna, Bologna, Italy, ⁴Department of Experimental, Diagnostic and Specialty Medicine Alma Mater, Studiorum University of Bologna, Bologna, Italy, ⁵Department of Dermatology, University of Pittsburgh School of Medicine, Pittsburgh, USA, ⁶Eli Lilly and Company, Indianapolis, USA, ⁷Department of Dermatology, Yale School of Medicine, New Haven, USA, ⁸Kyorin University Faculty of Medicine, Tokyo, Japan

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Characterizing Loss of Response Occurring in a Small Number of Patients During 3 Years of Long-Term Maintenance Therapy with Baricitinib 4-mg: Results From BRAVE-AA1 and -AA2 Trials

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BACKGROUND and OBJECTIVE

Background

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Objective

In this post-hoc analysis, we characterize patterns of loss of response during maintenance treatment (Weeks 52–152) among the 10.9% (n=14) of patients who demonstrated loss of response (SALT score >20) at Week 152 and explore differences between patients who lost versus maintained response

BRAVE-AA1 and BRAVE-AA2 Study Design^a Characterization of Patterns in Loss of Response During Maintenance Treatment With Continuous Baricitinib 4-mg (Weeks 52–152)^b



^aFigure is not the full BRAVE-AA1 and BRAVE-AA2 program; ^bBaricitinib 2-mg dose is not included in this analysis because patients receiving continuous baricitinib 2-mg in BRAVE-AA2 who experienced a 20-point worsening of SALT score post Week-52 were rescued to baricitinib 4-mg; ^cSALT ≤20 responders in BRAVE-AA1 were randomized 3:1 at Week 52 to remain on baricitinib 4-mg or transition to placebo; SALT ≤20 responders in BRAVE-AA2 were randomized 1:1 at Week 52 to remain on baricitinib 4-mg or down-titrate to 2-mg; ^dPatients who achieved SALT score ≤ 20 at Week 52 and who subsequently continued on the baricitinib 4-mg dose comprised the long-term extension group. *AA=alopecia areata; SALT=Severity of Alopecia Tool.*

Key Eligibility Criteria: BRAVE-AA1 and BRAVE-AA2

- Male (≥18 to ≤60 years) or female (≥18 to ≤70 years)^a
- Hair loss involving ≥50% of the scalp, assessed with SALT score
- Current episode of AA >6 months to <8 years^b
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Assessments and Statistical Analyses

- Patient records were reviewed to identify patients who demonstrated loss of response at Week 152
 - Loss of response was defined as SALT Score >20 at Week 152 (ie. loss of SALT score ≤ 20)
- Descriptive statistics were used to summarize baseline characteristics and the timing and extent of scalp hair loss for these patients
- Occurrence of COVID-19 infections, other serious infections, and treatment interruptions were examined as potential antecedents to the loss of response; baseline demographics and clinical characteristics were also considered



RESULTS **Baseline Demographics and Patient Characteristics BARI 4-mg** Week 52 Responders (1/2)

	BARI 4-mg Week 52 Responders ^a	
	Response maintained (N=115)	Response lost (N=14)
Age, years	37.0 (12.6)	34.1 (8.7)
Female, n (%)	71 (61.7)	9 (64.3)
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^aBARI 4-mg–treated patients with SALT score ≤20 at Week 52; ^bAtopic background is defined as medical history or current atopic dermatitis, allergic rhinitis, allergic conjunctivitis or allergic asthma. Note: Data are mean (SD) unless stated otherwise. AA=alopecia areata; AT=alopecia totalis; BARI=baricitinib; BMI=body mass index; ClinRO=clinician-reported outcome; SALT=Severity of Alopecia Tool; SD=standard deviation.

Baseline Demographics and Patient Characteristics BARI 4-mg Week 52 Responders (2/2)



treatment response

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COVID-19 Vaccinations, COVID-19 Infections, and Treatment Interruptions During Maintenance Period Among Patients Who Lost Response Between Week 52 and Week 152

One patient had interruption in treatment beginning at Week 136^a One patient was discontinued from treatment due to adverse event

Seven patients had none of the prespecified details regarding loss of response

Six patients who lost response had received a COVID-19 vaccination and/or experienced a COVID-19 infection during the maintenance period^{a,b}

^aPatient who had treatment interruption at Week 136 had also received a COVID-19 vaccine ^bFour patients received a COVID-19 vaccine and no COVID-19 infection; One patient experienced a COVID-19 infection and no COVID-19 vaccine; One patient experienced a COVID-19 infection and subsequently received a COVID-19 vaccine Notes: Causation cannot be determined between these events and loss of response. Sample size was small. Analysis of the ITT population for COVID-19 infection or vaccine was not performed. Patient narratives were not reviewed for other potential antecedent events. *COVID-19=coronavirus disease 2019; ITT=intent to treat*



Time to Loss of Response Among BARI 4-mg Week 52 Responders



^aLoss of response defined as SALT score >20

Note: Time to loss of response may not reflect actual time at which SALT score <20 was lost because most patients waited until their next clinic visit to be reassessed. Time intervals between clinic visits were extended from every 4 weeks through Week 68 to every 16 weeks after Week 88. Data for patients who discontinued the study treatment were set as missing for all subsequent visits. LOCF was used to impute missing data.

LOCF=last observation carried forward; SALT=Severity of Alopecia Tool.

SALT Score



Individual Patient Trajectories from Week 52 Through Week 152 (N=14)



Note: Time to loss of response may not reflect actual time at which SALT score ≤20 was lost because most patients waited until their next clinic visit to be reassessed. Time intervals between clinic visits were extended from every 4 weeks through Week 68 to every 16 weeks after Week 88. LOCF=last observation carried forward; SALT=Severity of Alopecia Tool Copyright ©2024 Eli Lilly and Company. All rights reserved.



Response

Loss of Response

CONCLUSIONS

- A small number of patients (12 patients) experienced true loss of response during long-term maintenance therapy with baricitinib 4-mg
 - Two additional patients experienced loss of response due to treatment interruption
- Time to loss of response was variable and showed no obvious patterns
- Half of those who lost response (unrelated to treatment interruption) experienced maximal worsening to no greater than SALT score ≤40
- Definitive identification of risk factors for loss of response is not possible due to small sample size; however, the following were observed:
 - Higher disease severity and chronicity among those who lost response
 - Antecedent COVID-19 infection or vaccine among some patients who lost response A full review of patient narratives to identify other potential antecedent factors was not
- performed
- Future research is needed to confirm what factors potentially trigger loss of response on baricitinib monotherapy and to determine the potential role of adjunctive therapies in mitigating this risk

KEY RESULTS

- Most patients maintained efficacy on Baricitinib 4-mg at Week 152
- the moderate SALT score range ≤40



Half of those who lost response while on treatment* (6 out of 12) at Week 152 remained in



6



- 2022;86:683-685.

1. McKenzie PL, and Castelo-Soccio L. J Am Acad Dermatol.

2. Rossi A, et al. J Cosmet Dermatol. 2021;20:3753-3757. **3.** King B, et al. J Am Acad Dermatol. 2021;85:847-853. 4. Senna M, et al. Poster presented at AAD 2024. Poster 49690. 5. Olsen EA, et al. J Am Acad Dermatol. 2004;51:440-447.



Abbreviations

AA=alopecia areata; AT=alopecia totalis; BARI=baricitinib; BMI=body mass index; ClinRO=clinician-reported outcome; ITT=intent-to-treat; JAK=Janus kinase; LOCF=last observation carried forward; SALT=Severity of Alopecia Tool; SD=standard deviation; W=Week

Disc osures

Corporations, Maruho, Shiseido, and Sun Pharma Japan

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