

Real-world Evidence for Baricitinib in the Treatment of Atopic Dermatitis and Alopecia Areata: Systematic Literature Review 2020–2023

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Running header: Baricitinib in Atopic Dermatitis and Alopecia Areata
Treatment: Real-World Evidence

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Supplementary Material

Table S1. Search strategy for OVID MEDLINE

Category		Search terms	Hits 1 Oct 2020–20 Jul 2023	Hits 20 Jul 2023–20 Nov 2023
Population	1	atopic dermatitis.mp. or exp atopic dermatitis/	34425	35267
	2	atopic eczema.mp.	3127	3161
	3	(atopic neurodermatitis or neurodermatitis atopica or besnier* prurigo or flexural eczema or flexural dermatitis or coca sulzberger or (neurodermatitis adj1 constitutional*) or neurodermatitis disseminata).ab,ti.	229	230
	4	or/1-3	35458	36302
	5	alopecia areata.mp. or exp alopecia areata/	5831	5972
	6	(Alopecia areata or Alopecia universalis or alopecia totalis or ophiasis or occipitotemporal alopecia or alopecia circumscripta).ab,ti.	5296	5419
	7	((Alopecia adj2 areata) or (Alopecia adj2 universalis) or (alopecia adj2 totalis)).ab,ti.	5286	5409
	8	or/5-7	6115	6259
	9	4 or 8	41128	42094
Intervention	10	(baricitinib* or olumiant* or LY3009104* or "LY 3009104*" or INCB028050* or "INCB 028050*" or "INCB 28050*").mp.	1309	1429
Total pre limits	11	9 and 10	247	284
Limits	12	limit 11 to animals	14	14
	13	11 not 12	233	270

Category		Search terms	Hits 1 Oct 2020–20 Jul 2023	Hits 20 Jul 2023–20 Nov 2023
	14	limit 13 to english language	223	260
	15	limit 14 to yr="2023–Current"	203	122
	16	limit 15 to dt=20230720-20231120	190	43
	17	limit 16 to (adaptive clinical trial or clinical trial, all or clinical trial, phase i or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or clinical trial, veterinary or clinical trial protocol or clinical trial or controlled clinical trial)	25	0
	18	16 not 17	165	43

Table S2. Search strategy for Embase

Category		Search terms	Hits 1 Oct 2020– 20 Jul 2023	Hits 20 Jul 2023– 20 Nov 2023
Population	1	atopic dermatitis.mp. or exp atopic dermatitis/	63664	63302
	2	atopic eczema.mp.	5179	4961
		(atopic neurodermatitis or neurodermatitis atopica or besnier* prurigo or flexural eczema or flexural dermatitis or coca sulzberger or (neurodermatitis adj1 constitutional*) or neurodermatitis disseminata).ab,ti.		219
	3		362	
	4	or/1-3	64480	64025
	5	alopecia areata.mp. or exp alopecia areata/ (Alopecia areata or Alopecia universalis or alopecia totalis or ophiasis or occipitotemporal alopecia or alopecia circumscripta).ab,ti.	9631	9195
	6		7670	7275

Category		Search terms	Hits 1 Oct 2020– 20 Jul 2023	Hits 20 Jul 2023– 20 Nov 2023
	7	((Alopecia adj2 areata) or (Alopecia adj2 universalis) or (alopecia adj2 totalis)).ab,ti.	7656	7267
	8	or/5-7	10041	9567
	9	4 or 8	73357	72396
Intervention	10	exp baricitinib/	4662	5194
	11	(baricitinib* or olumiant* or LY3009104* or "LY 3009104*" or INCB028050* or "INCB 028050*" or "INCB 28050*").mp.	4866	5412
	12	10 or 11	4866	5412
Total pre limits	13	9 and 12	633	751
Limits	14	(exp animal/ or exp invertebrate/ or nonhuman/ or animal experiment/ or animal tissue/ or animal model/ or exp plant/ or exp fungus/) not (exp human/ or human tissue/)	8557308	7774524
	15	13 not 14	631	747
	16	limit 15 to english language	611	726
	17	limit 16 to yr="2023–Current"	514	240
	18	limit 17 to dc=20230720-20231120	486	138
	19	limit 18 to (clinical trial or randomized controlled trial or controlled clinical trial or multicenter study or phase 1 clinical trial or phase 2 clinical trial or phase 3 clinical trial or phase 4 clinical trial)	128	32
	20	18 not 19	358	106

Table S3. Search strategy for EMBR

Category		Search terms	Hits 1 Oct 2020– 20 Jul 2023	Hits 20 Jul 2023– 20 Nov 2023
Population	1	atopic dermatitis.mp. or exp atopic dermatitis/	5794	5913
	2	atopic eczema.mp.	648	656
	3	(atopic neurodermatitis or neurodermatitis atopica or besnier* prurigo or flexural eczema or flexural dermatitis or coca sulzberger or (neurodermatitis adj1 constitutional*) or neurodermatitis disseminata).ab,ti.	39	39
	4	or/1-3	6062	6182
	5	alopecia areata.mp. or exp alopecia areata/	736	766
	6	(Alopecia areata or Alopecia universalis or alopecia totalis or ophiasis or occipitotemporal alopecia or alopecia circumscripta).ab,ti.	570	587
	7	((Alopecia adj2 areata) or (Alopecia adj2 universalis) or (alopecia adj2 totalis)).ab,ti.	571	588
	8	or/5-7	747	777
	9	4 or 8	6785	6933
Intervention	10	(baricitinib* or olumiant* or LY3009104* or "LY 3009104*" or INCB028050* or "INCB 028050*" or "INCB 28050*").mp.	679	712
Total pre limits	11	9 and 10	123	135
Limits	12	limit 11 to english language [Limit not valid in ACP Journal Club,CDSR,CCA,CLCMR; records were retained]	123	135
	13	limit 12 to yr="2023-Current"	96	21
	14	limit 13 to clinical trial protocol [Limit not valid in ACP Journal Club,CDSR,CCA,CLCMR; records were retained]	11	8
	15	13 not 14	85	13
	16	remove duplicates from 15	84	13

Table S4. Conferences hand-searched for most recent proceedings

Global/regional conference
▪ International Society for Pharmacoeconomics and Outcomes Research (ISPOR) ▪ International Society for Pharmacoeconomics and Outcomes Research (ISPOR) EU ▪ International Society for Pharmacoeconomics and Outcomes Research (ISPOR) AP ▪ International Society for Pharmacoeconomics and Outcomes Research (ISPOR) LA ▪ World Congress of Dermatology (WCD) ▪ Society of Investigative Dermatology (SID) Annual Meeting ▪ World Congress for Hair Research (WCHR) ▪ International Dermatology Outcome Measures (IDEOM) ▪ International Symposium on Atopic Dermatitis (ISAD) ▪ Inflammatory Skin Disease Summit (ISDS) ▪ International Societies for Investigative Dermatology (ISID) ▪ Skin Inflammation & Psoriasis International Network (SPIN) ▪ Revolutionizing Atopic Dermatitis (RAD) ▪ European Academy of Dermatology and Venereology (EADV) Congress ▪ European Academy of Dermatology and Venereology (EADV) Congress (Spring Symposium) ▪ American Academy of Dermatology (AAD) Annual Meeting ▪ Annual Alopecia Areata Conference (National Alopecia Areata Foundation) ▪ British Association of Dermatologists (BAD) Annual Meeting ▪ European Society for Dermatology Research (ESDR) Annual Meeting ▪ European Hair Research Society (EHRS)

National conferences

- Australasian College of Dermatologists (ACD)
- Associazione Dermatologi Ospedalieri Italiani (ADOI)
- Academia Espanola de Dermatologia y Venereologia - LI Congreso Nacional (AEDV)
- Belgian Dermatology Days (BDD)
- British Dermatological Nursing Group (BDNG)
- Barcelona Hair Meeting (BHM)
- Congress of Clinical Dermatology (CCD)
- Colegio Ibero Latinoamericano de Dermatologia (CILAD)
- Deutschen Dermatologischen Gesellschaft (DDG)
- Colegio Medico de Dermatologos de Jalisco (dermaJAL)
- Dermatologische Wissenschafts- und Fortbildungsakademie (DWFA)
- Emirates Dermatology Society (EDS)
- Fall Clinical Dermatology Conference (FALLCDC)
- Fortbildungswoche für Praktische Dermatologie und Venerologie (FOBI)
- Indian Association of Dermatologists, Venerologists and Leprologists – DERMACON (IADVL)
- Japanese Dermatological Association (JDA)
- Journées Dermatologiques de Paris (JDP)
- Korean Dermatological Association (KDA)
- Österreichischen Gesellschaft für Dermatologie und Venerologie (OGDV)
- The Italian Society of Dermatology (SDeMaST)

- Swiss Society of Dermatology & Venereology (SSDV)
- Taiwanese Association for Psoriasis and Skin Immunology (TAPSI)
- Taiwanese Dermatological Association (TDA)

Table S5. Study eligibility criteria/PICOS

Study characteristic	Eligible	Ineligible
Population	Patients with least one or more of the following diseases: - AD - AA No restriction on age, gender, or severity of disease or comorbidity.	Studies of other disease areas
Intervention and comparators	- Baricitinib 2 mg or 4 mg or any dose - No restriction on comparators^a Only pharmacological interventions are of interest.	Studies that do not include baricitinib Studies with non-pharmacological interventions
Outcomes	Outcomes including but not restricted to^b: ● Effectiveness measures ○ AD - Eczema Area and Severity Index score (e.g. EASI50, EASI75, EASI90, EASI ≤7, EASI scores for body region such as EASI head/neck score, EASI erythema head/neck score, EASI Trunk score, EASI upper extremities score, EASI lower extremities score) - Investigator's Global Assessment (IGA) or Validated IGA (vIGA) score of 0 or 1 - SCORing Atopic Dermatitis score (SCORAD75, SCORAD90), SCORAD itch, SCORAD sleep - Body surface area (BSA) affected - Atopic Dermatitis Control Tool (ADCT) - Recap of atopic eczema (RECAP) - Hand Eczema Severity Index (HECSI)^c	

Study characteristic	Eligible	Ineligible
	○ AA - Any Clinician-reported Outcome (ClinRO) measure for scalp hair (e.g. Severity of Alopecia Tool [SALT] score): % patients achieving SALT ≤20, time to achieving SALT ≤20, change from baseline % of patients achieving 30% (SALT₃₀), 50% (SALT₅₀), 90% (SALT₉₀), 100% (SALT₁₀₀) improvement - ClinRO measure for eyebrow hair loss, eyelash hair loss - AA IGA or generic IGA used for AA ● Safety for AD and AA: Overall IR (this may include N and % with the event, IR per 100 patient-years, incidence proportion [%]) of specific and/or serious AEs - Overall AEs - Serious AEs - AE severity - Discontinuations/interruption due to AE - Death/mortality ● QoL and other PROs measured using validated tools^b: ○ AD - Itch Numeric Rating Scale (e.g., NRS 72h, NRS 24h, weekly itch NRS, Pruritus NRS, Peak Pruritus NRS [PP-NRS]) - Skin pain NRS - Patient-Oriented Eczema Measure (POEM) score - Patient Global Assessment of Disease Status (PGADS) - Dermatology Life Quality Index (DLQI)	

Study characteristic	Eligible	Ineligible
	- EQ-5D - Hospital Anxiety Depression Scale (HADS) - Atopic Dermatitis Sleep Scale (ADSS) or sleeplessness score (NRS 0–10) or sleep deprivation (yes or no) or sleep disturbances (11-point Likert scales) - Patient Global Impression of Severity-Atopic Dermatitis (PGI-S-AD) score - Work Productivity and Activity Impairment - Atopic Dermatitis (WPAI-AD) questionnaire - Quality Of Life Hand Eczema Questionnaire (QOLHEQ) - Work Limitations Questionnaire (WLQ) - Asthma Control Questionnaire 5 (ACQ5) - Sino-nasal Outcome Test (SNOT-22) ○ AA - Scalp Hair Assessment PRO or any other PRO for hair loss - Any PRO measure for eyebrows, eyelashes, eye irritation - Patient's global assessment (PtGA) for AA - Alopecia Areata Quality of Life Index - Patient-Reported Outcome Measurement Information System (PROMIS) Psychological Illness Negative Impact (before/after illness) - PROMIS Quality of Life in Neurological Disorders (Neuro-QoL) Stigma total score - HADS	

Study characteristic	Eligible	Ineligible
	- DLQI - EQ-5D - 36-Item Short Form Survey (SF-36) - Skindex 16 or 29 adapted or used for AA - Work productivity and activity impairment (WPAI) • Treatment information for AD and AA: - Prescription patterns (initial dose and dose adjustments) (escalation/de-escalation) - Prior treatments, including time of discontinuation of previous treatment to baricitinib initiation - Number of previous systemic treatments - Concomitant treatments (topical/systemic) - Treatment switches - Treatment discontinuation (e.g. proportion, time) and reasons (e.g. lack or loss of effectiveness, lost to follow-up) - Treatment adherence - Persistence/drug survival • Economic outcomes for AD and AA: - Cost per responder - Direct costs - Number needed to treat - Indirect costs	

Study characteristic	Eligible	Ineligible
	- Resource use/healthcare utilisation	
Study design	Observational studies, including prospective cohort/retrospective cohort/longitudinal studies (cohort studies using medical records, claims data, routine care data, real-world databases, and registries), case–control studies, cross-sectional studies, pragmatic studies ^d , cost studies – only if baricitinib and RWE specific, case reports, or case series	• All clinical trials • Protocols • Commentaries and editorials • Letters^e • Reviews^f (including systematic reviews)
Time frame	1 Oct 2020–20 Nov 2023	Publications before 1 October 2020
Country	No restriction	NA
Language	English	Non-English

Abbreviations: *AA* alopecia areata, *AD* atopic dermatitis, *AE* adverse event, *IR* incidence rate, *NA* not applicable, *PROs* patient-reported outcomes; *QoL* quality of life; *RWE* real-world evidence.

^a Comparators were identified from the publications reporting baricitinib.

^b Studies where the authors validated the translation of an instrument or where the authors had developed a new instrument and were testing it were excluded.

^c For AD, information on hand eczema (whether as part of AD or not) was captured.

^d Studies not identified as a pragmatic, practical, or naturalistic trial in the title or abstract were excluded.

^e Letters to editors were eligible if they reported research results.

^f Reference lists of relevant reviews were crosschecked to screen for potentially relevant included studies.