Received: 22 April 2025 | Accepted: 10 May 2025

DOI: 10.1111/jdv.20774

JEADV JOURNAL OF THE EUROPEAN ACADEMY OF DERMATOLOGY & VENEREOLOGY

LETTER TO THE EDITOR

Switching to brodalumab after failure of IL-17A inhibitors in psoriatic patients: A real-life multicentre study

Dear Editor,

Intra-class switching among interleukin-17 (IL-17) inhibitors is common in psoriatic patients experiencing biological drugs loss of efficacy (LoE). Unlike secukinumab and ixekizumab, which target IL-17A, brodalumab inhibits the IL-17 receptor subunit A (IL-17RA), blocking multiple IL-17 isoforms; thereby, it potentially offers a therapeutic alternative in patients with moderate-to-severe psoriasis unresponsive to IL-17A inhibitors (IL-17Ais). However, the real-world data in this field are limited. We therefore conducted this retrospective, multicenter Italian study about the effectiveness and safety of brodalumab in patients who failed other IL-17Ais.[1–7]

The analysis included 208 adult patients treated across 28 dermatology centers in Italy between April 2019 and May 2024. All had previously received at least one IL-17Ai and were switched to brodalumab due to LoE or adverse events (AEs). Treatment effectiveness was assessed using PASI and DLQI scores at Weeks 12, 24 and 52, with annual follow-up based on the last observation carried forward. Additional outcomes included drug retention rates, adverse events and a multivariate logistic regression analysis to identify predictors of treatment failure. Baseline characteristics are reported in Table 1.

Treatment outcomes showed strong effectiveness for brodalumab. At Week 12, 81.7% of patients achieved PASI75, and by Week 24, this increased to 92.1%. PASI90 and PASI100 response rates also increased over time, reaching 79.4% and 60.6% at Week 24 and 85.0% and 69.2% at Week 52, respectively (Figure 1).

Quality of life also improved significantly, with the mean DLQI decreasing from 16.1 ± 7.4 at baseline to 2.9 ± 4.5 at Week 24 and remaining consistently low over time.

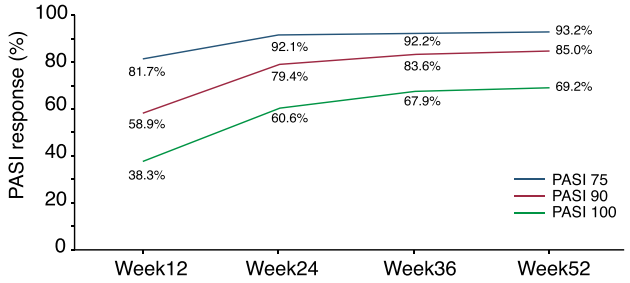
At the conclusion of the study, data on treatment status were available for 197 patients: 133 were still receiving brodalumab, while 64 discontinued therapy. The cause of discontinuation was reported in 56 cases, represented by primary inefficacy (13 patients, 23.2%), LoE (34 patients, 60.7%) and AEs (9 patients, 16.1%).

The study also assessed whether prior exposure to secukinumab or ixekizumab influenced response to brodalumab. Response rates at Week 24 were similar regardless of which IL-17Ai had been used before. Similarly, bivariate analyses

TABLE 1 Baseline characteristics.

	Number	Percentage
Total	208	
Males	134	64.4%
Females	74	35.6%
Age (mean value)	46.1 ± 13.8	-
BMI (mean value)	27.6 ± 4.9	-
Obesity Class I (BMI 30–34.9)	36	17.7%
Obesity Class II (BMI 35–39.9)	9	4.4%
Obesity Class III (BMI ≥40)	3	1.5%
PASI (mean value)	13.0 ± 6.8	-
DLQI (mean value)	16.1 ± 7.4	-
Family history of psoriasis	75	45.2%
Comorbidities	125	60.1%
Metabolic disease	84	40.4%
Cardiovascular disease	71	34.1%
Chronic infections	22	10.6%
Malignancies	19	9.1%
Depression (pre-brodalumab)	16	7.7%
Psoriatic arthritis	63	30.3%
Obesity	53	23.6%
Previous therapies for psoriasis (no IL17Ai)		
Methotrexate	76	36.5%
Cyclosporine	78	37.5%
Acitretin	15	7.2%
UVB-nB	23	11.1%
Apremilast	7	3.4%
DMF	1	0.5%
Anti-TNF	39	18.8%
Anti-IL23	6	2.9%
Anti-IL12/23	18	7.7%
Former IL-17Ai		
Secukinumab	154	74%
Ixekizumab	74	35.8%
Secukinumab + Ixekizumab	18	8.6%

Abbreviations: BMI, body mass index; DLQI, Dermatology Life Quality Index; DMF, dimethyl fumarate; IL-17Ai, interelukine-17A inhibitor; PASI, Psoriasis Area and Severity Index; UVB-nb, ultraviolet narrow band phototherapy.



	Week 12 *n* = 180	Week 24 *n* = 165	Week36 *n* = 140	Week54 *n* = 146
PASI 75	81.7%	92.1%	92.2%	93.2%
PASI 90	58.9%	79.4%	83.6%	85.0%
PASI 100	38.3%	60.6%	67.9%	69.2%

FIGURE 1 PASI response over time (*last observation carried forward*). PASI, Psoriasis Area and Severity Index; PASI75/90/100: 75%/90%/100% improvement in PASI score.

showed that the duration of previous IL-17Ai therapy (a period of 1 year was established, considering the median) did not significantly impact PASI90 achievement ($p = 0.6732$ for secukinumab, $p = 0.7259$ for ixekizumab).

However, multivariate analysis identified prior secukinumab exposure [OR:1.054; 95% CI:1.016–1.094; $p = 0.0052$] and longer psoriasis duration before brodalumab initiation [OR:3.917; 95% CI: 1.007–15.240; $p = 0.0489$] as independent predictors of treatment failure. Interestingly, a higher body mass index (BMI) was associated with a reduced risk of brodalumab failure [OR:0.926; 95% CI: 0.867–0.990; $p = 0.0236$], suggesting that its efficacy may be less affected by BMI than other IL-17Ais, as previously reported.[8,9] Nevertheless, these findings should be interpreted cautiously due to the relatively small sample size and wide confidence intervals for some variables.

Safety data confirmed that brodalumab was well tolerated. AEs leading to treatment discontinuation included new-onset arthritis ($n = 5$), the emergence of eczematous reactions and other atopic conditions ($n = 3$) and a case of colon cancer. Although depression had been a concern with brodalumab, we did not register any interruption due to psychiatric issues.

Overall, this is the largest real-world study to date evaluating brodalumab in patients unresponsive to IL-17Ais. The observed effectiveness notably exceeds the results reported by Conti et al.,[3] who found PASI75, PASI90 and PASI100 response rates of 80%, 68% and 38%, respectively, at Week 24 in a similar Italian cohort ($n = 50$) switched to ixekizumab after secukinumab failure.

These findings support the hypothesis that targeting IL-17RA may result in a broader inhibition of the IL-17 pathway, positioning brodalumab as an effective and safe intra-class switching option for patients with moderate-to-severe psoriasis who fail other IL-17is.

ACKNOWLEDGEMENTS

The authors have nothing to report.

FUNDING INFORMATION

None.

CONFLICT OF INTEREST STATEMENT

RB: support for attending meetings and/or travel, advisory board member (Eli Lilly, Abbvie, Amgen, Novartis); **PG**: speaker honoraria (Amgen, Abbvie, Almirall, Novartis, UCB, Sanofi, Jannsen, Pfizer); **SR**: support for attending meetings and/or travel, speaker honoraria (Abbvie, Allmiral, Leo Pharma, J&J, L'Oreal, sanofi, Sandoz, UCB, Eli Lilly, Novartis, BMS); **PD**: support for attending meetings and/or travel, speaker honoraria (Abbvie, Allmiral, Leo Pharma, J&J, L'Oreal, Sanofi, Sandoz, UCB, Eli Lilly, Novartis, BMS); **LM**: consulting fees and speaker honoraria, support for attending meetings and/or travel (Almirall, Leo Pharma, Abbvie, Eli-Lilly, Accord, PierreFabre, Novartis, UCB, Amgen, Incyte, SVR); **AB**: consulting fees and speaker honoraria (Abbvie, Almirall, Amgen, Boehringer Ingelheim, BMS, Eli-Lilly, Novartis, Leo-Pharma, Pfizer, Sanofi, UCB); **SC**: consulting fees and speaker honoraria, support for attending meetings and/or travel (Abbvie, Boehringer Ingelheim, Eli Lilly, Janssen-Cilag S.p.A., UCB Pharma, Sanofi, Aristo Pharma Italy S.r.I., Pfizer, Almirall, Galderma, Leopharma, Novartis, Sanofi); **VDL**: speaker honoraria, advisory board member (Abbvie, Eli-Lilly, Leopharma, Johnson & Johnson); **FPe**: speaker honoraria, support for attending meetings and/or travel (Abbvie, Novartis, Eli Lilly, UCB, Almirall, Leo Pharma); **MMe**: speaker honoraria (Almirall, abbvie, Eli Lilly, Novartis, UCB, Leo Pharma, Janssen, Amgen, Bristol-Myers Squibb, Boheringer Ingheleim); **ET**: consulting fees and speaker honoraria (Almirall, Leo Pharma, Abbvie, Novartis, Eli-Lilly, Amgen, Janssen-Cilag, UCB); **GC**: consulting fees, speaker honoraria (Abbvie, Lilly, Janssen, UCB, Novartis and Leo Pharma); **CDS**: speaker honoraria (Abbvie, Almirall,Biogen, Bristol Myers Squibb, Eli Lilly, Leopharma, Sanofi, UCB); **MG**: consulting fees and speaker honoraria, support for attending meetings and/or travel (AbbVie, Almirall, Eli-Lilly, Johnson & Johnson, LeoPharma, Novartis and Sanofi); **EP**: consulting fees, speaker honoraria, advisory board member (Pfizer, Abbvie, Janssen, Novartis, Eli-Lilly, Leo Pharma, Leo Pharma Denmark, Almirall, Sanofi, Boehringer-Ingelheim, Bristol Myers Squibb); **FP**: Leadership or fiduciary role (SIDeMaST, EADV), consulting fees and speaker honoraria (Abbvie, Novartis, Sanofi, Bristol-Meyer-Squibb, Eli-Lilly, Boehringer-Ingelheim, Almirall, Leo-Pharma); **FS**: speaker honoraria (Almirall, Abbvie, Novartis, UCB, Leo Pharma, Janssen, Bristol-Myers Squibb, Boheringer Ingheleim); **MLM**: consulting fees/investigator (AbbVie, Lilly, Janssen, Novartis, Biogen, UCB, Sandoz, Almirall, Leopharma); **VD**: grants/contracts, consulting fees (Eli Lilly, UCB, Leo Pharma); **AC**: consulting fees and speaker honoraria, support for attending meetings and/or travel (Abbvie, Almirall, Amgen, Boehringer Ingelheim, Eli Lilly, Jannsen-Cilag, Leopharma, Novartis, Sanofi, UCB Pharma); **CG**: consulting fees, speaker honoraria, advisory board member (Pfizer, Abbvie, Janssen, Novartis, Merck-Serono, Eli-Lilly, Celgene, Leo Pharma, Leo Pharma

Denmark, Almirall, Amgen, Sanofi- Aventis, Boehringer-Ingelheim, Bristol Myers Squibb, UCB Pharma); **FB:** speaker honoraria (Almirall, Abbvie, Eli Lilly, Novartis, UCB, Leo Pharma, Janssen, Amgen, Bristol-Myers Squibb, Boheringer Ingheleim); **GR** Support for attending meetings and/or travel (Eli Lilly, Abbvie, Amgen, Novartis). All other authors have no conflict of interest to declare.

DATA AVAILABILITY STATEMENT

Data that support the findings of this study are available from the corresponding author, upon reasonable request.

ETHICAL APPROVAL

All patients gave written consent for their anonymized data to be collected retrospectively. The study adhered to the principles outlined in the 1964 Helsinki Declaration and its subsequent amendments.

ETHICS STATEMENT

The patients in this manuscript have given written informed consent to publication of their case details.

Riccardo Balestri[1]
Giulia Odorici[2]
Michela Magnano[3]
Paolo Gisondi[4]
Francesco Bellinato[4]
Simone Ribero[5]
Paolo Dapavo[5]
Luca Mastorino[5]
Martina Burlando[6]
Emanuele Cozzani[6]
Nicoletta Bernardini[7]
Concetta Potenza[7]
Anna Balato[8]
Stefano Caccavale[8]
Vito Di Lernia[9]
Francesca Peccerillo[9]
Matteo Megna[10]
Anna Campanati[11]
Francesco Loconsole[12]
Edoardo Mortato[12]
Emanuele Trovato[13]
Lucia Mantovani[2]
Giacomo Caldarola[14,15]
Clara De Simone[14,15]
Gennaro Marco Falco[14,15]
Alessandra Narcisi[16]
Angela Alfano[16]
Marco Galluzzo[17]
Angela Fico[17]
Elena Pezzolo[18]
Francesca Prignano[19]
Antonella Di Cesare[19]
Camilla Loi[20]
Francesca Satolli[21]
Maria Letizia Musumeci[22]
Romina Ortega[22]
Enzo Errichetti[23]
Valentina Dini[24]
Alessandra Michelucci[24]
Paolo Amerio[25]
Andrea Carugno[26]
Michela Tabanelli[27]
Andrea Conti[28]
Claudio Guarneri[29]
Federico Bardazzi[20]
Giulia Rech[1]

[1]*Division of Dermatology, Psoriasis Outpatient Service, APSS, Trento, Italy*
[2]*Section of Dermatology and Infectious Diseases, Department of Medical Sciences, University of Ferrara, Ferrara, Italy*
[3]*Unit of Dermatology, Versilia Hospital, Lido di Camaiore, Lucca, Italy*
[4]*Department of Medicine, Section of Dermatology and Venereology, University of Verona, Verona, Italy*
[5]*Dermatology Clinic, Department of Medical Sciences, University of Turin, Turin, Italy*
[6]*Dermatology Clinic, DISSAL, San Martino University Hospital- IRCCS, Genoa, Italy*
[7]*Department of Medical-Surgical Sciences and Biotechnologies, Dermatology Unit "Daniele Innocenzi", ASL Latina, Sapienza University of Rome, Italy*
[8]*Unit of Dermatology, University of Campania Luigi Vanvitelli, Naples, Italy*
[9]*Dermatology Unit, Arcispedale Santa Maria Nuova, Azienda USL-IRCCS di Reggio Emilia, Reggio Emilia, Italy*
[10]*Section of Dermatology, Department of Clinical Medicine and Surgery, University of Naples Federico II, Naples, Italy*
[11]*Dermatological Clinic, Department of Clinical and Molecular Sciences, Polytechnic Marche University, Ancona, Italy*
[12]*Department of Dermatology, University of Bari, Bari, Italy*
[13]*Dermatology Unit, Department of Medical, Surgical and Neurological Sciences, University of Siena, Siena, Italy*
[14]*Section of Dermatology, Department of Translational Medicine and Surgery, Catholic University of the Sacred Heart, Rome, Italy*
[15]*Dermatology Unit, Department of Medical and Surgical Sciences, Fondazione Policlinico Universitario A. Gemelli - IRCCS, Rome*
[16]*Dermatology Unit, IRCCS Humanitas Research Hospital, Rozzano, Italy*
[17]*Dermatology, Department of Systems Medicine, University of Rome Tor Vergata, Rome, Italy*
[18]*Department of Dermatology, San Bortolo Hospital, Vicenza, Italy*
[19]*Dermatology Section, Department of Health Science,*

University of Florence, Florence, Italy
[20]*Dermatology Unit, IRCCS Azienda Ospedaliero-Universitaria di Bologna, Policlinico S. Orsola-Malpighi, Bologna, Italy*
[21]*Section of Dermatology, Department of Medicine and Surgery, University of Parma, Parma, Italy*
[22]*UOC Dermatologia, PO "G. Rodolico", AOU Policlinico "G. Rodolico-San Marco", Catania, Italy*
[23]*Institute of Dermatology, Department of Medicine, University of Udine, Udine, Italy*
[24]*Dermatology Unit, Department of Clinical and Experimental Medicine, Ospedale Santa Chiara, Pisa, Italy*
[25]*Unit of Dermatology, Department of Medicine and Aging Science, G. d'Annunzio University, Chieti, Italy*
[26]*Dermatology Unit, Department of Medicine and Surgery, University of Insubria, Varese, Italy*
[27]*Dermatologic Unit, Department of Surgery, Santa Maria Delle Croci Hospital of Ravenna, AUSL Romagna, Ravenna, Italy*
[28]*Dermatologic Unit, Department of Surgery, Infermi Hospital of Rimini, auSL Romagna, Rimini, Italy*
[29]*Department of Biomedical and Dental Sciences and Morpho Functional Imaging, Section of Dermatology, University of Messina, Messina, Italy*

Correspondence
Michela Magnano, Derpartment of Dermatology, Versilia Hospital, Via Aurelia 335, 55049, Camaiore (LU), Italy.
Email: michela.magnano@gmail.com

Riccardo Balestri and Giulia Odorici contributed equally to this article and share first authorship.

Federico Bardazzi and Giulia Rech contributed equally to this article and share senior authorship.

ORCID

Riccardo Balestri https://orcid.org/0000-0002-0885-054X
Giulia Odorici https://orcid.org/0000-0002-5910-8994
Michela Magnano https://orcid.org/0000-0001-9429-9004
Paolo Gisondi https://orcid.org/0000-0002-1777-9001
Francesco Bellinato https://orcid.org/0000-0002-6163-6921
Simone Ribero https://orcid.org/0000-0002-0098-1406
Luca Mastorino https://orcid.org/0000-0001-7386-3219
Martina Burlando https://orcid.org/0000-0002-4381-6718
Emanuele Cozzani https://orcid.org/0000-0003-3108-4123
Nicoletta Bernardini https://orcid.org/0000-0002-6295-3574
Anna Balato https://orcid.org/0000-0001-5485-0172
Stefano Caccavale https://orcid.org/0000-0001-7433-9283
Anna Campanati https://orcid.org/0000-0002-3740-0839
Emanuele Trovato https://orcid.org/0000-0001-8301-9206
Giacomo Caldarola https://orcid.org/0000-0002-8837-9232
Clara De Simone https://orcid.org/0000-0002-0898-0045
Gennaro Marco Falco https://orcid.org/0009-0001-1219-9008
Angela Alfano https://orcid.org/0009-0004-6269-448X
Marco Galluzzo https://orcid.org/0000-0002-3424-5175
Elena Pezzolo https://orcid.org/0000-0003-0121-4812
Francesca Prignano https://orcid.org/0000-0002-5997-2045
Antonella Di Cesare https://orcid.org/0000-0002-1001-4604
Alessandra Michelucci https://orcid.org/0000-0002-0795-0338
Paolo Amerio https://orcid.org/0000-0003-1589-9672
Andrea Conti https://orcid.org/0000-0003-4848-3817
Claudio Guarneri https://orcid.org/0000-0003-3918-8779

REFERENCES

1. Bernardini N, Dattola A, Rossi R, Pagnanelli G, Amerio P, Atzori L, et al. Efficacy and safety of intra-class switching from Ixekizumab to Secukinumab in patients with plaque psoriasis: a multicenter retrospective study. J Pers Med. 2024;14(12):1169.
2. Conti A, Peccerillo F, Amerio P, Balato A, Bardazzi F, Bianchi L, et al. Efficacy and safety of switching to ixekizumab in secukinumab nonresponder patients with psoriasis: results from a multicentre experience. Br J Dermatol. 2019;180(6):1547–8.
3. Kimmel G, Chima M, Kim HJ, Bares J, Yao CJ, Singer G, et al. Brodalumab in the treatment of moderate to severe psoriasis in patients when previous anti-interleukin 17A therapies have failed. J Am Acad Dermatol. 2019;81(3):857–9.
4. Yeung J, Vender R, Turchin I, Shukla R, Maari C, Hong CH, et al. Brodalumab success in patients with moderate-to-severe psoriasis who failed previous interleukin-17A inhibitors. J Am Acad Dermatol. 2021;84(4):1169–71.
5. Kromer C, Wilsmann-Theis D, Gerdes S, Krebs S, Pinter A, Philipp S, et al. Changing within the same class: efficacy of brodalumab in plaque psoriasis after treatment with an IL-17A blocker - a retrospective multicenter study. J Dermatolog Treat. 2021;32(8):878–82.
6. Tichy M, Kojanova M, Velackova B, Dolezal T, Gkalpakiotis S, Cetkovska P, et al. Efficacy of switches within the class of IL-17 inhibitors: an analysis of data from the Czech nationwide registry of psoriatic patients receiving biological/targeted therapy (BIOREP). Dermatol Ther. 2022;35(10):e15772.
7. Papp K, Prajapati VH, Maari C, Legault M, Barakat M, Vender R. Efficacy of brodalumab in moderate-to-severe plaque psoriasis after failure of previous biologic therapy: a phase 4, multicenter, open-label study. J Am Acad Dermatol. 2024;90(6):1254–6.
8. Chiricozzi A, Gisondi P, Girolomoni G. The pharmacological management of patients with comorbid psoriasis and obesity. Expert Opin Pharmacother. 2019;20(7):863–72.
9. Orsini D, Graceffa D, Burlando M, Campanati A, Campione E, Guarneri C, et al. Effectiveness of Brodalumab for the treatment of moderate-to-severe psoriasis: a retrospective, real-world multicenter study with a focus on obese and multi-failure patients-IL PSO (Italian landscape psoriasis). J Clin Med. 2025;14(4):1087.