Patients with psoriatic arthritis at biologic therapy switch: The CorEvitas psoriasis registry

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Synopsis

- Up to 40% of patients with psoriasis (PSO) develop psoriatic arthritis (PsA), which can have a significant impact on health-related quality of life (HRQoL).[1]
- Among patients with both PSO and PsA who are treated with a biologic, individual symptom profiles and response to treatment vary, with many patients switching biologics over the course of their disease.
- A critical gap remaining in the current evidence base is whether patient-centered factors, beyond skin clearance, influence switching patterns among patients with PSO and PsA.

Objective

To evaluate the association between disease burden of psoriasis and switching systemic biologic therapies among patients with psoriasis and psoriatic arthritis in a real-world setting.

Methods

Study Design

- This study utilized data from the CorEvitas PSO Registry (April 2015–August 2022), a prospective, multicenter, noninterventional registry collecting data at approximately 6-month intervals.
- Included patient-initiations (instances of included patients initiating a biologic; patients may have contributed multiple patient-iniations to this study) had a history of protocol specifies plaque PSO; history of PsA; initiated a biologic ±42 days of a CorEvitas visit; had ≥1 visit within 30 months of initiation (**Figure 1**).

Primary Exposure and Outcome

- Disease burden at each follow-up visit was defined by a combined measure of Psoriasis Area and Severity Index (PASI) and Dermatology Life Quality Index (DLQI) or patient-reported joint pain (100 mm visual analog score [VAS]).[2]
- Time from biologic initiation to a switch or discontinuation of a biologic was defined as start of a new biologic within 45 days of initial biologic discontinuation (**Figure 2**).

Statistical Analysis

- Proportional hazards regression was used to calculate hazard ratios (HR) and 95% confidence intervals (CIs) to evaluate associations between disease burden categories at follow-up, as time-varying covariates and biologic switch.

Results

- There were 2,580 patient-initiations included in this study. Overall, 52% (n=1,346) occurred in females. Baseline demographics and disease characteristics are presented in **Table 1** and **Table 2**, respectively.
- Biologic therapy switching occurred in 20% of patient-initiations over 30 months of follow-up after a median (interquartile range [IQR]) of 6.5 months (4.6, 12.4) of treatment (**Table 3**). Failure to maintain initial response was the leading reason for switching (40%; n=171), followed by inadequate initial response (30%; n=127).
- Patients with the highest combined skin involvement and impact on HRQoL (PASI >10 & DLQI >5) were approximately 14 times more likely to switch biologic therapy (HR=14.20; 95% CI: 10.65, 18.92) than those with the lowest combined skin involvement and impact on HRQoL (PASI ≤10 & DLQI ≤5; **Figure 3**).
- In patients with PASI ≤10, those with DLQI >5 were over five times more likely to switch biologics versus those with DLQI ≤5 (HR=5.25; 95% CI: 4.23, 6.51). Likewise, among patients with PASI >10, those with DLQI >5 were nearly twice as likely to switch biologics versus those with DLQI ≤5 (HR=1.70; 95% CI: 1.06, 2.71; **Figure 3**).
- Similarly, patients with VAS-joint pain ≥40 had nearly a four times higher likelihood of switching biologics versus the VAS-joint pain <40 group among those with PASI ≤10 (HR=3.78; 95% CI: 2.91, 4.92). Among those with PASI >10, patients with VAS-joint pain ≥40 were more likely to switch biologic than those with VAS-joint pain <40 (HR=1.35; 95% CI: 0.79, 2.33; **Figure 3**).

Conclusions

Patients with PSO and PsA, who were treated in a real-world clinical setting, with impaired HRQoL (DLQI) and VAS-joint pain after initiation were more likely to switch biologics, regardless of PASI score.

These findings suggest that patient-centered factors, as well as skin clearance, have an important impact on the occurrence of biologic switch and the management of patients with PSO and PsA.

Summary

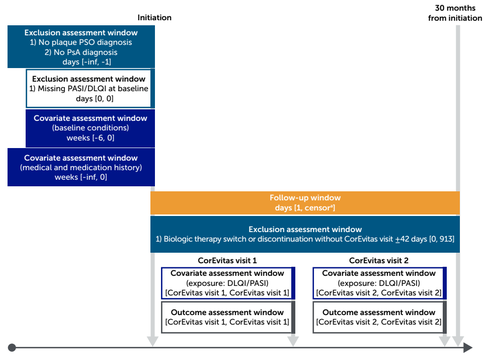
Patients in this study:

- were from the CorEvitas Psoriasis Registry
- had psoriasis and psoriatic arthritis
- initiated a systemic biologic therapy

Likelihood of switching systemic biologic therapy

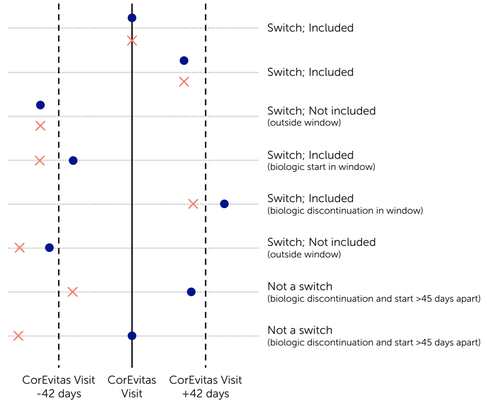
14.2 times more likely	PASI >10 & DLQI >5 vs. PASI ≤10 & DLQI ≤5
5.3 times more likely	PASI ≤10 & DLQI >5 vs. PASI ≤10 & DLQI ≤5
1.7 times more likely	PASI >10 & DLQI >5 vs. PASI >10 & DLQI ≤5

Figure 1 Study design



[a]Each initiation was followed until there was a discontinuation/switch of the initial systemic biologic therapy, last registry follow-up, or 913 days (30 months) after initiation, whichever occurred first.

Figure 2 Switch definitions and inclusion scenarios[a]



[a]In some cases, biologic discontinuation or start date may have been partially known or missing completely, thus preventing assessment of the time until switch, or whether a switch occurred.

Table 1 Baseline demographics

Demographic	Overall (n=2,580)
Age, (years), mean (SD)	52.0 (13.2)
Gender, (female), n (%)	1,346 (52.2)
Race, (white), n (%)	2,017 (78.2)
Ethnicity, (Hispanic), n (%)	194 (7.5)
Employment, (full-time), n (%)	1,450 (56.2)
BMI, n (%)	
Underweight/normal (<25 kg/m^2)	379 (14.7)
Overweight (25–<30 kg/m^2)	745 (28.9)
Obese (≥30 kg/m^2)	1,456 (56.4)
History of comorbidities[a], n (%)	
0	1,877 (72.8)
1	581 (22.5)
≥2	122 (4.7)

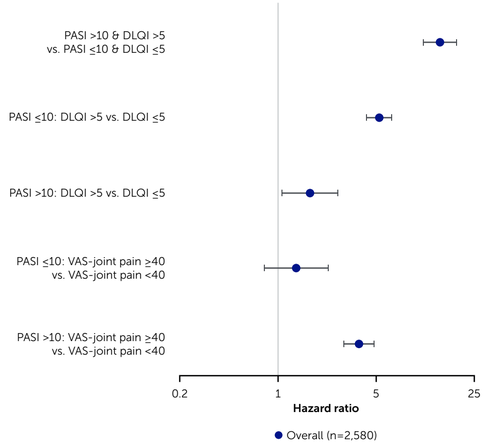
[a]Includes the total number of the following conditions: congestive heart failure, peripheral vascular disease, cerebrovascular disease (captured as stroke or transient ischemic attack), chronic obstructive pulmonary disease, peptic ulcer disease, diabetes mellitus, lymphoma, and solid tumour cancer (excluding non-melanoma skin cancer).

Table 2 Baseline disease characteristics

Disease characteristic[a]	Overall (n=2,580)
PSO duration (years), mean (SD)	17.0 (13.7)
PsA diagnsosis, n (%)	
Dermatologist diagnosed[b]	2,103 (81.5)
History of PEST ≥3[b]	1,872 (72.6)
PsA duration[c] (years; n=2,103), mean (SD)	7.8 (9.1)
PEST (n=2,547), mean (SD)	2.9 (1.3)
PASI, mean (SD)	7.7 (7.4)
DLQI, mean (SD)	8.1 (6.3)
VAS-skin pain[c] (n=2,574), mean (SD)	37.1 (32.9)
VAS-itch[c] (n=2,575), mean (SD)	52.7 (33.5)
VAS-fatigue[c] (n=2,573), mean (SD)	44.0 (29.7)
VAS-joint pain[c,d] (n=1,918), mean (SD)	50.1 (30.8)
VAS-joint pain ≥40[c,d] (n=1,918), n (%)	1,219 (63.6)
Biologic therapy mechanism of action, n (%)	
TNFi	418 (16.2)
IL-12/23i	167 (6.5)
IL-17i	1,157 (44.8)
IL-23i	838 (32.5)

[a]Sample sizes may differ due to missing data and denominators are specified only when missing data are present; [b]Indicators are not mutually exclusive and may not sum to the total; [c]Scores range from 0 to 100 with higher scores indicating worse disease state, symptom burden, or quality of life; [d]Only assessed on patient-initiations with a dermatologist diagnosis of PsA at initiation.

Figure 3 Association between disease burden and biologic switch response over 30 months following biologic initiation (adjusted model)[a]



[a]Model was adjusted for age, gender, race, ethnicity, duration of PSO, baseline disease burden category, BMI, employment status, history of comorbidities, and treatment history.

Table 3 Patient-initiation results and switch descriptions

Result/description	Summary (n=2,580) n (%)	Time to switch (months) median (IQR)
Persistent[a] at last visit	1,973 (76.5)	-
Discontinuation without switch	103 (4.0)	-
Switch	504 (19.5)	6.5 (4.6, 12.4)
Switch to different MOA[b]	375 (74.4)	6.4 (4.5, 11.6)
Switch within initial MOA[b]	129 (25.6)	8.0 (5.2, 16.4)
Approved PsA drug→Approved PsA drug[b]	248 (49.2)	6.2 (4.4, 11.0)
Approved PsA drug→Unapproved PsA drug[b]	115 (22.8)	6.4 (4.6, 11.8)
Unapproved PsA drug→Approved PsA drug[b]	77 (15.3)	6.3 (4.8, 11.3)
Unapproved PsA drug→Unapproved PsA drug[b]	64 (12.7)	14.6 (8.1, 20.4)

[a]Remained on original biologic and did not have a systemic non-biologic therapy (methotrexate, cyclosporine, apremilast, or acitretin) that was not used at baseline added; [b]Among all patients that switched; biologic was considered approved for PsA based on the FDA or Health Canada approval status at the time of initiation or switch.

BMI: body mass index; **CI**: confidence interval; **DLQI**: Dermatology Life Quality Index; **FDA**: U.S. Food and Drug Administration; **HR**: hazard ratio; **HRQoL**: health-related quality of life; **i**: inhibitor; **IL**: interleukin; **inf**: infinity; **IQR**: interquartile range; **MOA**: mechanism of action; **PASI**: Psoriasis Area and Severity Index; **PEST**: Psoriasis Epidemiology Screening Tool; **PsA**: psoriatic arthritis; **PSO**: psoriasis; **SD**: standard deviation; **TNF**: tumor necrosis factor; **VAS**: visual analog score.

Institutions: [1]Swedish Medical Center/Providence St. Joseph Health and University of Washington, Seattle, Washington, USA; [2]CorEvitas, LLC, Waltham, Massachusetts, USA; [3]UCB Pharma, Smyrna, Georgia, USA; [4]Icahn School of Medicine at Mt. Sinai, Dermatology, New York, New York, USA.

References: [1]Mease P, et al. Drugs 2014;74(4):423–441; [2]Imafuku S. et al. J Dermatol Sci 2021;101(3):185–193. **Author Contributions:** Substantial contributions to study conception/design, or acquisition/analysis/interpretation of data: **PJM**, **EJ**, **APS**, **SB**, **RL**, **BG**, **MG**, **ML**; drafting of the publication, or reviewing it critically for important intellectual content: **PJM**, **EJ**, **APS**, **SB**, **RL**, **BG**, **MG**, **ML**; final approval of the publication: **PJM**, **EJ**, **APS**, **SB**, **RL**, **BG**, **MG**, **ML**. **Disclosures: PJM:** Research grants from AbbVie, Acelyrin, Amgen, BMS, Eli Lilly, Gilead, Janssen, Novartis, Pfizer, Sun Pharma, and UCB Pharma; consultancy fees from AbbVie, Acelyrin, Aclaris, Amgen, BMS, Boehringer Ingelheim, Eli Lilly, Galapagos, Gilead, GSK, Janssen, Moonlake Pharma, Novartis, Pfizer, Sun Pharma, Takeda, UCB Pharma, and Ventyx; speakers' bureau for AbbVie, Amgen, Eli Lilly, Janssen, Novartis, Pfizer and UCB Pharma. **EJ**, **APS**, **MG:** Employees of CorEvitas. **SB:** UCB employee and shareholder (at time of researcher) and current UCB shareholder; **RL**, **BG:** Employees and shareholders of UCB Pharma. **ML:** Employee of Mount Sinai and receives research funds from AbbVie, Amgen, Arcutis, Avotres, Boehringer Ingelheim, Cara Therapeutics, Dermavant Sciences, Eli Lilly, Incyte, Inozyme, Janssen Research & Development, LLC, Ortho Dermatologics, Sanofi-Regeneron, and UCB Pharma; consultant for Almirall, AltruBio Inc., AnaptysBio, Arcutis Inc., AstraZeneca, Avotres Therapeutics, Brickell Biotech, Boehringer Ingelheim, Bristol Myers Squibb, Castle Biosciences, Celltrion, CorEvitas, Dermavant Sciences, EPI, Evommune Inc., Facilitation of International Dermatology Education, Forte Biosciences, Foundation for Research and Education in Dermatology, Galderma, Genentech, Incyte, LEO Pharma, Meiji Seika Pharma, Mindera, Pfizer, Seanergy, Strata, Trevi, and Verrica. **Acknowledgments:** The authors would like to thank all of the investigators, their clinical staff and the patients who participate in the CorEvitas Psoriasis Registry. The authors also acknowledge Patrick Reilly, BS, Costello Medical, Boston, Massachusetts, USA and Michelle Karpman, PhD, MS, CorEvitas, Waltham, Massachusetts, USA for medical writing and editorial assistance, and the Costello Medical Creative team for design support. This study was sponsored by CorEvitas, LLC. CorEvitas is supported through contracted subscriptions with multiple pharmaceutical companies. The poster was a collaborative effort between CorEvitas and UCB Pharma with financial support provided by UCB Pharma. The CorEvitas Psoriasis Registry was developed in collaboration with the National Psoriasis Foundation (NPF).

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