Management and treatment patterns in psoriasis and psoriatic arthritis

Rola Gharib,[1] Marc Bénard,[2] Zuzana Mohrova,[2] Amelia Boehme,[2] Chao Song,[3] Silky Beaty,[3] Suzanne Gharib[4]

Synopsis

- Among patients with psoriasis (PSO), the diagnosis and treatment patterns of psoriatic arthritis (PsA) differ depending on the managing-physician's specialty.

Objectives

To estimate the incidence of, time to, and factors associated with PsA diagnosis after incident PSO diagnosis.

To evaluate the disease management pattern, by physician specialty, 1 year before and after incident PsA diagnosis among patients with PSO and PsA.

Methods

- Data were extracted from the HealthVerity Claims, Pharmacy, and Electronic Medical Record (EMR) database, from November 2015–August 2022, for insured patients (≥18 years) living in the US.
- Eligible patients had a 365 day baseline period with continuous medical coverage prior to index date (PSO cohort: incident PSO diagnosis; PSO/PsA cohort: incident PsA diagnosis).

PSO Cohort

- Patients with incident PSO were followed until PsA diagnosis (2 medical claims or EMR diagnoses associated with PsA ICD-10-CM codes 30–364 days apart), disenrollment, or end of data availability (**Figure 1**).
- Rheumatologist-diagnosed PsA: either medical claim/EMR diagnosis attributed to a rheumatologist; dermatologist-diagnosed PsA: either medical claim/EMR diagnosis attributed to a dermatologist and neither to a rheumatologist; PsA diagnosed by other specialists: neither medical claim/EMR diagnosis attributed to a dermatologist nor a rheumatologist.
- Factors associated with PsA diagnosis were assessed via Cox proportional hazards regression.

PSO/PsA Cohort

- Patients with dermatologist-managed PSO (≥1 PSO ICD-10-CM code attributed to a dermatologist) at baseline and incident PsA diagnosis were followed up to 1 year after diagnosis, disenrollment, or end of data availability (**Figure 2**).
- Co-managed (dermatologist/rheumatologist) PsA: PsA diagnosed by a rheumatologist at index date or follow-up, or PSO claim made by a rheumatologist at baseline; dermatologist-managed PsA: PsA diagnosed by a dermatologist at index or follow-up and no diagnosis attributed to a rheumatologist.
- Characteristics (treatment patterns, healthcare resource use [HCRU], and symptoms) 1 year before and after PsA diagnosis were stratified by management type.

Results

PSO Cohort

- In the PSO cohort (N=15,337), 639 patients (4.2%) were diagnosed with PsA during follow-up.
- Overall incidence (95% confidence interval [CI]) of PsA was 15.6 (14.4, 16.8) per 1,000 person-years; median (interquartile range [IQR]) days to PsA diagnosis was 262.0 (93.0, 685.0) (**Figure 3**).
- Incidence of and time to PsA diagnosis differed by physician specialty.
  - There were 64/639 patients diagnosed by dermatologists and 172/639 by rheumatologists.
  - There were 294/639 patients diagnosed by specialists other than dermatologists and rheumatologists, especially primary physicians (134/294).
- Inflammatory polyarthropathy, fibromyalgia, or uveitis before or at PSO diagnosis had the strongest association with PsA diagnosis, regardless of the diagnosing-physician's specialty (**Figure 4**).

PSO/PsA Cohort

- In the PSO/PsA cohort (N=700), 243 patients were dermatologist-managed, and 165 were co-managed by dermatologists and rheumatologists (**Table 1**).
- Most patients with PsA diagnosed by dermatologists (n=238), were dermatologist-managed (n=233). All patients with PsA diagnosed by rheumatologists (n=146) were co-managed.
- Within 1 year after PsA diagnosis, 9.1% of dermatologist-managed patients visited rheumatologists for any reason, including for PsA. For co-managed patients, ≥53.3% visited dermatologists or rheumatologists for any reason, with ≥16.4% visiting either specialist for PsA (**Table 2**).
- Median (IQR) number of dermatology visits among dermatologist-managed patients increased 1 year after PsA diagnosis (2.0 [1.0, 4.0] vs. 3.0 [1.0, 5.0]).
- Median (IQR) number of dermatology and rheumatology visits, respectively, among co-managed patients was 2.0 (1.0, 3.0) and 2.0 (1.0, 2.0) 1 year before PsA diagnosis, and 1.0 (0.0, 2.0) and 2.0 (1.0, 4.0) 1 year after PsA diagnosis.
- Factors associated with management type can be found in **Figure 5**.
- The most common symptom in the year before and after PsA diagnosis was joint pain.
  - Patients experiencing joint pain reduced by 23.0% 1 year after diagnosis in the co-managed group (63.0% vs. 40.0%). For dermatologist-managed patients, there was minimal change (31.3% vs. 32.1%).
- Dermatologist-managed patients were primarily prescribed biologic disease-modifying antirheumatic drugs (bDMARDs) before (40.3%) and after (53.1%) PsA diagnosis rather than conventional synthetic DMARDs (csDMARDs; 25.1% vs. 28.0%).
  - Before and after PsA diagnosis, co-managed patients were frequently prescribed csDMARDs (40.6% vs. 43.6%) and bDMARDs (30.9% vs. 44.8%).

Limitations

Inaccuracies in EMR due to miscoding or the inherent incompleteness of real-word data | PsA diagnosis after follow-up period was not captured; long-term follow-up study is warranted to better understand PsA diagnosis after PSO | Study based only on medications dispensed and billed; not verified by usage data or inclusive of medications used during hospitalization or over-the-counter | Patients with PsA who were undiagnosed or ineligible based on study criteria were not analyzed | Patients were not selected based on clinical criteria; effects of disease severity was not considered | Using both claims and EMR data may have affected when and how patients were identified with variables of interest | Sample size constraints may have restricted ability to determine factors associated with dermatology management only vs. co-management | Most patients in the HealthVerity database were commercially insured; this study may not be generalizable to populations outside this demographic.

Conclusions

The incidence of and time to PsA diagnosis may differ by physician specialty. High incidence of PsA diagnosis by specialists other than a rheumatologist/dermatologist may be due to misdiagnosis, which highlights an educational opportunity on the PsA diagnostic criteria.

HCRU and treatment patterns for patients with PsA suggest that specialists approach management differently. This study may increase awareness among specialists for managing PSO/PsA patients and facilitate co-management with rheumatologists.

Summary

Data from a RWE database were used to evaluate PsA diagnosis and management patterns among patients with PSO

PSO Cohort

The incidence of and time to PsA dignosis for patients with PSO differed by physician specialty

Factors associated with PsA diagnosis, regardless of diagnosing physician's specialty

Inflammatory polyarthropathy: **3x** more likely

Fibromyalgia: **2.6x** more likely

Uveitis: **2.5x** more likely

PSO/PsA Cohort

PsA treatment pattern differed by managing-physician's specialty

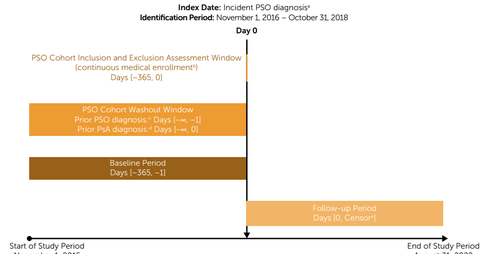
Patients with **Medicaid** or living in the **Midwestern, Southern or Western US regions** were more likely to be dermatologist-managed than those with **commercial insurance** or living in the **northeastern US region**

Patients with **joint pain** or **inflammatory polyathropathy** were more likely to be co-managed by dermatologists and rheumatologists than those without these conditions

After PsA diagnosis, only **9.1%** of dermatologist-managed patients visited rheumatologists for any reason

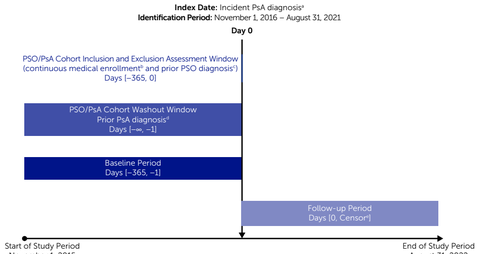
Patients co-managed by dermatologists and rheumatologists were more likely to be prescribed **csDMARDs** than dermatologist-managed patients

Figure 1 PSO cohort study design



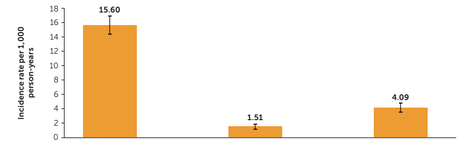
[a]First medical claim or EMR diagnosis including at least one PSO ICD-10-CM diagnosis code (L40.0, L40.1, L40.3, L40.8, L40.9) during the identification period; [b]Up to 30-day gaps in enrollment were allowed; [c]Medical claim or EMR diagnosis including at least one PSO ICD-10-CM diagnosis code any time prior to index date. This was to ensure identification of only incident PSO diagnoses; [d]Second medical claim or EMR diagnosis including at least one PsA ICD-10-CM diagnosis code (L40.50, L40.51, L40.52, L40.53, L40.59) 30–364 days from the first PsA claim, any time prior to the index date. Patients who had the first PsA claim during baseline period were not excluded; [e]Censored at date of PsA diagnosis (second PsA claim), disenrollment, or end of data availability.

Figure 2 PSO/PsA cohort study design



[a]Second medical claim or EMR diagnosis including at least one PsA ICD-10-CM diagnosis code (L40.50, L40.51, L40.52, L40.53, L40.59) during the identification period 30–364 days from the first PsA claim; [b]1 PsA claim had to be attributed to either a dermatologist or rheumatologist. Two claims were required for confirmed PsA diagnosis to account for possibility of misdiagnoses and rule-out diagnoses; [c]Up to 30-day gaps in enrollment were allowed; [d]Medical claim or EMR diagnosis including at least one PSO ICD-10-CM diagnosis code attributed to a dermatologist during the 365 days prior to index date; [e]Second medical claim or EMR diagnosis including at least one PsA ICD-10-CM diagnosis code 30–364 days from the first PsA claim, any time prior to the index date. This was to ensure identification of only incident PsA diagnoses; [f]Censored at maximum follow-up time of 365 days, disenrollment, or end of data availability.

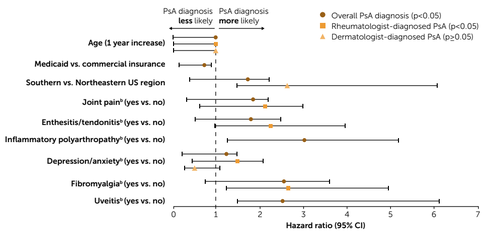
Figure 3 Incidence of and time to PsA diagnosis in PSO cohort, by diagnosing physician's specialty[a]



	Overall N=639	Dermatologist n=64	Rheumatologist n=172
Incidence 95% CI	14.39, 16.81	1.14, 1.88	3.48, 4.70
Median days to diagnosis (IQR)	262.00 (93.00, 685.00)	316.00 (115.50, 711.75)	247.50 (83.25, 710.50)

[a]PsA diagnosis was defined as the second medical claim or EMR diagnosis including at least one PsA ICD-10-CM diagnosis code (L40.50, L40.51, L40.52, L40.53, L40.59) 30–364 days from the first PsA claim. The sum of PsA diagnosis events by dermatologists and rheumatologists does not equal the total PsA diagnosis events (N=639) due to diagnoses made by other specialists (Incidence [95% CI]: 7.03 [6.22, 7.83]) or missing provider information.

Figure 4 Factors associated with PsA diagnosis in PSO cohort (adjusted)[a]



[a]These factors were measured prior to PSO diagnosis. Gender, Medicare Advantage insurance type, midwestern and western US region, dactylitis, hidradenitis suppurativa, cardiovascular disease and/or hypertension, diabetes, hyperlipidemia, inflammatory bowel disease defined as either Crohn's disease and/or ulcerative colitis, rheumatoid arthritis, and 1 index increase in Deyo-Charlson Comorbidity Index were also evaluated but were not significantly associated (p≥0.05) with overall PsA diagnosis or diagnosing physician's specialty; [b]Because access to care could be a significant factor, these comorbid conditions are not necessarily "risk factors" for PsA or diagnosis of PsA by a specific specialist, but are likely differential diagnoses prior to diagnosis of PSO and subsequent PsA.

Table 1 Baseline demographics and clinical characteristics of PSO/PsA cohort

	All patients[a] N=700	Dermatologist-managed patients n=243	Co-managed patients[b] n=165
Sociodemographic characteristics			
Age, years, mean (SD)	53.58 (14.15)	51.83 (13.72)	51.82 (13.52)
Female, n (%)	416 (59.4)	134 (55.1)	102 (61.8)
Payer type, n (%)			
Commercial	456 (65.1)	153 (63.0)	115 (69.7)
Medicaid	150 (21.4)	63 (25.9)	35 (21.2)
Medicare Advantage	79 (11.3)	21 (8.6)	13 (7.9)
Missing	15 (2.1)	6 (2.5)	2 (1.2)
US region, n (%)			
Northeast	101 (14.4)	21 (8.6)	41 (24.8)
Midwest	205 (29.3)	79 (32.5)	44 (26.7)
South	294 (42.0)	105 (43.2)	58 (35.2)
West	98 (14.0)	38 (15.6)	22 (13.3)
Missing	2 (0.3)	0 (0)	0 (0)
Symptoms,[c] n (%)			
Joint pain	339 (48.4)	76 (31.3)	104 (63.0)
Enthesitis/tendonitis	37 (5.3)	11 (4.5)	14 (8.5)
Inflammatory polyarthropathy	48 (6.9)	4 (1.6)	23 (13.9)
Dactylitis	16 (2.3)	2 (0.8)	6 (3.6)
Comorbidities[c]			
Rheumatoid arthritis, n (%)	98 (14.0)	13 (5.3)	40 (24.2)
Cardiovascular disease, n (%)	177 (25.3)	61 (25.1)	39 (23.6)
Hypertension, n (%)	360 (51.4)	115 (47.3)	86 (52.1)
Depression, n (%)	138 (19.7)	44 (18.1)	33 (20.0)
Anxiety, n (%)	181 (25.9)	48 (19.8)	46 (27.9)
Diabetes, n (%)	168 (24.0)	52 (21.4)	36 (21.8)
Hyperlipidemia, n (%)	304 (43.4)	102 (42.0)	63 (38.2)
Deyo-Charlson Comorbidity Index, mean (SD)	1.34 (1.74)	1.01 (1.52)	1.39 (1.77)

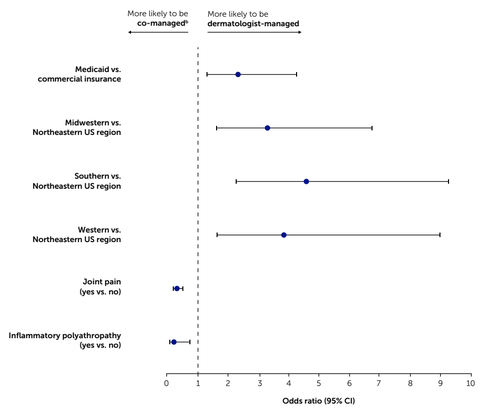
[a]The PSO/PsA cohort included patients who were diagnosed by other or unknown physician specialties; [b]These patients had their PsA managed by both dermatologists and rheumatologists; [c]Based on presence of any medical claim using ICD-10-CM codes; [c]Only comorbidities present in >10% of the patients in any population were included.

Table 2 Number of patients with specialist visits in PSO/PsA cohort

Specialist visits	All patients[a] N=700		Dermatologist-managed patients n=243		Co-managed patients[b] n=165	
	1 year before PsA diagnosis	1 year after PsA diagnosis	1 year before PsA diagnosis	1 year after PsA diagnosis	1 year before PsA diagnosis	1 year after PsA diagnosis
Dermatology visit for any reason, n (%)	700 (100.0)	459 (65.6)	243 (100.0)	212 (87.2)	165 (100.0)	88 (53.3)
Dermatology visit for PsA, n (%)	217 (31.0)	225 (32.1)	198 (81.5)	198 (81.5)	17 (10.3)	27 (16.4)
Rheumatology visit for any reason, n (%)	169 (24.1)	192 (27.4)	6 (2.5)	22 (9.1)	152 (92.1)	136 (82.4)
Rheumatology visit for PsA, n (%)	127 (18.1)	170 (24.3)	0 (0)	15 (6.2)	127 (77.0)	131 (79.4)

[a]The PSO/PsA cohort included patients who were diagnosed by other or unknown physician specialties; [b]These patients had their PsA managed by both dermatologists and rheumatologists.

Figure 5 Factors associated with management type in PSO/PsA cohort (adjusted; p<0.05)[a]



[a]The comparison group for both management types included PsA diagnosed by other or unknown specialists. Age, gender, Medicare Advantage insurance type, enthesitis/tendonitis, dactylitis, hidradenitis suppurativa, depression and/or anxiety, cardiovascular disease and/or hypertension, diabetes, fibromyalgia, hyperlipidemia, inflammatory bowel disease defined as either Crohn's disease and/or ulcerative colitis, rheumatoid arthritis, uveitis, and 1 index increase in Deyo-Charlson Comorbidity Index were also evaluated but were not significantly associated (p≥0.05) with either PsA management type; [b]These patients were managed by dermatologists and rheumatologists.

Institutions: [1]Dermatology Center for Skin Health, Morgantown, WV, USA; [2]Aetion, New York, NY, USA; [3]UCB Pharma, Immunology, Smyrna, GA, USA; [4]Charleston Area Medical Center and Vandalia Health, Charleston, WV, USA

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