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Healthcare Costs for Patients with Psoriatic Arthritis (PsA) Treated with Biologic Agents or Targeted Synthetic Disease-Modifying Anti-Rheumatic Drug (tsDMARD) in The Real World

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OBJECTIVE

- Psoriatic arthritis (PsA) is a progressive autoimmune disease estimated to affect 0.06%-0.25% of the overall US population.[1]
- With the recent expansion of biologic and targeted synthetic disease-modifying antirheumatic drugs (tsDMARDs) as treatment options,[2] real-world data on the economic impact of these treatments in the PsA population is limited.
- This study used administrative claims data to describe healthcare costs related to PsA for patients treated with biologic DMARDs and tsDMARDs.

STUDY DESIGN

Figure 1: Patient Attrition

Patients with ≥1 medical or pharmacy claim for a biologic DMARD or tsDMARD* used to treat PsA between 1/1/2016 and 6/30/2019 (date of earliest index drug: index date)
N: 250,884

↓

Age ≥ 18
N=241,576 (96.3%)

↓

With 12 months of continuous enrollment with medical and pharmacy benefits prior to the index date (pre-index period)
N=150,973 (60.2%)

↓

Newly initiating index drug*
(i.e. no claims for index drug for 12 months prior to the index date)
N=72,511 (28.9%)

↓

At least one inpatient or outpatient claim with a diagnosis of PsA during the 12 month pre-index period (including index date)
N: 11,858 (4.7%)

↓

With 12 months of continuous enrollment following the index date (follow-up period), final sample
N=6,674 (2.7%)

*certolizumab, secukinumab, etanercept, adalimumab, abatacept, infliximab, golimumab, ustekinumab, apremilast, and tofacitinib (except ixekizumab as results are reported in separate analysis)

KEY RESULT

Table 1: Average Index Drug Costs, PPPM

	CERT	SEC	ETA	ADA	INF	GOL-SC	GOL-IV	UST	APR	TOF
Out-of-pocket costs Drug Costs	$134	$172	$141	$146	$142	$111	$162	$129	$111	$179
Plan Paid Drug Costs	$2385	$4114	$2942	$3328	$2739	$3058	$2554	$4385	$1762	$2612
Total Index Drug Costs	**$2519**	**$4286**	**$3083**	**$3474**	**$2881**	**$3169**	**$2717**	**$4514**	**$1874**	**$2790**

PPPM: per patient per month, CERT: certolizumab, SEC: secukinumab, ETA: etanercept, ADA: adalimumab, INF: infliximab, GOL-SC: golimumab subcutaneous, GOL-IV: golimumab intravenous, UST: ustekinumab, APR: apremilast, TOF: tofacitinib

Methods

Data Source

- This retrospective cohort study used U.S. administrative claims data from the IBM Watson Health MarketScan® Commercial, Medicare Supplemental, and Early View Databases from January 2016-June 2019.

Study Measures

- PsA-related healthcare costs over 12 months of follow-up were measured per patient per month (PPPM) for each index drug and adjusted for inflation to 2019 dollars using the Medical Care Component of the Consumer Price index.
- PsA-related costs included inpatient claims with a primary diagnosis for PsA, outpatient medical claims with any diagnosis for PsA, and outpatient claims (medical and pharmacy) for PsA-related treatment.
  - PsA-related treatments: biologic DMARDs (certolizumab, secukinumab, etanercept, adalimumab, abatacept, infliximab, golimumab, ustekinumab), tsDMARDs (apremilast, tofacitinib), and other systemic treatments (azathioprine, methotrexate, leflunomide, sulfasalazine).
- The Institute for Clinical and Economic Review (ICER) discount rates[3] were applied to index drugs (where applicable) to account for discounts not consistently captured in claims. ICER-adjusted index drug costs, ICER-adjusted other PsA-related treatment costs, and unadjusted PsA-related costs for inpatient and outpatient medical services were reported.

Results

Patient Characteristics

- 6,674 patients were eligible for analysis (Figure 1). The mean age was 48-59, and over 50% were female (consistent across index drug cohorts).
- Adalimumab was the most common index drug (37.2%), followed by apremilast (25.5%), etanercept (18.0%), secukinumab (5.5%), and ustekinumab (5.4%).
- The majority of patients in each index drug cohort were biologic DMARD or tsDMARD naïve. Patients in the adalimumab and etanercept cohorts had the largest proportions of naïve patients (95.0% and 91.3% respectively).

Acknowledgment: Caroline Henriques (IBM Watson Health) provided programming for this project.

Patient Characteristics, cont.

- Patients initiating ustekinumab, secukinumab, and apremilast had the highest rates of comorbid psoriasis (78.2%, 76.3%,72.5% respectively).

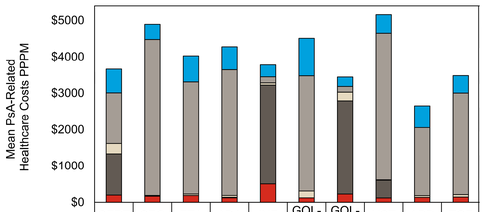
PsA-Related Costs

- The mean total PsA-related healthcare costs PPPM ranged from $2,647 (SD $1,583) for apremilast to $5,159 (SD $3,155) for ustekinumab (Figure 2).
- Mean index drug costs PPPM ranged from $1,874 (SD $1,126) in the apremilast cohort to $4,514 (SD $3,163) in the ustekinumab cohort (Table 1, Figure 2).
  - PsA index drug costs comprised the majority (68.7%-87.6%) of total PsA-related healthcare costs, but only 2.5%-5.1% of index drug costs were patient out of pocket expenses.
  - The only other index drug cohort with costs >$4,000 was secukinumab.

Cost Adjustments

- After applying ICER discounts, adjusted monthly index drug costs decreased by 22%-38% (based on drug-specific discount factors[3]) which reduced total PsA-related healthcare costs by 19%-36% (Table 2).
  - Costs for abatacept, golimumab, and tofacitinib could not be adjusted because there is no available discount factor in the ICER report[3].

Figure 2: Average PsA-related Healthcare Costs Reported PPPM and Stratified by Index Drug



	CERT	SEC	ETA	ADA	INF	GOL-SC	GOL-IV	UST	APR	TOF
Other PsA drugs pharmacy costs	$660	$418	$710	$624	$332	$1028	$262	$512	$590	$483
Index drug pharmacy costs	$1390	$4286	$3081	$3461	$168	$3169	$158	$4027	$1874	$2790
Other PsA drugs office administered treatment costs	$289	$21	$41	$51	$61	$188	$241	$12	$49	$68
Index drug office administered treatment costs	$1130	$0	$1	$13	$2713	$0	$2559	$487	$0	$0
PsA-related Inpatient and outpatient medical costs	$199	$167	$187	$124	$509	$122	$227	$120	$134	$144

CERT: certolizumab, SEC = secukinumab, ETA: etanercept, ADA: adalimumab, INF: infliximab, GOL-SC: golimumab subcutaneous, GOL-IV: golimumab intravenous, UST: ustekinumab, APR: apremilast, TOF: tofacitinib

Table 2: Cost Adjustments, PsA-related Costs, PPPM

	CERT	SEC	ETA	ADA	INF	UST	APR
Unadjusted index drug costs	$2519	$4286	$3083	$3474	$2881	$4514	$1874
ICER*-adjusted index drug costs	$1612	$2657	$2127	$2397	$2247	$3295	$1461
Unadjusted other PsA-related drug costs	$949	$439	$751	$675	$393	$525	$639
ICER-adjusted other PsA-related drug costs	$709	$308	$535	$473	$293	$356	$448
Total unadjusted PsA-related healthcare costs	$3667	$4892	$4021	$4273	$3783	$5159	$2647
ICER-adjusted total PsA-related healthcare costs	$2520	$3132	$2849	$2994	$3050	$3772	$2044

CERT: certolizumab, SEC: secukinumab, ETA: etanercept, ADA: adalimumab, INF: infliximab, UST: ustekinumab, APR: apremilast

*ICER discount factors for index drugs: adalimumab 31%, apremilast 22%, certolizumab 36%, etanercept 31%, infliximab 22%, secukinumab 38%, ustekinumab 27%. Costs for abatacept, golimumab, and tofacitinib could not be adjusted because there is no available discount factor in the ICER report.[3]

Limitations

- There is no ICER report specific for PsA; the reference for psoriasis (PsO) was used.[3] Drugs approved for PsA but not PsO (abatacept, golimumab, and tofacitinib) had no available discount factor and could not be adjusted.
- This study uses diagnosis and procedure codes from administrative claims and is limited by completeness and accuracy of medical coding.
- MarketScan databases are comprised of socioeconomically diverse health plans; these findings may not be generalizable to the uninsured populations.
- About 97% MarketScan outpatient prescription claims, 74% of outpatient professional claims, and 65% of inpatient claims and outpatient facility claims are adjudicated at 30-day lag, which may underestimate costs from claims coming from the Early View data.

CONCLUSIONS

- This study provides real world data on the PSA-related costs of biologic DMARDs and tsDMARDs in treating patients with PsA.
- Index drug costs comprise the largest share of PsA-related healthcare costs and a majority of the drug costs are covered by health plans.

References:
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