Frequency of Inadequate Response to Treatment Among Psoriasis Patients on First-Line Biologics

A. Sheahan,[1] E. Lee,[2] L. Pisenti,[2] M. Yassine,[2] R. Suruki[1]

[1]UCB Pharma, Raleigh, NC; [2]UCB Pharma, Smyrna, GA

OBJECTIVE

- To understand the frequency of inadequate response to first-line biologic therapies in patients with psoriasis, and the reasons underlying this lack of response, in a real-world setting.

BACKGROUND

- Plaque psoriasis (PSO) is an immune-mediated inflammatory disease, affecting around 3% of adults in the United States[1,2] and 2–6% in Europe.[3]
- PSO can have a substantial impact on patients' quality of life, with psychosocial and emotional effects such as depression and fatigue in addition to physical symptoms.[4]
- Whilst treatment of patients with moderate to severe disease with biologic agents such as tumor necrosis factor inhibitors (anti-TNFs), anti-interleukin (IL)-17s and anti-IL12/13s is well-established, sub-optimal efficacy or adverse events may require switching to another biologic to improve patient outcomes.
- However, studies describing the occurrence of inadequate response (IR) to biologic treatments in the real-world setting are currently lacking.
- An understanding of the frequency and reasons underlying IR may help to identify and address unmet treatment needs.

METHODS

Study Design and Inclusion Criteria

- A retrospective analysis of a commercial US healthcare claims database was conducted, including claims data from 2012–2016.
- Included patients had:
  - A qualifying PSO ICD-9/10 code
  - Initiated treatment with an anti-TNF approved for PSO, secukinumab, ustekinumab or apremilast (index date)
  - ≥1 year of database enrollment both before and after the index date
- Patients with prior biologic exposure in the year prior to the index date were excluded.

Definition of IR

- IR was defined as:

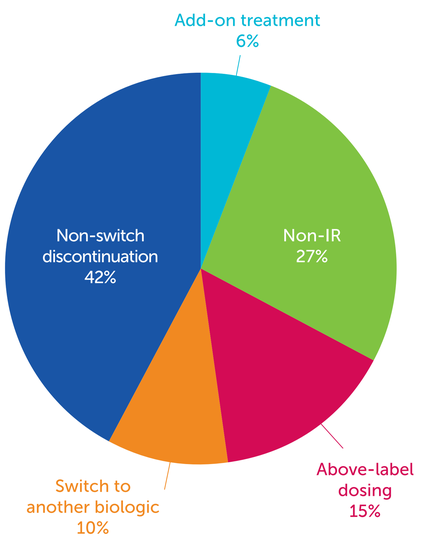
1. ≥1 claim with a biologic dose >110% of the label-recommended dose for ≥30 days ("Above-label dosing")
2. Cessation (>2 months with no treatment) of a 1st line biologic ("Non-switch discontinuation")
3. Cessation of a 1st line biologic followed by initiation of a new biologic within 2 months ("Switch to another biologic")
4. Addition of a corticosteroid, immunosuppressant, or biologic with ≥30 days' supply overlap ("Add-on treatment")

RESULTS

Treatment Response Outcomes

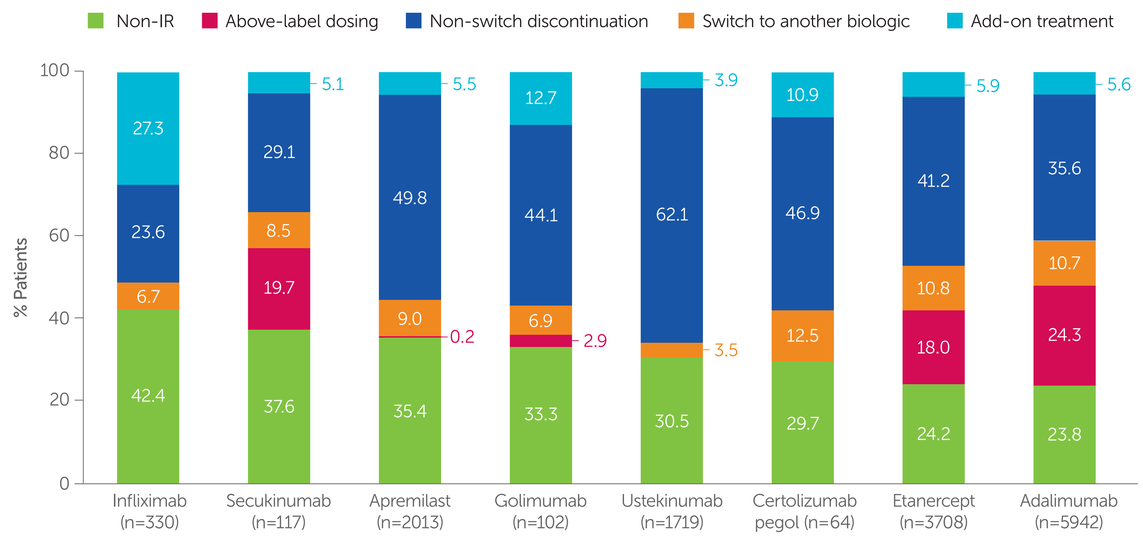
- Of 13,995 patients who met the inclusion criteria, 10,213 (73.0%) experienced an IR event in the 12-month follow-up period.
  - The most common IR event was non-switch discontinuation **(Figure 1)**

Figure 1. Distribution of response outcomes across index biologics



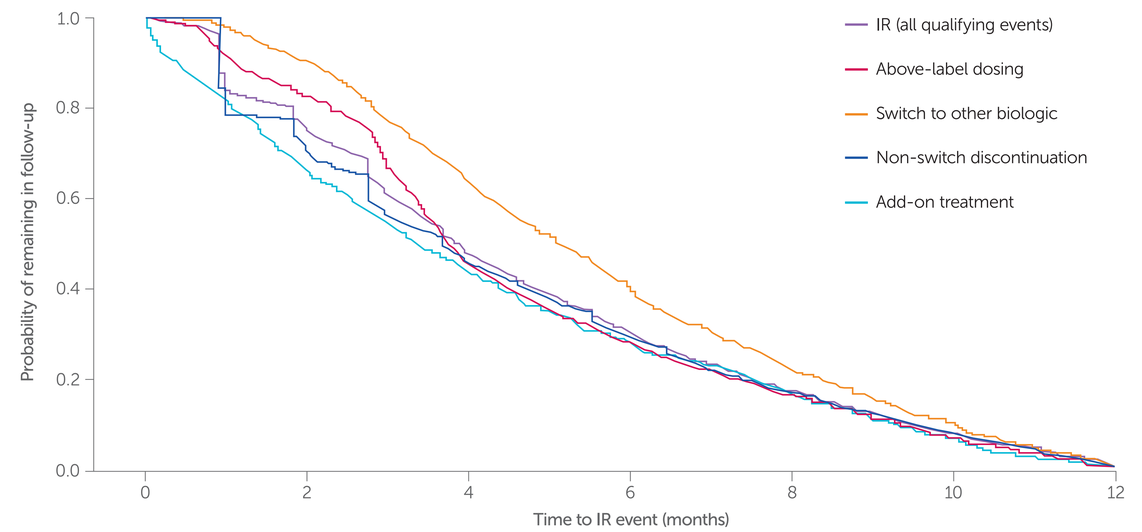
IR: inadequate response.

Figure 2. Response outcomes by index biologic



Above-label dosing was not assessed for infliximab and ustekinumab (due to weight-based dosing). IR: inadequate response.

Figure 3. Time to IR events



Time to IR event (months)	All IR events (n=10,213)	Above-label dosing (n=2,144)	Switch to another biologic (n=1,324)	Non-switch discontinuation (n=5,901)	Add-on treatment (n=844)
Mean (SD)	4.6 (3.1)	4.6 (2.7)	5.5 (2.9)	4.4 (3.2)	4.1 (3.3)
Median (Q1–Q3)	3.8 (2.0–6.6)	3.7 (2.8–6.3)	5.1 (3.2–7.6)	3.7 (1.8–6.5)	3.3 (1.4–6.3)

IR: inadequate response; SD: standard deviation; Q1–Q3: interquartile range.

Figure 4. Treatment persistence in patients switching to another biologic

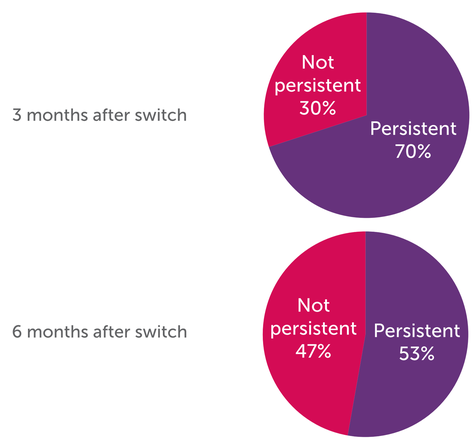


Figure 5. Add-on treatments by baseline therapy

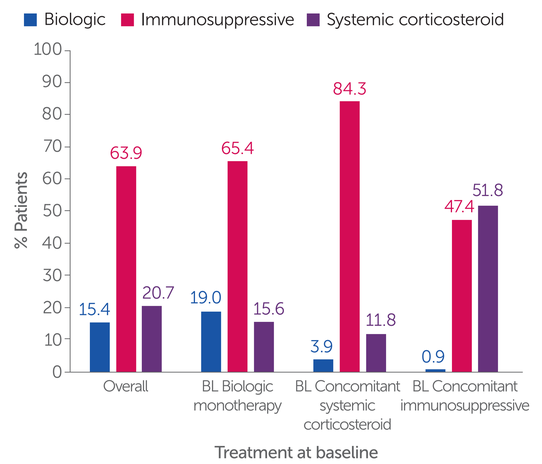


Table 1. Patient demographics and index biologic use

%, unless otherwise stated	Inadequate response (N=10,213)	No inadequate response (N=3,782)
Age (years), mean	46.2	47.0
Female	52.1	46.7
History of systemic treatment	56.1	54.4
Index biologic		
Adalimumab	44.4	37.3
Etanercept	27.5	23.7
Apremilast	12.7	18.8
Ustekinumab	11.7	13.9
Infliximab	1.9	3.7
Secukinumab	0.7	1.2
Golimumab	0.7	0.9
Certolizumab pegol	0.4	0.5
Most frequent comorbidities and those of interest		
Psoriatic arthritis	30.7	31.1
Hypertension	30.6	31.3
Hyperlipidemia	29.7	31.3
Anxiety	9.8	8.9
Depression	13.5	11.1

Systemic treatment: any prescribed non-biologic therapy indicated for the management of PSO.

- Demographics and characteristics, including the distribution of index biologics, were similar in patients who did and did not experience IR **(Table 1)**.
- The proportion of IR by index biologic ranged from 76.2% in adalimumab to 57.6% in infliximab **(Figure 2)**.

Time to Inadequate Response

- Across all IR groups, mean time from initiation of 1st line biologic to IR was 4.6 months (standard deviation [SD] =3.1).
- Time to IR tended to be numerically higher in patients switching to another biologic (mean=5.5 months, SD=2.9) **(Figure 3)**.

Biologic Switch Patients

- Among patients switching to another biologic, 70.5% of patients were persistent on the new biologic after 3 months, vs 53.5% after 6 months **(Figure 4)**.
- Most frequently used biologics after treatment switch were ustekinumab (29.7% of switch patients) and adalimumab (28.7% of switch patients).

Add-on Treatment Patients

- Overall, most frequent add-on therapies were immunosuppressive drugs (63.9%) followed by systemic corticosteroids (20.7%) and biologics (15.4%) **(Figure 5)**.
- 73.3% of these patients subsequently discontinued the add-on therapy before discontinuing their biologic.

CONCLUSIONS

- Inadequate response in first line PSO biologic treatment is common, with non-switch discontinuation being the most frequent type.
- Analysis of the longer-term outcomes of non-switch discontinuation patients may help to better characterize the reasons these patients are not persistent on the first line biologic; currently it is difficult to determine why patients would discontinue without initiating an alternate biologic.
- This highlights an opportunity to optimize available treatment options, and better understand patient needs.
- Therapeutic options with improved durability may help optimize the management of PSO, but further analysis is necessary to identify underlying causes of IR.

References: **1.** Rachakonda TD. *et al.* J Am Acad Dermatol 2014;70:512–6; **2.** Kurd SK. *et al.* J Am Acad Dermatol 2009;60:218–24; **3.** Danielsen K. *et al.* Br J Dermatol 2013;168:1303–10; **4.** Langley RG. *et al.* Ann Rheum Dis 2005; 64:ii18–23.

Author Contributions: Substantial contributions to study conception/design, or acquisition/analysis/interpretation of data: AS, EL, LP, MY, RS; Drafting of the publication, or revising it critically for important intellectual content: AS, EL, LP, MY, RS; Final approval of the publication: AS, EL, LP, MY, RS.

Author Disclosures: **AS, EL, LP, MY, RS** are employees of UCB Pharma.

Acknowledgements: This study was funded by UCB Pharma. The authors would like to thank David Friesen (Hays Pharma) and Paul Murray (Hays Pharma) for assistance with data analysis, Mylene Serna, PhD, UCB Pharma, Smyrna, USA, for publication coordination and Helen Chambers, DPhil, Costello Medical, Cambridge, UK for medical writing and editorial assistance. All costs associated with development of this poster were funded by UCB Pharma.

Presented at Fall Clinical Dermatology | Las Vegas, Nevada | October 18–21, 2018. Previously presented at The 5th World Psoriasis and Psoriatic Arthritis Conference 2018