Change in persistence between biologics and biosimilars of Infliximab in the US

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Introduction

- In recent years, biologics like Infliximab became a crucial treatment option for multiple diseases like rheumatoid arthritis (RA), plaque psoriasis (PP), ulcerative colitis (UC), and Crohn's disease (CD).
- Infliximab and its biosimilars Infliximab-dyyb and Infliximab-abda are administered in a medical setting once every 2-8 weeks in the US[1].
- This persistence study will evaluate the treatment consistency of Infliximab and its biosimilars. This study can also help to estimate economic consequences due to changes in persistence.

Objective

Our study aims to identify and observe the change in persistence of infliximab and its biosimilars Infliximab-dyyb and Infliximab-abda for rheumatoid arthritis, plaque psoriasis, ulcerative colitis, and Crohn's disease.

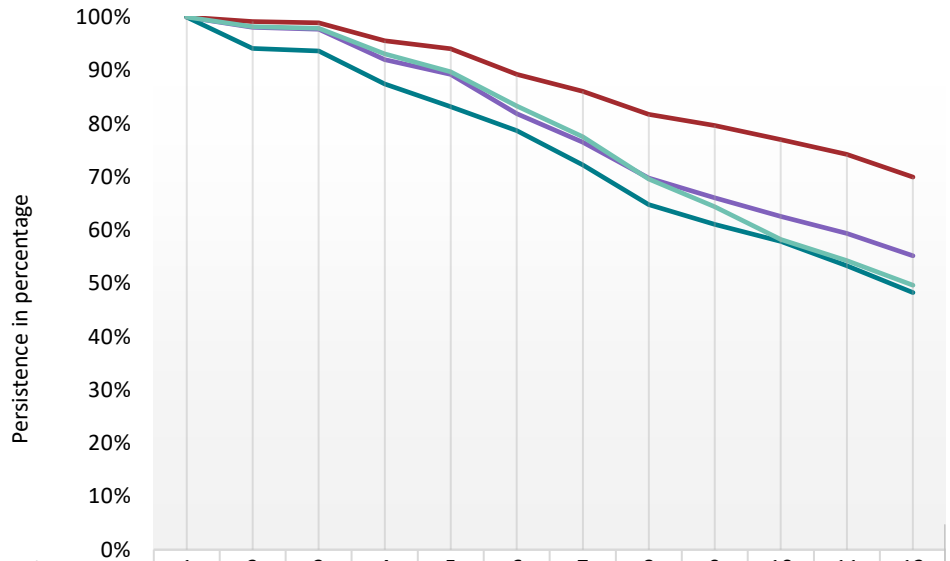
Method

- We considered the Standard Kaplan-Meier (KM) analysis which estimates the proportion of patients who have not yet suffered a treatment break by a certain day after initiation of treatment.
- This retrospective study utilized Optum's de-identified claims data for the US. We used the ICD-10-CM codes series for all the diseases, e.g., L40 for plaque psoriasis, K50 for Crohn's disease, K51 for ulcerative colitis, and M05 for rheumatoid arthritis. We used the HCPCS codes J1745, Q5103, & Q5104 to get the data on drugs from 2017 to 2020.
- We have only considered new users (no claim for infliximab in the look-back period of 6 months from index date) of Infliximab biologic and biosimilars. The first claim for Infliximab biologic or biosimilar was considered as the index date and those patients were followed for 12 months from the index date. We included only those patients who had continuous medical eligibility for 12 months and had taken >2 doses in 12 months. >60 days break in treatment was considered as non-persistence.

Results

- We observed that Infliximab has higher persistence than the other 2 biosimilars.
- As shown in Figure 1, the persistence of Infliximab in Crohn's disease is 89% after 6 months and 70% after 12 months, and for the other 3 indications, it is around 50% after 12 months.
- In contrast, after 12 months, the persistence in all the diseases is not more than 45% for Infliximab-dyyb and Infliximab-abda (Table 1).

Figure 1: Infliximab persistence



Months	1	2	3	4	5	6	7	8	9	10	11	12
UC (n=2,717)	100%	98%	98%	92%	89%	82%	76%	70%	66%	63%	59%	55%
CD (n=8,391)	100%	99%	99%	96%	94%	89%	86%	82%	80%	77%	74%	70%
PP (n=375)	100%	94%	94%	87%	83%	79%	72%	65%	61%	58%	53%	48%
RA (n=951)	100%	98%	98%	93%	90%	83%	77%	70%	64%	58%	54%	50%

Table 1: Biosimilars persistence

Biosimilar	Diseases	1 month	6 months	12 months
Infliximab-dyyb	UC (n=896)	100%	74%	11%
	CD (n=3,695)	100%	78%	13%
	PP(n=109)	100%	75%	15%
	RA (n=336)	100%	72%	23%
Infliximab-abda	UC(n=78)	100%	78%	31%
	CD (n=206)	100%	74%	45%
	PP(n=15)	100%	73%	53%
	RA(n=96)	100%	64%	40%

Conclusion

- Biologic of Infliximab has better persistence as compared with the 2 biosimilars. Overall, the lower persistence of Infliximab and its biosimilars provide significant opportunities for improvement.
- This finding also raises the need to understand the driving factors (e.g. out-of-pocket costs, awareness of drug effectiveness, safety, and tolerability) for the reduction in persistence and if a certain demographic population is more impacted than others for creating an effective plan to improve compliance.
- These findings should be used along with the data on treatment switches and the administrative burden of reimbursement of medical benefit drugs for planning awareness campaigns to increase persistence for these drugs.

Reference: 1. Infliximab - USFDA Label, Access data (link: https://www.accessdata.fda.gov/drugsatfda_docs/label/2013/103772s5359lbl.pdf)