Adherence and discontinuation for infliximab biosimilar and originator drugs covered by public provincial insurance in Canada

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Background

In 2014, biosimilar infliximab was approved for inflammatory arthritis, inflammatory bowel disease, and psoriasis in Canada, offering the potential for considerable savings. However, no population-based comparisons of patterns of use for biosimilar infliximab and its originator product have been estimated.

Objective

To compare adherence and discontinuation in initiators of biosimilar versus bio-originator infliximab, within Canadian public provincial insurance data.

Methods

Design/Settings: Retrospective study using the National Prescription Drug Utilization Information System, with prescription claims-level data from provincial public drug plans across Canada (except Quebec).

Exposure: New users of infliximab biosimilar or bio- originator, between January-December 2016.

Outcomes:1) Adherence (restricted to patients initiating treatment between Jan-June 2016): defined as more than 4 infusions over a 6-month follow-up period. 2) Discontinuation measures: a) time to first missing dose (according to scheduled infusions of 0, 2, and 6 weeks and every 8 weeks thereafter); b) complete discontinuation of therapy, defined as a ≥90-day gap between infusions (without restarting therapy, up to the end of follow-up).

Statistical analysis: We performed descriptive analyses comparing use of biosimilar versus bio-originator, for age, sex, province, and prior biologic/systemic steroid use. We used logistic regression to compare biosimilar infliximab or originator users in terms of adherence and Cox regression to compare time to discontinuation. All multivariate models adjusted for age, sex, prior use of biologics and systemic steroids, and province (Ontario versus other provinces).

Results

- We studied 2215 new users of biosimilar infliximab (N=188, 8%) or originator infliximab (N=2027, 92%); half were women and the mean age was 44±18 years. Most patients were from Ontario (32%) or British Columbia (24%), and 88% were biologic-naïve.

Table 1. Baseline characteristics of infliximab users included in the cohort.

Characteristics	Biosimilar Infliximab (N=188)	Originator Infliximab (N=2027)
Female sex, n (%)	121 (64)	985 (49)
Age at entry, mean (SD)	58 (15)	43 (18)
Province of 1st claim, n (%)		
Ontario	130 (69)	582 (29)
British Columbia	38 (20)	489 (24)
Alberta	8 (4)	445 (22)
Others*	12 (6)	551 (25)
Prior use of other biologic, n (%)	80 (43)	194 (10)
Prior use of systemic steroid, n (%)	103 (55)	811 (40)

* Manitoba, New Brunswick, Newfoundland and Labrador, Nova Scotia, Prince Edward Island, and Saskatchewan

- The biosimilar group was older, with a higher proportion of women, versus the bio-originator group. Prior use of other biologic agents was also higher in the biosimilar group.
- Our adherence criteria (>4 infusions at 6 months) was met by 105 (56%) biosimilar infliximab and 851 (42%) bio-originator initiators (95% confidence interval, CI for difference, 3-25%).
- Over follow-up, 14% of all patients missed one or more infusion, 8% in biosimilar and 15% in bio-originator initiators (95% CI for difference, 3-11%).
- Only 3% of all patients completely discontinued therapy.
- For biosimilar versus bio-originator, the adjusted adherence odds ratio was 1.32 (95% CI 0.81-2.17).
- Hazard ratios (biosimilar versus bio-originator) were 0.68 (95% CI 0.39-1.19) for time to first missing dose and 1.15 (95% CI 0.41-3.24) for complete discontinuation.

Conclusions

- We documented very few biosimilar infliximab initiators among Canadian public drug plan beneficiaries in 2016.
- Compared to the bio-originator, biosimilar infliximab initiators were older and more often women; this may reflect that in Ontario (the province with highest biosimilar use) only seniors (who are more predominantly female) have comprehensive public provincial drug insurance (with preferential biosimilar use).
- Estimates were imprecise, without clear differences in adherence/discontinuation, despite trends for shorter time to first missing dose in biosimilar initiators.
- Potential limitations include that reasons for nonadherence/treatment gaps are not available in claims data, neither is indication for infliximab.

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