BACKGROUND

- The high efficacy of biologic therapies has had a positive impact on patients suffering from moderate to severe forms of psoriasis.
- However, the relatively high efficacy of biologic costs at a significant cost compared with oral therapies.
- It is reported that the total costs of biologic medications used to treat psoriasis was $33.1 million annually in Canada based on an estimated recommended dosing regimen. Therefore, understanding the real-world costs of biologic therapies is important for informing healthcare budgets and ensuring appropriate resource allocation.

OBJECTIVES

- To quantify the per-patient first-year cost of psoriasis treatment after initiating biologics in a Canadian psoriasis patient population.

METHODS

Data

- The study was conducted using IMS Brogan's Canadian national claims database (DPC04 and DPC06) and EMR (Elektron Medical Resources) data and drug databases.
- A 3-year administrative claims-based database, with 75% national market coverage for DPC04 and 100% and 75% market coverage for DPC06 and EMR, respectively.

Study Period

- This retrospective study was conducted from October 1, 2008, to December 31, 2011.
- Patients naïve to biologic therapy and persistent on one of these biologic therapies for ≥1 year were included in the study.

Selection Criteria

- Patients were required to have a validated medication claims algorithm validated previously. Briefly, patients were required to have ≥2 medication claims for psoriasis medications with limited multi-indication use, defined in Canadian drug monographs.
- Patients meeting these criteria were then selected if they had ≥2 claims in the following categories: methotrexate, infliximab, adalimumab, or ustekinumab from October 2007 to September 2013 and were naïve to biologic therapy based on a 12-month washout period prior to their index claims.
- A subset of patients persistent on their respective biologic therapy for a minimum of 1 year was also selected.
- Patients were defined as having a 180-day gap between index medication refill.

Table 1. List of Molecules Used to Define the Patient Population

| Molecule/Drug | Category | Persistence
|---------------|----------|-------------
| Methotrexate  | Dose Elevation | Infliximab
| Adalimumab    |            | Infliximab
| Ustekinumab   |            | Infliximab
| Hydroxychloroquine | | Infliximab
| Sulfasalazine |            | Infliximab
| Dithranol     |            | Infliximab
| Coal tar      |            | Infliximab
| Prednicarbate |            | Infliximab
| Salicylic acid |          | Infliximab
| Fluocinolone  |            | Infliximab
| Mometasone    |            | Infliximab
| Halcinonide   |            | Infliximab
| Calcitriol    |            | Infliximab
| Calcipotriol  |            | Infliximab
| Beclomethasone dipropionate | Dose Elevation | Infliximab
| Betamethasone dipropionate |           | Infliximab
| Clobetasol    |            | Infliximab
| Desonide      |            | Infliximab
| Trioxsalen    |            | Infliximab
| Triamentadine |            | Infliximab
| Miracarboxyl |            | Infliximab
| Prednisolone  |            | Infliximab
| Prednisone    |            | Infliximab

Table 2. List of Molecules Used in Total Drug Cost Calculation

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<tr>
<th>Drug Name</th>
<th>Category</th>
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<td>Methotrexate</td>
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Statistical Testing

- Due to variant of variance (ANOVA) followed by a pairwise comparison was used to evaluate cost differences among patients being treated using different biologic products.

RESULTS

- A cohort of 1,289 patients met the criteria for inclusion in the study (i.e., naïve to biologic therapy and included a cohort of their first biologic product within the selection period). A subset of 897 patients persistent on their first biologic therapy for a minimum of 1 year was also selected for the comparison study.
- As shown in Figure 1, the mean first-year cost of medications used among patients using different biologic products was $23,326 (±$10,000). Patients treated with infliximab had the highest drug cost ($37,577 ±$10,000), whereas adalimumab ($26,701 ±$10,000) and ustekinumab ($24,303 ±$10,000, n=154; $23,701 ±$10,000, n=263; and $21,500 ±$10,000, n=262) had similar drug costs. Among ustekinumab (P<0.001) and etanercept (P<0.001) patient costs were significantly higher than those for adalimumab.

- As shown in Figure 2, the mean first-year cost of medications used among patients using different biologic products was $23,326 (±$10,000). Patients treated with infliximab had the highest drug cost ($37,577 ±$10,000), whereas adalimumab ($26,701 ±$10,000) and ustekinumab ($24,303 ±$10,000, n=154; $23,701 ±$10,000, n=263; and $21,500 ±$10,000, n=262) had similar drug costs. Among ustekinumab (P<0.001) and etanercept (P<0.001) patient costs were significantly higher than those for adalimumab.

- As shown in Figure 3, the mean first-year cost of medications used among patients using different biologic products was $23,326 (±$10,000). Patients treated with infliximab had the highest drug cost ($37,577 ±$10,000), whereas adalimumab ($26,701 ±$10,000) and ustekinumab ($24,303 ±$10,000, n=154; $23,701 ±$10,000, n=263; and $21,500 ±$10,000, n=262) had similar drug costs. Among ustekinumab (P<0.001) and etanercept (P<0.001) patient costs were significantly higher than those for adalimumab.

LIMITATIONS

- Psoriasis diagnosis was inferred based on a validated medication claims algorithm; therefore, the studied biologics' use for the treatment of psoriasis cannot be completely assured.
- Drug costs are based on list price plus pharmacy markup and do not reflect negotiated pricing agreements or manufacturer assistance programs.
- The studies show the baseline claim cost and therefore should not be extrapolated past the first year.
- Since the accuracy of biologic therapy for dose escalation consideration was standardized to claim cost, dose increases in drugs with flat pricing, such as ustekinumab, could be underestimated.
- The analysis included patients who were not persistent on their respective biologic therapies were not evaluated.
- This study does not consider the efficacy, safety, or clinical value of the mentioned therapies, which are other key metrics in patient therapy decisions.

CONCLUSIONS

- Biologic treatments represent significant changes to the treatment paradigm of psoriasis. However, they represent a substantial medication cost burden, which can be further amplified by the impact of dose elevation.
- Our research suggests that the cost of biologic treatment in Canada may be even higher than previous estimates, as a substantial medication cost burden, which can be further amplified by the impact of dose elevation.

REFERENCES


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