INTRODUCTION

- Multiple sclerosis (MS) is a chronic and debilitating disease that affects approximately 570,000 individuals in the USA, and 2.3 million worldwide.¹ ²
- Introduction of the oral disease-modifying therapies (DMTs), such as dimethyl fumarate, fingolimod and teriflunomide, has provided patients and clinicians with treatment alternatives to injectable DMTs (glatiramer acetate and interferon β).¹ ²
- Therapeutic outcomes in routine clinical practice have the potential to be influenced by factors that are controlled for during clinical trials, including prior disease, treatment history, comorbidities, and disease duration and severity. Evaluation of real-world outcomes, using data provided by medical reimbursement claims, is therefore important for determining therapeutic effectiveness.³
- Real-world data on the comparative effectiveness of DMTs for the management of MS in routine clinical practice are limited.

OBJECTIVE

- To compare annualized relapse rates (ARR) and DMT adherence for patients with MS initiating dimethyl fumarate, interferon β, glatiramer acetate, teriflunomide or fingolimod in routine clinical practice.

METHODS

Data Source

- Truven MarketScan Commercial Claims Databases: Administrative claims and eligibility records of 80 million commercially-insured individuals from the USA:
  - Medical services claims for inpatient and outpatient settings with associated procedures and diagnosis codes
  - Pharmacy dispensing claims
  - Demographic information including age, sex, health plan type and region of residence
- Data were collected between January 2012 and December 2014, inclusive.

Patient Identification

- Adult patients with MS who initiated an oral or injectable DMT during 2012 were included in the analysis (Figure 1, Figure 2).
- Index date was defined as the date of the first claim for the initiated DMT. Patients were required to have full enrollment 1 year before and 1 year after the index date.

Study Measures

- Patient demographics included age at index date, sex, type of health plan and region of residence.
- Baseline clinical characteristics were assessed based on claims within the 1 year pre-index period and included chronic disease burden (measured by Charlson Comorbidity Index [CCI] and MS-related symptoms – CCI is a composite score calculated based on the presence of 22 chronic conditions, such as diabetes, peptic ulcer, liver disease and cancer. It was initially developed to predict 10-year mortality and has been widely used to assess chronic disease burden in large retrospective studies).
- ARR, the primary outcome of interest, was calculated based on the number of MS-related relapses (identified from inpatient and outpatient claims) within 1 year after DMT initiation.

RESULTS

- Overall, 6,372 patients with MS were included in the analysis. Baseline differences between cohorts were observed in age, prior DMT exposure and comorbidities using the CCI (Table 1).
- Significant decreases in unadjusted relapse rates were observed in the dimethyl fumarate and fingolimod cohorts, consistent with a previous claims database analysis.¹ The largest decreases were observed in the dimethyl fumarate and fingolimod cohorts (–0.129 and –0.135, respectively; Figure 3).
- After adjusting for baseline patient demographics, clinical characteristics and prior DMT exposures, dimethyl fumarate was associated with significantly lower ARR than glatiramer acetate, interferon β and teriflunomide. No significant difference was found between the dimethyl fumarate and fingolimod cohorts (Figure 4).
- Patients initiating dimethyl fumarate or fingolimod were more adherent to treatment than patients receiving teriflunomide, glatiramer acetate or interferon β in the 1 year after DMT initiation (Table 2).

CONCLUSIONS

- In this retrospective study of real-world DMT comparative effectiveness in more than 6,000 patients with MS, the largest reductions in unadjusted relapse rates after DMT initiation were observed in the dimethyl fumarate and fingolimod cohorts.
- Dimethyl fumarate is associated with significantly lower ARR than glatiramer acetate, interferon β and teriflunomide after DMT adherence was adjusted for baseline characteristics and prior DMT exposure.
- Despite differences in patient demographics and comorbidities between DMT clinical trial populations and real-world claims data, the real-world effectiveness reported here is consistent with previous mixed and indirect treatment comparators based on clinical trial data.⁶
- Insights provided by real-world data, and the implications for differences in real-world comparative effectiveness of available DMTs, should be considered when making decisions on appropriate therapy for the management of MS.

Disclosures

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References


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