A descriptive analysis of time to first treatment with disease-modifying drugs in newly diagnosed patients with multiple sclerosis

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Introduction

• The clinical manifestations of multiple sclerosis (MS) often follow an intermittent course, as the disease typically advances in a series of exacerbations, also called relapses, or attacks.

• After each attack, there may be complete or partial recovery, but in general, each subsequent attack reduces the amount of recovery that can occur.

• Evidence suggests that early treatment with disease-modifying drugs (DMDs) following a diagnosis of relapsing multiple sclerosis (MS) is recommended for most patients with MS.1,2

• As there is no cure for MS, treatment aims to reduce the burden of illness by slowing/altering the disease process and alleviating symptoms.2,3

Objective

• The objective of this study was to examine the time to first DMD prescription in newly diagnosed patients with MS.

Methods

Study Population

• This retrospective database analysis of newly diagnosed patients with MS was conducted using a national managed care database.

• Third party payer coverage from the IMS Life Link Health Plans Database; an anonymous patient-centric, HIPAA compliant, national managed care database that represents approximately 70 million lives.

• A subset of data that contains all enrollment, demographic, and medical and pharmacy claims information for all patients with MS or a DMD claim was utilized.

• Patients aged 18-64 years, with a first MS claim (ICD-9-CM, 340.xx) between 1/1/2008 and 10/31/2012 (index date), with continuous eligibility for 6 months pre- and 24 months post-index, and who had at least one DMD claim during the 24-month post-index period were included in the analysis (Table 1).

Baseline Characteristics

• 7,621 patients with MS met the study inclusion criteria:

  - Mean age was 41.6 years (SD=10.4)
  - 74.5% were female
  - Patients were most likely to be from the Midwest (34.0%) or South (31.9%) regions, which reflects sampling for the national database used in this study (Figure 2).

Exclusion Criteria

• Patients who had evidence of DMD use prior to first MS claim were excluded from the analysis.

Data Analysis

• Data were accessed and analyses were conducted using the Instant Health Data (IHD) platform developed by Boston Health Economics (BHE).

• Categorical and binary variables were summarized using frequencies and percentages. Continuous variables were summarized using means, SDs and medians.

• A secondary analysis examined time to first DMD claim for newly diagnosed MS patients who received a DMD claim any time following the index date (i.e., patients could have received a DMD after 2 years of the index date).

Results

Patient Selection

• Figure 1 outlines the sample selection using the inclusion/ exclusion criteria.

Table 1. Sample selection of newly diagnosed patients with MS.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All patients with a diagnosis of MS from 2008-2012 in IMS LifeLink Database</td>
<td>7621 (100.0)</td>
</tr>
<tr>
<td>18-64 years of age</td>
<td>7552 (98.9)</td>
</tr>
<tr>
<td>1/1/2008-10/31/2012 (index date)</td>
<td>5877 (77.1)</td>
</tr>
<tr>
<td>6 months pre-index</td>
<td>1805 (23.9)</td>
</tr>
<tr>
<td>24 months post-index</td>
<td>1689 (22.3)</td>
</tr>
<tr>
<td>First MS claim</td>
<td>1502 (19.6)</td>
</tr>
<tr>
<td>DMD claim</td>
<td>1354 (17.8)</td>
</tr>
<tr>
<td>DMD claim within 6 months of the index date</td>
<td>980 (12.8)</td>
</tr>
</tbody>
</table>

Figure 1. Sample selection of newly diagnosed patients with MS.

Baseline Characteristics

• The average time from first MS diagnosis to first DMD claim was 128.3 days (SD=164.5), with median time of 65 days.

  - 28.9% received their first DMD in less than 30 days.
  - 52.0% in less than 60 days.
  - 64.2% in less than 90 days.
  - 77.7% in less than 180 days.

• Over one-fifth of patients (22.3%) did not have their first DMD claim for 180 or more days following their first MS diagnosis (Figure 3).

Data Analysis

• A subset of data that contains all enrollment, demographic, and medical and pharmacy claims information for all patients with MS or a DMD claim was utilized.

• Patients aged 18-64 years, with a first MS claim (ICD-9-CM, 340.xx) between 1/1/2008 and 10/31/2012 (index date), with continuous eligibility for 6 months pre- and 24 months post-index, and who had at least one DMD claim during the 24-month post-index period were included in the analysis (Table 1).

Secondary Analysis

• The secondary analysis of newly diagnosed MS patients who received a DMD any time during the post-index period (n=64,441) showed that the mean and median time to DMD treatment for this broader population was 227.1 (SD=353.3) and 66.6, respectively.

  - Mean age was 41.7 years (SD=10.3); 74.9% were female; and patients were most likely to be from the Midwest (34.4%) or South (31.3%) regions.

  - More than a quarter of patients (29.8%) did not have their first DMD claim for 180 days following first MS diagnosis (Figure 4).

Table 1. US FDA-Approved DMDs included in the evaluation.

<table>
<thead>
<tr>
<th>U.S. Food and Drug Administration (FDA)-Approved DMDs</th>
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<tbody>
<tr>
<td>A ebaglutide (eribulin)</td>
<td></td>
</tr>
<tr>
<td>Aztreonam (interferon beta-1a)</td>
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<tr>
<td>Betaseron (interferon beta-1b)</td>
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<tr>
<td>Capsonare (glatiramer acetate)</td>
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<tr>
<td>Extavia (interferon beta-1b)</td>
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<tr>
<td>Gilead (ginginolod)</td>
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<tr>
<td>Novantrone (mitoxantrone)</td>
<td></td>
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<tr>
<td>Rebif (interferon beta-1a)</td>
<td></td>
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<tr>
<td>Tybarin (nataluamid)</td>
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</table>

Figure 4. Time to first DMD treatment for newly diagnosed patients with MS receiving DMDs within or beyond 2 years.

Conclusions

• This study demonstrates that many patients with newly diagnosed MS have a delay before having their first DMD claim, with 22.3% waiting to start therapy for at least 6 months.

• Data suggest that early initiation of DMD therapy following a diagnosis of relapsing MS is important for optimizing MS management.

• Further research is needed to better understand why patients experience delays in initiating DMD therapy.

References


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Disclosures

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