Treatment Selection in Multiple Sclerosis: Results of a Physician Survey

DX08

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CONCLUSIONS

- **Physicians reported that approximately 95% of their patients with MS are currently treated with a first-line DMT**
- **The most important medication attribute influencing DMT selection for a patient initiating therapy was efficacy**
- **Relapse frequency was the event most likely to influence a physician's decision to switch medications**
- **Prescribing behaviors were similar between MS specialists and general neurologists**

INTRODUCTION AND BACKGROUND

- Multiple sclerosis (MS) is a complex, heterogeneous disease with multiple therapeutic options.
- Although there is no cure for MS, 10 Food and Drug Administration (FDA)-approved disease-modifying therapies (DMTs) have demonstrated the ability to reduce the frequency and severity of MS relapses.[1]
  - Self-injectable medications include: glatiramer acetate, interferon (IFN) ß-1a intramuscular (IM), IFN ß-1a subcutaneous (SC), IFN ß-1b, natalizumab, novantrone
  - Oral medications include: fingolimod, teriflunomide, dimethyl fumarate
- MS treatment guidelines have been published by 3 organizations in the United States and Europe: the American Academy of Neurology (AAN), the European Federation of Neurological Societies (EFNS), and the UK National Institute of Health and Care Excellence (NICE).[2]
  - Although several treatment guidelines exist, there is a lack of consensus among the guidelines.
  - Additional MS therapies have entered the market since most recent guidelines have been published (2007).
- Little is known about how neurologists select available disease modifying therapies (DMTs) for their patients in the real world.
- The purpose of this study was to understand how neurologists make decisions regarding DMT prescribing for their patients with MS; this was accomplished by administering a survey to approximately 100 general neurologists and MS specialists.

METHODS

Study Design and Participants

- This cross-sectional study consisted of an Internal Review Board (IRB)-approved, web-based survey that was fielded from December 2012 to January 2013.
- All study participants were members of a nationwide physician market research panel and provided informed consent prior to completing the survey.
- The target sample size for the survey was 100 total respondents.
- Participants were classified as general neurologists (<40% of patients treated have a diagnosis of MS) or MS specialists (≥40% of patients treated have a diagnosis of MS).
  - The ratio of general neurologists: MS specialists was pre-specified to be approximately 3:2.

Eligibility Criteria

- Study participants met the following inclusion criteria:
  - Adults (≥18 years of age)
  - Living in the United States
  - Able to read English
  - Currently treating a minimum of 20 patients with MS
  - Willing and able to provide informed consent to participate in the research

Measures

Survey Development

- The web-based survey was designed specifically for this study in order to capture information on physicians' choice of DMT for MS treatment and perceptions of DMTs .
- The survey was developed based on the results of a brief targeted literature review and consultation with an expert clinician.
- A pilot survey of 2 physicians was conducted before the survey was revised to its final form.

Web Survey Contents

- The survey consisted of the following sections:
  - Informed consent form
  - Screening questions
  - Clinical practice questions
    - Prescribing behavior (percent of patients currently taking each DMT, including no treatment)
    - Ranking of medication attributes important in selecting a DMT for a treatment-naïve patient with MS
    - MS events that would influence the physician's decision to switch medications
  - Sociodemographics
- The survey response format included multiple choice, matching, and open text boxes.
- Survey questions were adapted to only ask about medications that the physician reported currently prescribing in the first question.
- Medications evaluated in the survey included all FDA-approved first-line DMTs on the market at the time the survey was designed.
  - Fingolimod (Gilenya)
  - Glatiramer acetate (Copaxone)
  - IFN ß-1a IM (Avonex)
  - IFN ß-1b (Betaseron and Extavia)
  - IFN ß-1a SC (Rebif)

Analysis

- Descriptive statistics were reported for all variables including the number of observations, mean/median, standard deviations, range for continuous variables, and frequencies (proportions) for categorical variables.
- SAS® statistical software version 9.1.3 (SAS Institute Inc., Cary, NC) was used to conduct the analyses.

RESULTS

Respondents

- 338 physicians were screened
- 102 respondents were eligible for the study and completed the survey
  - General neurologists: n=39
  - MS specialists: n=63
- Sociodemographic characteristics of the respondents are presented in **Table 1.**

Table 1. Sociodemographic Characteristics of Respondents

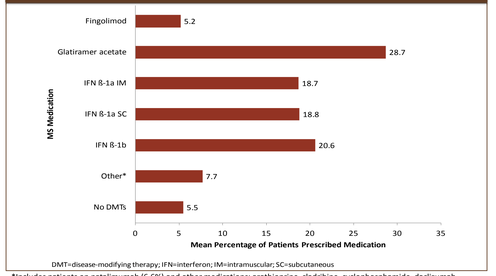
Characteristic	General Neurologists (n=63)	MS Specialists (n=39)	All Physicians (n=102)
Age			
Mean (SD)	50.2 (11.0)	48.6 (10.0)	49.6 (10.6)
Median (Min-Max)	49 (20–88)	47 (33–75)	48 (20–88)
Gender, n (%)			
Male	52 (82.5%)	31 (79.5%)	83 (81.4%)
Female	11 (17.5%)	8 (20.5%)	19 (18.6%)
Race/Ethnicity			
American Indian or Alaska Native	0 (0.0%)	1 (2.6%)	1 (1.0%)
Asian	11 (17.5%)	11 (28.2%)	22 (21.6%)
Black or African American	0 (0.0%)	0 (0.0%)	0 (0.0%)
Hispanic or Latino	3 (4.8%)	1 (2.6%)	4 (3.9%)
Native Hawaiian or Other Pacific Islander	0 (0.0%)	0 (0.0%)	0 (0.0%)
White	49 (77.8%)	25 (64.1%)	74 (72.5%)
Other	0 (0.0%)	1 (2.6%)	1 (1.0%)
Years in Practice after Completing All Medical Training			
Mean (SD)	17.3 (8.7)	15.1 (8.2)	16.4 (8.6)
Median (Min-Max)	17 (3-35)	14 (2-35)	15 (2-35)
Location of Medical School, n (%)			
United States	50 (79.4%)	34 (87.2%)	84 (82.4%)
Other	13 (20.6%)	5 (12.8%)	18 (17.6%)
Type of Training*, n (%)			
General Neurology Training	59 (93.7%)	30 (76.9%)	89 (87.3%)
MS Fellowship	1 (1.6%)	24 (61.5%)	25 (24.5%)
Other Fellowship	14 (22.2%)	5 (12.8%)	19 (18.6%)
Type of Practice Setting, n (%)			
Private Single Specialty Office (MS specialty center)	3 (4.8%)	9 (23.1%)	12 (11.8%)
Private Single Specialty Office (non-MS specialty)	31 (49.2%)	6 (15.4%)	37 (36.3%)
Private Multispecialty	15 (23.8%)	3 (7.7%)	18 (17.6%)
Academic	9 (14.3%)	20 (51.3%)	29 (28.4%)
Community Hospital	5 (7.9%)	1 (2.6%)	6 (5.9%)

*Not mutually exclusive; percents may exceed 100%

DMT Prescribing Behavior

- The most commonly prescribed DMTs were glatiramer acetate, IFN ß-1a SC, and IFN ß-1a IM (**Figure 1**).
- Nearly all physicians (90+%) prescribed self-injected first-line DMTs: IFN ß-1a IM, IFN ß-1b, glatiramer acetate, and IFN ß-1a SC.
- Approximately one-fourth (27.5%) of physicians reported using other medications, including corticosteroids, cyclophosphamide, intravenous immunoglobulin, methotrexate, mitoxantrone, and teriflunomide.
- Approximately two-thirds of physicians (65.7%) reported having patients who currently received no DMTs.
- Overall, approximately 5.5% of these physicians' patients with MS were estimated to be untreated, with individual physician reports ranging from 0% to 23% of patients not currently on therapy for MS.
- Similar prescribing behavior was observed among general neurologists and MS specialists:
  - Differences in mean reported percentage of patients using each of the first-line DMTs ranged from 0% (fingolimod: 5.2% reported by both MS specialists and general neurologists) to 3.2% (IFN ß-1b: 13.5% versus 16.7% reported by MS specialists and general neurologists, respectively).
  - Physician-reported mean percentage of patients with no treatment was greater among MS specialists (6.8%) than general neurologists (4.6%).

Figure 1. Mean Percentage of Patients Prescribed Individual DMTs, as Reported by Physicians



DMT=disease-modifying therapy; IFN=interferon; IM=intramuscular; SC=subcutaneous

*Includes patients on natalimumab (6.6%) and other medications: azathioprine, cladribine, cyclophosphamide, daclizumab, intravenous immunoglobulin, methotrexate, mycophenolate mofetil, naltrexone, rituximab, corticosteroids, teriflunimide (1.1% combined).

Medication Attributes

- Ranked from highest to lowest, the most important attributes in selecting a medication for a treatment-naïve patient were: efficacy, safety, tolerability, patient preference, convenience (**Table 2**).
- Rankings were similar for MS specialists and general neurologists.

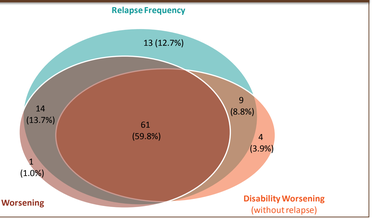
Table 2. Ranking of Medication Attributes Considered Important in Selecting a DMT for a Treatment-naïve Patient with MS

Medication Attribute	Mean (SD) Ranking	N (%) Physicians Ranking Attribute #1
1) Efficacy	1.2 (0.5)	88 (86.3%)
2) Safety	2.2 (0.7)	12 (11.8%)
3) Tolerability	3.2 (0.7)	0 (0.0%)
4) Patient Preference	4.1 (0.9)	0 (0.0%)
5) Convenience	4.4 (0.9)	2 (2.0%)

MS Events

- In order of prevalence, the MS events most commonly endorsed as influencing the physician's decision to switch medications were:
  - Relapse frequency (95.1%)
  - Magnetic resonance imaging (MRI) worsening (74.5%)
  - Disability worsening without relapse (72.5%)
- The majority of physicians (59.8%) reported all 3 events would influence their decision to switch medications (**Figure 2**)
- Results were similar for MS specialists and general neurologists

Figure 2. MS Events Influencing the Physician's Decision to Switch Medications



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Disclosures

This study was funded by Novartis Pharmaceuticals Corporation. D. Brandes serves on advisory panels for the following companies: Biogen Idec, Teva, Novartis, Genzyme, Acorda, Questcor, Avanir; and receives research support from Biogen Idec and Teva. N. Agashivala and E. Kim are employees of Novartis. K. Raimundo was an employee of Novartis at the time the study was conducted. K. Hanson, S. Stringer, Z. Balantac, and K. Wyrwich are employees of United BioSource Corporation, which received funding for this research from Novartis.

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Sponsored by Novartis Pharmaceuticals Corporation | 5th Cooperative Meeting of the Consortium of Multiple Sclerosis Centers and Americas Committee for Treatment and Research in Multiple Sclerosis, May 29–June 1 2013, Orlando, FL