Understanding the Patient's Journey in the Diagnosis and Treatment of Multiple Sclerosis in Clinical Practice

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ABSTRACT

Purpose: The aim of this study was to describe the treatment journey of patients with multiple sclerosis (MS).

Methods: This study was conducted in 2 phases. The first consisted of a claims-based analysis of data from patients diagnosed with MS between October 1, 2010, and May 31, 2014. Study patients were aged ≥18 years, had ≥12 months of continuous eligibility before and after the earliest MS diagnosis (*index date*), ≥1 disease-modifying therapy (DMT) claim postindex, and no claims with a code for DMT or MS during the 12-month preindex period. The second phase consisted of medical record reviews in a subset of patients in the claims study who had ≥1 neurologist visit within 90 days of the index MS diagnosis.

Findings: A total of 1639 patients were selected for claims-based analysis, and medical record analysis was conducted in a subset of 327 of those patients. The mean age in both samples was 42 years; females constituted about 70% of each group. Medical records showed that within a year of the first neurologist visit, 97.6% patients had a confirmed MS diagnosis; however, in 58.0%, MS type was not specified. MS symptoms were documented in less than half of all patients at the index neurologist visit. Early management consisted of magnetic resonance imaging (98.5% of patients), and the management of flares (annualized relapse rate, 0.3 [0.6] per patient). Use of spinal tap (21.7%), Expanded Disability Status Scale score (4.6%), and timed 25-foot walk score (8.6%) to evaluate disease progression was infrequent. The percentages of patients discontinuing the first DMT over time were high (43.1% among patients with 12–24 months of postindex follow-up, to 65.7% among patients with >36 months of postindex follow-up). Neurologists noted that about 10% of patients had difficulty adhering to an MS medication regimen, and documented several reasons for discontinuation, including adverse drug events and lack of desired effectiveness.

Implications: In clinical practice, early MS treatment in DMT users is focused on symptom management, irrespective of MS type. Patients may benefit from initiating optimal treatment earlier. First-line therapy was often a transient option. (*Clin Ther.* 2018;∎:∎∎∎–∎∎∎) © 2018 The Authors. Published by Elsevier HS Journals, Inc.

Key words: disease-modifying therapy, multiple sclerosis, orally administered MS treatments, self-injectables, treatment journey, treatment patterns.

INTRODUCTION

Several new and hopeful signs in the treatment journey of patients with multiple sclerosis (MS) are now evident. These signs include a clearer understanding of the disease, new oral and longer-acting treatments, and better insight into the mitigation of MS damage.[1–3] Still, managing and coping with MS presents formidable challenges.[1,4,5] Each year, about 12,000 new patients with MS are added to the 250,000 to 400,000 currently diagnosed in the United States. Women are disproportionately affected and make up ~70% of the identified patient

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population.[1,6–8] Overall, estimated total MS costs in the United States are ~$2.5 billion per year.[9]

The course of MS includes progressively worsening clinical symptoms that severely disrupt the overall health, functioning, quality of life, personal relationships, and work activities of patients, often in the most productive years of life.[1,6] In a study that explored the economic and clinical effects of MS-related disability, Jones et al[10] reported that as disability worsened, patients' health care resource utilization and costs increased while their health-related quality of life and work productivity diminished.

MS often presents early in life, and patients are typically 20 to 40 years old when first diagnosed.[1,6] Since MS is not fatal, affected patients often have to cope for many years with the chronic and progressively disabling course of MS while relying heavily on health care services.[5,11] Patients with MS were 3.5-fold more likely to be hospitalized and needed 2-fold more emergency services while incurring 5-fold greater costs relative to healthy controls, in a study with a 12-month of follow-up period.[12] A study in 361 commercially insured patients with MS found that medical and pharmacy costs increased 27% from 2006 to 2009.[13] Newly diagnosed patients with MS incur 5-fold greater costs than healthy comparators.[12] In a systematic review that included 7 studies spanning 2007 to 2012, the estimated total direct and indirect costs of MS were between $7840 and $43,796 per patient per year. Direct costs were 64% to 91% of the total, with prescription medications accounting for roughly half.[4]

The clinical course and presentation of MS are classified into four major types based on clinical phenotype. Among the four most common types of MS, the *relapsing-remitting* (RRMS) form is reported in 85% of newly diagnosed patients. About 50% of RRMS cases progress to *secondary-progressive MS*, in which progressive neurologic dysfunction is evident. A further 10% to 15% of cases are initially diagnosed with *primary-progressive MS* (PPMS), in which neurologic symptoms appear at the onset but there are no relapses or remissions; patients with PPMS experience disease progression including worsening neurologic function along with intermittent periods of stable disease.[14] About 5% of patients are diagnosed with *progressive-relapsing MS*, characterized by PPMS-type neurologic symptoms along with acute episodes of relapse and remission.[1,15,16] A recent update on clinical MS phenotypes further classifies relapsing or progressive disease as *active* or *nonactive* based on, at least, annual evaluation of disease activity detected via clinical relapses, imaging tests, and disability progression.[17]

In the absence of a cure for MS, the emphasis of management is on stabilizing patients' disease status, preserving function, and inhibiting long-term disability. These goals were central to the introduction of disease-modifying therapies (DMTs) in the mid- to late 1990s. The predominantly injectable DMTs, such as IM interferon (IFN)-β1a, SC IFN-β1b, glatiramer acetate, and SC IFN-β1a, rapidly became the standard of care because of their ability to reduce the frequency and severity of flares and slow the progression of MS.[16,18] Rituximab has been used off-label for the treatment of MS for more than a decade, and was shown to be effective well tolerated in a recent study in Sweden.[19] Other researchers point to the need for additional studies,[20] although such off-label use could be a precursor for the development and approval of the monoclonal antibody agent ocrelizumab for MS.[21] Since 2010, a number of oral DMTs (fingolimod [2010], teriflunomide [2012], dimethyl fumarate [2013]), injectable DMTs (daclizumab [2016]), and infusible DMTs (alemtuzumab [2014]) have been approved for use in the United States.[22–25]

Robust evidence characterizing the processes for diagnosing, evaluating, and treating patients with MS in clinical practice is largely absent. Such information is essential now, in light of the emergence of multiple new treatments for the disease. The objective of this study was to describe the management, diagnosis, and treatment continuum around the first year of the journey in newly diagnosed patients with MS, as gleaned from neurologists' patient records and administrative claims in the post–oral therapy era from 2010 and onward.

MATERIALS AND METHODS

Study Design and Data Source

This observational study identified patients diagnosed with MS from October 1, 2010, through May 31, 2014 (study intake period), in the HealthCore Integrated Research Database (HIRD), a repository of longitudinal medical and pharmacy claims data on about 40.6 million enrollees at the time of the study, in 14 geographically dispersed US commercial health