The Rapidly Changing Landscape of Multiple Sclerosis: A Retrospective Chart Review in the United Arab Emirates

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Abstract

The past 6 years have demonstrated a dramatic change in the landscape of immunomodulatory treatment for multiple sclerosis. Prior to 2010, there were no approved FDA oral immunomodulatory medications available. Since then, three new oral medications have been approved in addition to the newly approved alemtuzumab and ocrelizumab. This has dramatically changed the treatment options for MS patients. The older injectable agents – beta-interferons and glatiramer acetate are slowly being replaced. While data exists in the literature regarding the use of new medications in the west, there is little published data about the use of these new medications in the Middle East and, none, to our knowledge, in the United Arab Emirates (UAE). We conducted a retrospective chart review of four major government hospitals in Abu Dhabi looking at the types of MS in the Emirate, the use of different immunomodulatory treatment and the changes in prescribed medications between 2014 and 2016. A total of 328 people with MS were identified for the study. The proportion of participants receiving injections or infusions significantly (p=0.0013) dropped from 53% (128) in 2014 to 42.7% (102) in 2016.

Keywords: Multiple sclerosis; United arab emirates (UAE); Immunomodulatory medication; Disease modifying therapy

Introduction

Multiple Sclerosis (MS) is a chronic, progressive autoimmune demyelinating disorder affecting the central nervous system (CNS). Pathologically, the disease is characterized by destruction of myelinated axons and eventual progressive neurodegeneration [1]. Clinically, the course of the disease may vary, and MS has been divided into four phenotypic categories: primary progressive (PPMS), secondary progressive (SPMS), relapsing-remitting (RRMS), and clinically isolated syndrome (CIS). Diagnosis of MS can be challenging, with no definitive clinical or imaging tools. The McDonald criteria, most recently revised in 2010, rely on demonstration of characteristic T2 enhancing lesions on MRI with dissemination in both space and time [2]. Clinical symptoms of MS include bladder/bowel dysfunction, spasticity, fatigue, gait impairment, sensory disturbances and mood disorders.

Regardless of the type of MS, it is a chronic condition that places a significant economic and clinical burden on patients, their family members, and the healthcare system as a whole. As disability progresses in MS, the cost of care increases largely due to increased hospital admissions, need for home care and the cost of productivity loss [3].

Acute MS relapses are treated with high-dose corticosteroids for 3-5 days, which controls and shortens relapsing symptom, but does not alter the natural progression of the disease. There is currently no cure for MS, and before 1993 no effective long-term treatments for RRMS were in existence. However, the past two decades have given rise to drastic changes in the treatment of RRMS. The first disease modifying therapies (DMTs) sought to dampen the immune response and control inflammation in the long term. Subcutaneous interferon beta-1b was approved in 1993 and was followed by several other subcutaneously administered medications: IFNβ-1a administered once weekly or three times weekly, glatiramer acetate (GA) and mitoxantrone [4]. Natalizumab, the first monoclonal antibody approved for the treatment of MS, was developed in 2004 and is administered via monthly infusions. Most recently on the market is alemtuzumab, approved as a third line therapy in 2013 and ocrelizumab just approved by the FDA in March 2017 [5].

The goal of MS treatment with DMTs is to reduce the frequency and severity of neurological disease progression, while simultaneously minimizing medication side effects and increasing medication adherence. Therefore, there was significant excitement over the development of the first oral DMT, fingolimod, introduced in 2010. This was followed by two others, teriflunomide and dimethyl fumarate (DMF) [5]. These newer oral medications allow patients to avoid injection-related side effects and improve the ease of medication administration. Additionally, these newer agents allow patients to avoid some of the widespread immune suppressant side effects seen with medications like cyclophosphamide and mitoxantrone [4].

Middle East North Africa Committee for Treatment and Research in Multiple Sclerosis (MENACTRIMS) guidelines currently recommend the IFN-βs, GA, teriflunomide and DMF as first line medications for RRMS, with fingolimod as an acceptable alternative in patients with needle phobia or contraindications to the previously listed medications. Fingolimod, natalizumab or alemtuzumab are recommended for patients with highly active disease (two or more disabling relapses in one year along with imaging findings) or as second line treatment [6,7]. Ocrelizumab, an anti CD20 monoclonal antibody, is the first medication approved to treat primary progressive multiple sclerosis. The aim of this study was to attempt to confirm the authors’ clinical observations that more people with MS are choosing to change from injectable therapy to oral alternatives. The availability of medical records from four large government hospitals in Abu Dhabi made this an ideal situation to look at this subject in more detail.

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Discussion

The results of this study demonstrate that more clinicians and patients are opting to choose oral medication as opposed to the more traditional injectable therapies and that compliance appears to be increased with oral medications. Improving compliance to MS therapies is of utmost importance in clinical practice. In one study examining treatment adherence in RRMS patients over the course of 4.2 years, 46% of patients ceased treatment [9]. Studies estimate the highest rates of medication discontinuation within the first 6 months of treatment, with rates of discontinuation estimated between 9-20% [10,11]. Although rates of adherence are higher in patients enrolled in clinical trials, this is not a realistic treatment approach for all MS patients [12].

Although it is a reasonable hypothesis to assume that oral administration of medication will improve adherence, this has not yet been definitively proven in MS patients [12]. One 2015 study found that switching to fingolimod from an injectable medication led to fewer
of RRMS. Our data indicate that physicians and patients are choosing injectable or infusible medications for first and second line treatment in the past decade, but with these developments come new challenges. The changing landscape of MS medication use in the UAE specifically has been noted, and although several studies on the safety, efficacy or use of MS medications have been conducted in the Middle East [8,19], few studies on the safety, efficacy or use of MS medications in the Middle East have been noted [8,19]. Additionally, the most recent comparison of switches to fingolimod or interferon beta/glatiramer acetate in active multiple sclerosis. JAMA Neurol 72: 405-413.


Although a possible increase in prevalence of MS in the Middle East has been noted [8,19], few studies on the safety, efficacy or use of MS medications have been conducted in the Middle East. Two studies examining the safety and efficacy of fingolimod in Kuwait and Lebanon [21] have been published. However, no large-scale studies comparing oral and injectable medications or examining use of different MS medications have been performed. This paper examines the changing landscape of MS medication use in the UAE specifically and further research remains to be done on the efficacy and use of new MS medications in the Middle East MS population [19].

Conclusion

The available options for treatment of MS have increased vastly in the past decade, but with these developments come new challenges. Clinicians now have the ability to choose between several oral, injectable or infusible medications for first and second line treatment of RRMS. Our data indicate that physicians and patients are choosing oral medications more frequently in the UAE. Individualized decision making must be undertaken with heavy involvement of the patient, considering disease severity, side effect profile and route of administration. Continuing research and results of trials comparing the efficacy of newer medications against each other will be important in informing clinical treatment practices in the coming years.

References