

# The challenges and opportunities of multiple sclerosis care in Latin America

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Latin America (LATAM) is a large region spanning North, Central, and South America, between latitudes 32°N and 56°S. The population of LATAM currently estimated at 625 million is predicted to grow to 779 million by 2050.<sup>1</sup> LATAM is a genetically, ethnically, geographically, linguistically, economically, and racially diverse region, with an admixture of Amerindian, European, Asian, and African ancestry. Multiple sclerosis (MS) was long considered a relatively rare entity in the region, but research over the past 10 years, and increased availability of magnetic resonance imaging (MRI) scanners have demonstrated that MS does occur in almost all Latin American countries, including those close to the equator, although with marked differences in prevalence and incidence between countries.<sup>2</sup>

In this special issue of *Multiple Sclerosis – Experimental, Translational, and Clinical (MSJ–ETC)* we have aimed to highlight not only the challenges in LATAM, but also explore the significant opportunities for expanded patient care and research in this population. The question of whether biological differences of MS in LATAM exist in comparison to Europe and northern Europe remains debated.<sup>3</sup> In certain LATAM countries there also appears to be a higher incidence of neuromyelitis optica (NMO) spectrum disorder.<sup>4</sup> The differential diagnosis of MS is also complicated by the presence of atypical central nervous system infections, as well as atypical infections in the use of disease-modifying therapies (DMTs). Given known latitude changes there may be a differential role in the risk of MS related to vitamin D.<sup>5</sup> A recent area of interest from a scientific standpoint are the differences found in the immigrant and non-immigrant LATAM population, as this provides some indirect evidence regarding the environmental factors at play in the disease process.<sup>6</sup>

Several non-biological distinctions should also be noted. The establishment of clear diagnostic criteria

and the advent of MRI have allowed the diagnosis to occur more efficiently. However, the diagnostic criteria have been validated in only a few studies in LATAM.<sup>7,8</sup> In addition, economic limitations remain a challenge for the availability of MRI and paraclinical testing, especially in non-urban areas of the region. The availability of DMTs is also quite variable, with some countries having access to almost all MS DMTs approved in North America/Europe, while in others there is only one or even no therapeutic options.<sup>9</sup> There are limited clinical trial data from LATAM populations, also complicating the application of registration studies in such a heterogeneous population. Finally, the relatively reduced regulatory requirements for new agents has led to the approval of several generic/biological addition therapies with limited data to support efficacy and safety claims.<sup>10</sup> Although MS should be considered a high health risk disease, there is a general lack of government support or foundation support given its status as a condition of low prevalence, resulting in minimal availability of research funds for the disease. Most LATAM countries suffer from poorly developed MS patient networks and, despite ongoing improvements in access to care, few truly multidisciplinary MS clinics exist in the region.

The current special issue of *MSJ–ETC* tries to capture these points. Authors from LATAM countries with specific expertise in each field were invited to provide evidence-driven review papers that focus on several important topics of MS in LATAM. Rojas and Cristiano provide an update to epidemiological data from LATAM providing additional information regarding the influence of admixture in the incidence to the disease. Alvarenga et al. discuss the presence of recurrent NMO in LATAM and the genetic susceptibility in LATAM patients with African ancestry. The overall genetic studies available in LATAM are covered in the paper by Rivas Alonso and colleagues with an emphasis on the available data on HLA subtypes. Correale and colleagues review the

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lifestyle and environmental factors that could explain regional differences in MS prevalence. Patrucco provides an update to the application of diagnostic criteria in highlighting the scarce data available in LATAM populations. Frago et al. discuss specific differential diagnoses to be considered in the region, with suggestions for the specialised testing for each. The evidence available on cognitive dysfunction in LATAM is covered in detail by Vanotti and Caceres highlighting the work done by this group in the validation of neurometric testing for MS in Spanish. Rivera and Macias discuss the barriers and access to care for LATAM populations, highlighting the low access of DMTs in LATAM and the lack of governmental and institution-based support for the disease. Skromne and colleagues provide an overview of access to DMT treatments in the region with details on the availability of the medication in different countries. Finally, Amezcua and colleagues review the differences of MS presentation in immigrant and non-immigrant LATAM populations with a review of specific factors which may be causing the observed differences.

MS is a growing health problem in LATAM and several regional efforts continue to push for adequate access to both diagnostic tests and treatment modalities for the disease. Organizations such as the Latin American Committee for Treatment and Research in MS (LACTRIMS) with chapters throughout LATAM have been instrumental in creating a clinical and academic community in the region. Although barriers continue to exist, significant opportunities are also on the horizon. These include the development of multidisciplinary patient-centered MS clinical centers, the creation of a LATAM network for research in MS with a focus on environmental risk factors, and the expansion of access to effective disease-modifying agents. The further inclusion of LATAM patients in clinical trials, not only of anti-inflammatory medications, but also of neuroprotective, remyelinating, and cell-based therapies should be a priority for the LATAM MS community. The series of articles in this edition provides an overall framework of where MS treatment stands at present, and also highlights the significant opportunities and needs for the LATAM MS clinical and research community.

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