Multiple Sclerosis Care in Latin America

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ABSTRACT

Latin America (LATAM) is a diverse region with more than 30 countries, each varying in cultural, economic, and social aspects. While multiple sclerosis (MS) care in LATAM has improved, there are still challenges to address. Epidemiologic studies have shown varying incidence rates of MS in the region, influenced by factors such as genetics, environmental conditions, and regional diversity. Scientific research on MS in LATAM has increased, with publications and consensus guidelines emerging. However, access to disease-modifying treatments remains a significant challenge in many countries due to affordability issues and limited availability of certain therapies. The region also faces obstacles in providing comprehensive MS care, including rehabilitation programs and diagnosis tools. There are collaborative efforts and initiatives in LATAM that are working toward overcoming these challenges and improving the overall quality of care for people with MS in the region.

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Latin America (LATAM) is a large region comprising most of the American continental mass. It is located between the northern borders of Mexico and the archipelago of Tierra del Fuego in Argentina and includes the Caribbean islands. Its more than 30 countries differ widely in cultural, ethnic, economic, political, religious, and social aspects, making LATAM a heterogeneous region.

Multiple sclerosis (MS) care has significantly improved in LATAM in recent years. However, there is still much to be done. In October 2024, we surveyed via email MS neurologists from many LATAM countries to gain better insight into the region's perceived strengths and difficulties. The survey included questions about the availability of disease-modifying treatments (DMTs), neurorehabilitation, MS centers, and MS patient associations, the use of generic drugs, and whether patients participated in clinical trials. Neurologists from 14 countries were invited to collaborate and responses were collected from 8: Argentina, Bolivia, Chile, Colombia, Ecuador, Paraguay, Peru, and Uruguay. Additional information sources, such as the Atlas of MS and published data, were also consulted to broaden knowledge.

Epidemiology and Scientific Research

Historically, data-based information on the epidemiology of MS in LATAM has been scarce, particularly in Central American and Caribbean countries, resulting in limited data availability for clinicians, researchers, and patients.[1-2] MS in LATAM populations exhibits distinct characteristics when compared with populations in Europe and North America. The prevalence and incidence of MS in LATAM are lower than those in Northern Europe and North America.[3] A systematic review of the disease's epidemiology in LATAM found that the reported incidence ranged from 0.15 to 3 cases per 100,000 person-years, and prevalence ranged from 0.75 to 38.2 cases per 100,000 inhabitants in the 13 studies analyzed.[4] The prevalence varies, with higher rates in regions with greater European ancestry (eg, Argentina, Chile, Brazil, Uruguay, and Mexico).[5] Unlike in northern latitudes, there is less correlation between latitude and MS prevalence in LATAM.[6]

Several factors contribute to incidence rates of MS in LATAM. Epidemiological studies[1,4] show an extremely

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low prevalence of MS among Amerindians; this has been attributed to protective ancestral Asian genetics and, possibly, environmental factors. Multiracial Latin Americans of indigenous ancestry and biracial Latin Americans of African ancestry have more susceptibility to MS, which some studies say is due to the historical introduction of the European *HLA-DRB1*1501* gene.[7] Another significant finding highlighted the prevalence of vitamin D deficiency among populations living in regions with high ultraviolet radiation (UVR), such as Ecuador, where up to 70% of the general population was reported deficient in serum 25-hydroxyvitamin D.[7] This deficiency persists despite the tropical climate, which is generally associated with adequate UVR exposure necessary for vitamin D synthesis.[8] Other studies suggest that characteristics unique to LATAM, such as geographical diversity and socioeconomic factors, may explain regional differences in MS prevalence and incidence. Continued exploration of local environmental factors is essential to understand their impact on MS and to develop targeted interventions.[9] Some data have shown a lower prevalence of progressive forms of MS in LATAM[10,11]; however, this is not a consistent observation.[12] The age of onset is similar for people from LATAM to that reported for people from northern hemisphere regions.[1] Clinical features are comparable across LATAM, European, and African cohorts.[10] One difference is that optic neuritis seems to occur less frequently among LATAM patients.[13] However, no strong evidence indicates systematic differences in the clinical presentation and severity[6] of MS in LATAM compared to high-prevalence regions; further research is necessary in this area.

In the past, clinical research on MS in LATAM did not focus on local needs and priorities[14]; however, this is changing. According to PubMed, the National Library of Medicine's database, the number of MS papers published by LATAM researchers has risen exponentially since 2010[15] and research from LATAM groups is being published in high-profile scientific publications.

The creation of MS consensus guidelines has also increased in the last few years and now exist in LATAM countries like Argentina, Brazil, Mexico, and Peru.[16-19] There are also joint publications on consensus statements with participants from many LATAM countries.[20] Despite this, LATAM populations are not usually included in clinical trials: Only respondents from Argentina, Brazil, Chile, Colombia, Peru, and Mexico reported current or past involvement when asked about participation in phase 3 clinical trials. Finally, the Latin American Committee for Treatment and Research in Multiple Sclerosis (LACTRIMS), founded in 1999, has facilitated LATAM meetings and publications from collaborations.[21]

MS Diagnosis in LATAM

Much of the data provided by adult MS patients for the 2017 McDonald criteria came from people with Western European genetic or ethnic backgrounds who presented with typical symptoms.[22] Validation of the 2017 McDonald criteria has not been widely conducted in LATAM, and there is uncertainty regarding their applicability across LATAM countries.[23] Therefore, it is strongly recommended that other regional diseases, such as certain infectious and nutritional conditions that could mimic MS, be ruled out.

In LATAM, more than 70% of people with MS reported visiting at least 2 neurologists before being diagnosed, except respondents from Peru (59.9%). A self-reported patient survey conducted by Carnero and colleagues[24] reported that 53% (Honduras) to 96% (Argentina and Costa Rica) of people with MS have complete or partial health insurance coverage for brain and/or spinal cord MRI. Similar results were reported for evoked potential tests and lumbar puncture (LP). In all countries, MRI was the most frequently used tool to establish MS diagnosis (nearly 100% of cases), but differences were found in the frequency of MRI use during follow-up. Rates of LP varied significantly, with ranges as low as 38% (Guatemala) to as high as 85.5% (Costa Rica).[24]

Comprehensive MS Care

Many countries in LATAM have difficulty providing recommended MS health care due to multiple factors, including delays in access, a shortage of neurologists, segmented health care systems, and restricted economic resources.[24-26] MS is a complex disease, not only because of diagnostic difficulties, multiple disease phenotypes, risk of disability accumulation, and multiple symptomatic manifestations, but also because of the availability of many DMTs with different mechanisms of action, adverse events profiles, and follow-up requirements.[27] This has led to the growing importance of MS centers, which provide comprehensive care to patients with MS. A panel of MS neurologists has made recommendations for LATAM MS care unit objectives, human and technical resources, and general functioning.[28] Of the surveyed countries, respondents from Argentina, Bolivia, Brazil, Chile, Colombia, Mexico, Paraguay, and Ecuador reported the presence of MS care units.

Optimal management of MS requires multidimensional approaches that involve symptomatic treatment of chronic neurological symptoms that arise from disability accumulation.[29] Accordingly, access to rehabilitation (eg, physical, cognitive, occupational) is often necessary during the disease course and should be considered as part of the continuum of care for people with MS. However, accessing neurorehabilitation in LATAM is difficult. Although some types of rehabilitation are provided by most of the public and private health systems, the programs are not MS specific. Cognitive rehabilitation is very limited and, when available, is expensive, and these costs are often the patient's responsibility. In a LATAM patient survey, 16.8% to 56% reported their insurance did not cover physical therapy, and, except for Ecuador (48%), less than 30% had access to outpatient rehabilitation at a specialized center.[24] These results align with those reported by the neurologists consulted for this paper; only the neurologist from Ecuador reported broad access to both physical and cognitive rehabilitation. Access to rehabilitation is still one of the biggest roadblocks to MS care in LATAM. A regional cohort survey identified disparities in access to health care

TABLE. DMT Availability and Characteristics of MS Care Across Latin American Countries[32]*

	DMTs Available			MS Centers	MS Patient Association
	Injectable	Oral	Infusion		
Argentina	Interferons PEG-IFN GA Ofatumumab	Cladribine DMF Fingolimod Ozanimod Siponimod Teriflunomide	Alemtuzumab Natalizumab Ocrelizumab Rituximab	Yes	Yes
Bolivia	Interferons	Fingolimod	Ocrelizumab Rituximab	Yes	Yes
Brazil	Interferons GA Ofatumumab	Cladribine DMF Fingolimod	Alemtuzumab Natalizumab Ocrelizumab	Yes	Yes
Chile	Interferons GA Ofatumumab	Cladribine DMF Fingolimod Teriflunomide	Alemtuzumab Natalizumab Ocrelizumab Rituximab	Yes	Yes
Colombia	Interferons PEG-IFN GA Ofatumumab	Cladribine DMF Fingolimod Teriflunomide	Alemtuzumab Natalizumab Ocrelizumab Rituximab	Yes	Yes
Costa Rica	Interferons Ofatumumab	Cladribine DMF Fingolimod Siponimod Teriflunomide	Alemtuzumab Natalizumab Ocrelizumab Rituximab	NA	Yes
Dominican Republic	Interferons GA Ofatumumab	Cladribine DMF Fingolimod Teriflunomide	Alemtuzumab ocrelizumab Rituximab	NA	Yes
Ecuador	Interferons Ofatumumab	Cladribine Fingolimod Teriflunomide	Alemtuzumab Ocrelizumab Rituximab	Yes	Yes
Guatemala	Interferons	Cladribine Fingolimod Teriflunomide	Alemtuzumab Natalizumab Ocrelizumab Rituximab	NA	Yes
Honduras	Interferons GA	Fingolimod Teriflunomide	Alemtuzumab Natalizumab Ocrelizumab Rituximab	NA	Yes
Mexico	Interferons GA Ofatumumab	Cladribine DMF Fingolimod Siponimod Teriflunomide	Alemtuzumab Natalizumab Ocrelizumab Rituximab	Yes	Yes

TABLE. DMT Availability and Characteristics of MS Care Across Latin American Countries[32]* (*cont.*)

Panama	Interferons	Cladribine Fingolimod Teriflunomide	Alemtuzumab Natalizumab Ocrelizumab Rituximab	Yes	Yes
Paraguay	Interferons GA	Cladribine DMF Fingolimod Teriflunomide	Alemtuzumab Ocrelizumab Rituximab	Yes	Yes
Peru	Interferons GA Ofatumumab	Cladribine DMF DRF Fingolimod Teriflunomide	Natalizumab Ocrelizumab Rituximab	No	Yes
Uruguay	Interferons GA Ofatumumab	Cladribine Fingolimod Siponimod Teriflunomide	Rituximab Ocrelizumab Natalizumab	No	Yes
Venezuela	Interferons GA	Fingolimod	Ocrelizumab Rituximab	No	Yes

DMF, dimethyl fumarate; DMTs, disease-modifying treatments; DRF, diroximel fumarate; GA, glatiramer acetate; MS, multiple sclerosis; NA, no data available; PEG-IFN, pegylated interferons.

*No data are available for Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Cuba, Curaçao, Dominica, El Salvador, Haiti, Jamaica, Nicaragua, Saint Lucia, Saint Cristóbal and Nieves, Saint Vicent and the Grenadines, or Trinidad and Tobago.

services, rehabilitation, and prescription of DMTs and much more unemployment, which may affect access to necessary treatments and care.[24] Fortunately, almost all LATAM countries have patient and family associations related to the Multiple Sclerosis International Federation.

Access to DMTs

Access to DMTs in LATAM poses significant challenges[30,31] as availability differs markedly between upper-middle, middle, lower-middle, and low-income countries, mainly due to high cost. In lower-middle and low-income countries, affordability is the most common cause of lack of access to treatment. In a 2020 survey of people with MS from 12 LATAM countries, between 2.8% and 21.9% of respondents reported DMT accessibility problems because of insurance.[24] The armamentarium of DMTs has grown exponentially in the last 14 years; however, not all US Food and Drug Administration–approved therapies are widely available in LATAM. According to the MS Atlas, 94% of countries from the Americas report accessibility barriers.[32] In most LATAM countries, oral DMTs and most platform injectable DMTs are available, except for pegylated interferons, which are available only in Argentina and Chile. Availability of monoclonal antibodies and immune reconstitution therapies has also increased recently. Treatments for acute relapses, such as intravenous steroids and plasmapheresis, are also widely available.[25] Aspects of MS care in LATAM, including the availability of DMTs, are summarized in the **TABLE**. It is important to acknowledge the significant variability in DMT availability within a country's health care system, depending on whether it is in the public or private sector. This was particularly evident in some of the surveyed countries, such as Bolivia, Ecuador, and Peru.

Use of generic and biosimilar drugs has become widespread in LATAM. In Argentina, Chile, Colombia, Honduras, Mexico, and Uruguay, DMTs are frequently switched during treatment for different compounds with the same active ingredient but with a different trademark. This drug's price may be up to 40% less than the original compound,[33] improving affordability and patient access. Regulations that guarantee the safety, efficacy, and quality of these drugs are scarce due to the prioritization of economic factors and, therefore, these treatments may be risky for patients with MS.[34] Many countries of the region have already included biosimilar and generic formulations of interferons, fingolimod, dimethyl fumarate, teriflunomide, and rituximab in their portfolio of MS therapies. Argentina, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, and Venezuela have several of these formulations listed as DMTs, which regulatory agencies usually prefer. When asked, our colleagues have reported both positive and negative aspects of generic use. The greater access patients have to treatment is the most marked positive aspect. However, negative aspects, such as more frequent adverse events, lack of bioequivalence studies, unknown efficacy, and lack of pharmacovigilance, make generic

use less attractive. The existence of generics and biosimilars in institutional formularies has not led to substantial cost savings, however, and local licensing agencies need to improve their evaluations of these medicines for the crucial purpose of improving patient outcomes.[25,26,35] Autologous hematopoietic stem cell transplantation (AHSCT) is a novel MS treatment that is supported by growing but still inconclusive evidence.[36,37] Experience with AHSCT in LATAM is limited but starting to emerge. Some centers in Mexico[38,39] have reported using it and are conducting research.[40]

Despite the evidence showing that high-efficacy treatments (HETs) are more effective in suppressing or delaying relapse when initiated early after disease onset,[41-44] few data exist regarding people with MS who are treated with HETs in LATAM. One notable exception, Alonso et al reported a rapid increase in the use of HETs in clinical practice in the treatment of patients with RRMS in Argentina.[45]

CONCLUSIONS

Even though the landscape of MS care in LATAM is evolving, and patients are getting more access to comprehensive MS care and treatment now than in the past, most countries still face multiple obstacles when it comes to providing quality care. Expanding scientific knowledge in the region, integrating LATAM populations in clinical trials, establishing MS care units, enhancing access to MS diagnosis and tools, and ensuring accessibility to DMTs and symptomatic treatments are some of the main challenges health care providers must address in the coming years.[46]

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