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The challenges in diagnosis and treatment of multiple myeloma in Latin America: a multinational survey and proposal for improvement

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ABSTRACT

Multiple myeloma (MM) is a malignant hematologic disease marked by the abnormal growth of plasma cells, resulting in serious complications such as bone fractures, hypercalcemia, renal dysfunction, and anemia. It represents the second most frequent hematologic malignancy and is usually diagnosed at an advanced stage in Latin America. A multinational survey included 16 experts from 11 Latin American countries to share their experiences in myeloma healthcare, discuss existing gaps, and propose solutions. The public healthcare system struggles with slow diagnosis and treatment access, particularly in rural areas. The private system faces challenges related to insurance coverage and costs. A significant gap exists between the need for diagnostic tests and their availability. Access to new cancer treatments is hindered by inadequate public policies, high drug costs, and inconsistent approval processes. A comprehensive approach for improving MM management in Latin America is crucial, emphasizing training, access, stakeholder engagement, data enhancement, and financial resources.

Keywords: Health services accessibility; Hematologic neoplasms; Surveys and questionnaires; Developing countries; Diagnostic services; Healthcare disparities.

INTRODUCTION

Multiple myeloma (MM) is a clonal plasma cell proliferation disorder marked by the abnormal elevation of monoclonal paraprotein. The plasma cell clone, the excessive production of monoclonal immunoglobulin, and suppression of normal humoral immunity lead to complications such as hypercalcemia, renal dysfunction, anemia, infections, and bone pain or fractures.[1] Risk factors for MM include age over 60, male gender, African American ancestry, a family history of the disease, occupational exposure to chemicals, obesity, and genetic factors.[2]

MM constitutes 1% of all malignancies but accounts for 10% to 15% of all hematologic cancers.[3] According to the World Health Organization (WHO), the global standardized incidence of MM is 1.8/100,000 and, in 2022, 121,388 people died from the disease.[4]

Latin America is a vast region that represents around 10% of the world population, with high heterogeneity regarding culture, religion, politics, and healthcare systems. It is challenging to obtain comprehensive data from countries in Latin America and updated information to quantify the number of cases nationwide. The true incidence, prevalence, and mortality associated with MM in Latin America are unknown. According to GLOBOCAN,[5] in 2020, the age-standardized incidence rate for MM in Latin America was 2.0/100,000/year, with mortality of 1.5/100,000/year.

According to the Hemato-Oncology Latin America study,[6] a multicenter, retrospective, medical chart review-based study with 5,140 patients included from six countries with MM, chronic lymphocytic leukemia, and non-Hodgkin lymphoma, 30% had MM, and more than 50% of patients were in the advanced phase. Among 17 Latin American countries evaluated in an ecological study,[7] mortality rates due to MM exhibited significant variation without a consistent pattern. As anticipated, the highest rates were found in men over 60, with Chile reporting 15.1 deaths per 100,000 in this age group, compared to only 0.8 per 100,000 in El Salvador. These differences are likely attributed to disparities in access to medications and overall healthcare, but also to low-quality data from registries. In a study conducted by the Grupo de Estudio Latinoamericano de Mieloma Múltiple (GELAMM), Peña et al.[8] described worse survival in patients treated in the public system.

Obtaining qualitative information to enhance understanding of the disease at a decision-making level is challenging. It is reasonable to assume that many Latin American countries still need to establish a robust and comprehensive system for collecting information on MM. Therefore, this survey aims to contribute to MM healthcare in Latin America by providing expert opinions to support programs and projects for future improvements in the field.

MATERIALS AND METHODS

GELAMM gathered a panel of 16 highly experienced hematologists representing 11 Latin American countries to participate in this study. Three experts were from Argentina and Brazil, two from Mexico, and one from Chile, Colombia, Cuba, the Dominican Republic, Ecuador, Paraguay, Peru, and Uruguay.

The panel completed an online questionnaire, individually, via SurveyMonkey from April 16, 2024, to July 5, 2024. The research was conducted in two rounds, and all experts provided the required responses in each round, without any interaction among them. The questionnaire comprised multiple-choice and open-ended questions: round 1 included 22 questions, while round 2 featured 24 questions. Researchers analyzed the findings from the previous round, which shaped the questions in the subsequent phase and provided feedback to the experts.

The qualitative analysis of open-ended questions involved organizing the information, identifying similarities and differences in responses, developing themes, and synthesizing findings to present the results. Descriptive analysis was used for multiple-choice questions.

All participants gave their written consent before answering the questionnaire

RESULTS

Access to MM diagnosis

Recognizing MM

The participants declared that obstacles in recognizing MM are significant. First, there is no agreement in the scientific community that MM should be routinely screened, and, consequently, laboratory analysis that could help to detect MM in asymptomatic stages, is not reimbursed. Additionally, signs and symptoms are nonspecific, which requires a high level of suspicion from the general practitioner. Most patients are diagnosed in late stages with end-organ damage. A major challenge is to raise awareness of the disease among non-hematologists.

The lack of awareness is also perceived in the general population, mainly limited to individuals directly affected by the disease or those close to patients. This widespread lack of awareness significantly hampers timely detection and diagnosis, with nearly half of the experts estimating that such gaps impact detection rates by 50% or more. Misinformation within the community contributes to delays in diagnosis, emphasizing the need for comprehensive training of healthcare personnel who interact with potential MM patients. However, it appears that the challenges in early detection of MM are more closely related to the performance of primary care providers and the resources available than to the public's knowledge of the disease itself.

Diagnostic tests for MM

The current situation is far from the desired universal access to MM diagnosis, with all patients accessing gold standard exams.

Specialized healthcare centers in Latin America may not be able to promptly perform all the necessary tests and examinations to provide timely responses.

The healthcare system struggles to provide complex diagnostic exams in small cities and rural areas. Patients frequently need to travel to larger medical centers or pay for private laboratory services, which are both scarce and expensive. Major healthcare facilities are usually the only ones equipped with the necessary resources and expertise, leading to a trade-off between capacity and demand.

Experts classified the availability (from 1 = never to 5 = always) and the importance (from 1 = not important to 5 = crucial) of the tests and exams for diagnosis of MM recommended by the European Hematology Association and European Society for Medical Oncology (EHA-ESMO) Clinical Practice Guidelines and the National Comprehensive Cancer Network (NCCN) Clinical Practice Guidelines. The gap between availability and its importance illustrates the urgent need for improvement (Table 1).

Table 1. Exams and tests – Availability vs. importance of tests and exams for MM diagnosis.

Test/ exam	Availability* (mean)	Importance‡ (mean)	Gap (availability-importance)
Bone marrow/advanced techniques such as GEP and NGS	1.06	4.31	-3.25
Bone marrow/NGF or NGS to detect clonal plasma cells	1.81	4.88	-3.06
Imaging/whole-body MRI	3.31	4.25	-0.94
Blood/serum-free light chain	4.13	5.00	-0.88
Imaging/PET-CT or CT	3.50	4.38	-0.88
Bone marrow/cytogenetics: karyotype and FISH for detection of del17p, t(4;14), t(14;16), ampl 1q/gain 1q, and t(11;14)	2.88	3.69	-0.81
Blood/flow cytometry	4.00	4.50	-0.50
Blood/serum immunoglobulin levels	4.38	4.75	0.00

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Blood/albumin, b2m	4.56	4.50	0.06
Urine/electrophoresis and IF electrophoresis	4.13	4.00	0.13
Imaging/WBLD-CT	3.13	3.00	0.13
Blood/calcium	5.00	4.69	0.31
Blood/lactate dehydrogenase	4.88	4.56	0.31
Blood/serum electrophoresis and IF	4.56	4.19	0.38
Bone marrow/cytology and biopsy to confirm plasmacytosis and monoclonality	4.81	4.19	0.63
Blood/renal and liver function tests	5.00	4.31	0.69
Urine/24 h sample (proteinuria, light-chain proteinuria)	4.69	3.88	0.81
Blood/blood count and blood smear	4.94	#N/A	#N/A

CT: computed tomography; IF: immunofluorescence; MRI: magnetic resonance imaging; N/A: not available; PET-CT: positron-emission tomography; WBLD-CT: whole-body low-dose computed tomography. * 1: never, 2: around 25% of the time, 3: around 50%, 4: around 75%, 5: always. ǂ1: not important, 2: slightly important, 3: medium importance, 4: highly important, 5: crucial. Source: Elaborated by the authors.

While genomic expression profiling (GEP) and next-generation sequencing (NGS) are currently unavailable due to their high costs, a preference exists for next-generation flow cytometry (NGF) as a more viable option. Although various diagnostic tests play a significant role in detecting MM and assessing risk, staging, and treatment response, not all are essential in resource-limited settings. Implementing these tests could substantially increase healthcare costs for the system and patients, making their use more critical in clinical trials rather than in routine practice.

Access to staging

The management of MM requires accurate staging analyses to guide treatment decisions and optimize patient outcomes. According to the experts, a significant challenge arises from the lack of proper exams, particularly essential cytogenetic studies and fluorescence *in situ* hybridization (FISH), especially in public health services. As a result, healthcare providers are forced to operate with whatever limited data they can gather, often relying on less-than-ideal information. Reliance on incomplete data can create a cycle of inadequate care. Without precise staging, treatment plans may be poorly tailored to patients' specific needs, potentially leading to suboptimal outcomes.

Access to MM treatment

Even if patients have access to a proper diagnosis, they may still halt the journey ahead due to a lack of medications.

Table 2 shows the gap between the importance of each drug/procedure according to the experts vs. its availability. Access to new cancer treatments faces significant challenges due to inadequate public policies, high drug costs, and inconsistent drug approval processes across countries. Many vital medications, such as anti-CD38 monoclonal antibodies, pomalidomide, and carfilzomib, lack public authority approval, limiting patient access. Innovative therapies, such as chimeric antigen receptor (CAR)-T and bispecific monoclonal antibodies, are often not registered, and clinical trials are scarce, hindering treatment options.

Table 2. Gap between the availability and the importance of drugs and procedures.

Treatment/procedure	Availability* (%)	Importanceǂ (%)	Gap (availability importance)
ASCT	88	100	-13
Bortezomib	94	100	-6
Dexamethasone	100	100	0
Lenamidomide	94	100	-6

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Melphalan	100	100	0
Carfilzomib	81	94	-13
Cyclophosphamide	100	94	6
Daratumumab	94	94	0
Thalidomide	94	81	13
Pomalidomide	69	75	-6
Isatuximab	50	69	-19
Prednisone	81	63	19
BCMA bispecifics	25	63	-38
Teclistamab	31	63	-31
Ixazomib	56	50	6
BCMA-CAR-T	13	50	-38
Talquetamab	19	44	-25
GPRC5D bispecifics	19	38	-38
Doxorubucin	81	31	50
Cisplatin	81	25	56
Vincristine	69	25	44
Belantamab mafodotin	6	19	-13
Elotuzumab	31	13	19

BCMA-CAR-T: B-cell maturation antigen-chimeric antigen receptor- t cell; GPRC5D: G protein-coupled receptor, class C, group 5, member D. *Results in percentage of respondents considering the drug important. ‡Percentage of respondents confirming availability of the specific drug in their country. Source: Elaborated by the authors.

The unavailability of certain drugs in Latin America is partly because not all countries in Latin America are attractive to pharmaceutical companies from a business potential perspective, especially small countries such as Uruguay. Even countries with robust healthcare systems and effective diagnostic processes struggle to capture the interest of major pharma firms, primarily because of the limited potential for financial returns.

Progression/relapse

Progression management for MM is relatively well handled within the private healthcare system, particularly at reference centers. However, this is not the case in public systems, where challenges are more pronounced. While some countries excel in monitoring progression through testing and examinations, significant limitations arise in the availability and approval of necessary therapies.

Relapse management poses an additional challenge, with experts highlighting severe shortcomings. Many report a lack of established policies or protocols to provide the necessary medications to support patients during relapses.

Experts agree that progression monitoring is essential for effective healthcare in MM. It helps prevent serious complications such as bone fractures and kidney failure, which affect patient outcomes and increase costs. Monitoring is crucial for assessing treatment effectiveness and determining when to change management strategies, ultimately enhancing survival chances.

Compliance with international guidelines

Experts indicate that international guidelines for MM, such as the EHA-ESMO Clinical Practice Guidelines and the NCCN Clinical Practice Guidelines, are generally applicable within their countries, often enforced by national regulations or medical councils. While the private healthcare system implements most recommendations, its geographic coverage is limited. In contrast, the public system has broader coverage but does not apply all recommendations, primarily due to financial constraints.

The challenge of making these international guidelines universally applicable across Latin American countries extends beyond regulatory compliance; it involves significant practical barriers that hinder their widespread adoption.

DISCUSSION

The experts covered the patient's journey from MM diagnosis to relapses, identifying the main problems. Additionally, they focused on possible solutions, which we will point out in this discussion.

Proposed solutions to improve MM diagnosis

The experts prepared a list of proposed initiatives for enhancing MM diagnosis.

Education and training for healthcare professionals and periodic re-evaluation

Enhancing education and training for healthcare professionals, especially nonspecialists and frontline specialists such as traumatologists, nephrologists, or neurologists, is essential. Training programs should focus on recognizing MM symptoms and facilitating timely referrals to hematologists. Offer free courses on MM for healthcare professionals to enhance their knowledge, reinforcing their dedication to patient care and making them feel responsible and committed.

Remote learning and focused workshop sessions in strategic locations can improve the MM symptoms diagnosis protocol.

Training of healthcare professionals should be regular, ideally every year. During each cycle, the evolution of the program must be assessed.

Also, experts would encourage academic institutions to review curricula to include a broader range of disorders in their training programs and motivate them to offer minimal MM training.

Establishing multidisciplinary teams

Forming multidisciplinary teams in regional centers can provide crucial support to frontline healthcare professionals, especially in managing complex cases.

An online platform should complement this initiative to facilitate consultations and advice from specialists in other locations.

Government and public representatives should explore strategies to encourage specialists to engage more with frontline care, such as improving salaries and enhancing infrastructure. This multifaceted approach aims to create a more responsive and informed healthcare system for effectively managing MM.

Shared diagnostic responsibilities

Adopt a model of shared diagnostic responsibilities by including local or regional specialists in areas with higher contact rates with potential MM patients. This collaboration can facilitate more accurate and timely diagnosis.

Make the existing protocols work as they should – review protocols to include recently proved best practices.

Streamlining referral pathways

Creating fast-track referral pathways within healthcare systems is vital for facilitating access to specialty care. It is also important to analyze and potentially revise the current knowledge structure and referral processes from the frontline to specialized centers. Frontline providers should be equipped to identify complex disorders and have access to remote support or established referral protocols as needed.

Resource allocation for remote health centers

Equip health centers in remote or rural areas with the minimum resources necessary to conduct exams and tests. This effort should be paired with developing an online platform to facilitate consultations and advice from specialists in other locations.

In some countries, the capacity to perform exams and tests is enough from a capacity standpoint. However, the problem is that the laboratories are all in large cities. A study should analyze the redeployment of resources according to the demand to shorten the distance between patients and laboratories.

It is crucial to encourage the private healthcare sector to extend its services to underserved areas. This can be achieved through subsidies or tax incentives, fostering its active participation in improving healthcare access.

Access to exams to enhance diagnosis

The experts also propose recommendations to improve the availability of tests and exams (Table 3).

Table 3. Improving accessibility to exams.

Mandatory guidelines	Establishing mandatory disease guidelines at the national level, emphasizing the importance of enforcement to ensure adherence.
Increase awareness	Educating healthcare professionals on the necessity of essential exams and advocating for the establishment of more laboratories in rural areas to reduce centralization-related costs.
Prioritization of tests	Optimizing the availability of tests based on MM diagnostic and staging criteria, with a focus on cytogenetics and molecular biology, which are crucial for accurate risk assessment.
Equitable access to genetic studies	Proposing the centralization of genetic studies and the creation of a referral network to enhance access to diagnostic techniques.
Referral center creation	Establishing a single referral center to optimize resources and improve access to diagnostic studies for all patients.
Defined criteria for diagnostic tools	Setting clear criteria for the use of expensive diagnostic tools to ensure accessibility for those in need, alongside better public management to avoid the omission of essential tests.
Centralized testing	Referring blood samples and imaging tests to central laboratories to provide superior diagnostic options.
Decision-maker education	Informing health system decision-makers about the importance of these diagnostic tests and risk assessment. Creating regional care sites with adequate resources can enhance accessibility.
Strengthening network	Promoting cooperation between facilities with greater diagnostic capacity and those with fewer resources to establish care networks.
Private lab collaborations	Forming agreements with private diagnostic labs to offer services to public healthcare patients at negotiated rates. Sharing advanced diagnostic equipment between public and private facilities can optimize resource utilization.
Training programs	Developing training initiatives for healthcare providers on the use of advanced diagnostic tools, particularly in less populated areas.
Equipment expansion	Increasing the availability of imaging equipment in hospitals is essential.
Standardization of tests	Flow cytometry, FISH, NGS, and GEP studies should be standardized across multiple reference centers and made accessible in various units, necessitating the establishment of several centers.
Cost reduction strategies	Negotiating with referral cancer centers to perform exams for multiple patients can decrease individual costs. Lowering the cost of FISH, currently the most expensive exam and making it compulsory after plasma cell sorting would also improve access.
Resource acquisition	Collaborating with health authorities and pharmaceutical companies to acquire additional resources and train laboratory personnel in centers with available technology.
Referral and academic centers	Creating dedicated referral and academic centers to enhance research, training, and diagnostic capabilities.

Source: Elaborated by the authors.

Data interpretation and referral analysis in healthcare

Conduct a technical audit of the available MM data within the country, identifying gaps in both quantity and quality while assessing their severity. Determine the most critical issues and design an integrated solution aimed at serving MM patients nationwide.

Address significant challenges such as underreporting and other flaws by implementing compulsory communication of MM cases, utilizing a structured set of information fields.

Advocacy for integrated data systems

Advocate for the development and implementation of a robust, integrated data and information-gathering system that is accessible remotely. This system should be combined with a learning and development platform to support ongoing educational initiatives.

Create a National MM Registry that tracks patient outcomes, treatment adherence, and resource utilization, facilitating data-driven decision-making and resource allocation.

Structured awareness campaigns

Launch a structured awareness campaign for healthcare professionals that highlights the risks of delayed diagnoses and encourages prompt recognition of MM. Explore the benefits of creating content in popular media formats such as podcasts and video blogs, to raise awareness among healthcare professionals and the public. Focus on effective communication strategies to enhance healthcare professionals' learning and overall public awareness of MM and its symptoms. Increasing public knowledge will improve patient interactions with frontline providers. National and international campaigns can further disseminate knowledge about MM.

Implement guidelines

The expert recommendations aim to enhance cross-cooperation among Latin American countries in adopting international guidelines. Key suggestions include:

- Review existing international recommendations from organizations such as the International Myeloma Society, WHO, ESMO, NCCN, and EHA.
- Identify best practices and successful implementation models from other countries.
- Develop standardized treatment protocols that align with these international standards.
- Create and distribute educational materials on MM symptoms, diagnosis, and treatment options.
- Advocate for the integration of MM guidelines into national health policies.
- Organize workshops and conferences to share findings and foster collaborative learning.
- Prepare policy briefs to inform decision-makers and advocate for ongoing support and funding.

Standardizing MM care guidelines across the public and private sectors will ensure consistent quality. Regular assessments of healthcare facilities' adherence to these guidelines, along with incentives for improvement, are essential for sustained progress.

Enhancing efficiency in healthcare under budget constraints in Latin America

Strategies should focus on optimizing resource allocation and streamlining processes to maximize funding impact. This approach will help stakeholders navigate financial constraints while maintaining high-quality healthcare.

Advocate for increased government funding for the public healthcare system, focusing on implementing recommended MM care practices and reevaluating tax policies to lower medication costs.

Proposed solutions to improve staging

Suggestions for improvement for this phase are presented in Table 4.

Table 4. Improvement of MM staging.

Implementation of modern techniques	Regional reference centers and unified national protocols.
Comprehensive testing and insurance innovations	Private sector: increase premiums per policyholder to fund a special coverage plan for essential analyses and innovative medications. Public sector: boost healthcare budgets, particularly for high-cost treatments.
Accessibility of FISH probes	Integrating FISH probes into the public healthcare system.
Cost efficiency through centralization	Centralized laboratory system to optimize resource allocation, particularly for expensive reagents. Clear guidelines on diagnostic tool use and collaboration between small and large healthcare centers to enhance efficiency.
Personalized patient care	Involve patients in clinical trials to yield insights into treatment effectiveness for specific groups.
Establishing specialized MM centers	Specialized MM centers in key regions serve as hubs for surrounding areas.
Utilizing telemedicine	Telemedicine platforms to connect regional providers with myeloma specialists and telepathology to improve diagnostic accuracy.
Collaborative agreements and funding	Partnerships between public and private providers to share diagnostic resources. Advocating for government grants to improve infrastructure, particularly in underserved areas, and negotiating FISH testing in public institutions.
Collaboration with the pharmaceutical industry	Closer collaboration with pharmaceutical companies to support FISH testing and necessary diagnostics.
Strengthening referral centers	Improving referral centers with better-trained personnel and resources.

Source: Elaborated by the authors.

Proposed solutions to improve access to MM treatment

This issue requires urgent attention. For individual countries, it can be challenging to change the *status quo alone*. A collaborative action plan might be a solution to explore viable alternatives and address the problem collectively (Table 5).

Table 5. Key issues in accessing cancer treatments.

Approval process	Public administration agencies need to expedite medication approvals, as delays are common in many countries.
	Fast-track approval is essential for complex treatments such as bispecifics and CAR-T therapies.
High-cost programs	Establishing high-cost programs within public administration could improve access to essential medications.
	Transplant-based treatments should be included in government healthcare programs.
Current drug availability	The most modern and highest-cost drugs are often unavailable, with only traditional chemotherapy and thalidomide among immunomodulators accessible.
	In the private healthcare system, commonly recommended drugs are available, but coverage for newer medications is limited, and CAR-T therapy cannot be performed due to a lack of technology and accredited hospitals.
Clinical trials and partnerships	Smaller countries should consider forming regional consortia with neighboring nations to establish public-private partnerships, sharing financial risks and benefits in conducting clinical trials.
	Collaboration with international organizations for promoting clinical trials in underserved regions and joining international clinical trial networks for broader resources.
Clinical guidelines	Ongoing projects focused on developing clinical practice guidelines and care protocols to improve access to internationally recommended drugs, with expert committees overseeing their implementation.
Standardization and management	Standardizing management at the national level to enhance treatment scheme selection.
	Increased national budget allocations to support these improvements.

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Private sector involvement	Private insurers should include new treatment options and share responsibility for patient care.
Data collection	Systematic data gathering for tracking patient numbers and estimating annual treatment costs.
Stakeholder engagement	Propose actions to key stakeholders (government, private sector, and society) that demonstrate value-added benefits to patient outcomes, facilitating an annual budget for innovative drugs.
National protocols	Implementing a national bone marrow transplant protocol to improve treatment access.
Bureaucratic challenges	Address bureaucratic obstacles that hinder management improvements and the implementation of clinical trials.
Collaborative forums	Organize forums involving opinion leaders, health professionals, patient representatives, and financiers to discuss treatment strategies.
Economic considerations	Establish criteria for access to high-cost drugs based on risk factors, particularly for younger patients or those at high risk.
Recent drug access	Expand access to more recent drugs such as daratumumab, pomalidomide and carfilzomib.

Source: Elaborated by the authors.

MM management should be standardized nationwide, and the budget for cancer treatments must be increased. Collaboration among healthcare providers, payers, and patient groups is essential. Doctors from major hematology centers should advocate for coverage approval to improve access. Currently, only a limited number of patients have access to treatments such as teclistamab through specific programs. Implementing clinical trials will also enhance our experience with innovative therapies and benefit patients directly.

Access to technical and scientific resources for healthcare professionals treating MM in Latin America faces significant challenges. Two primary factors contribute to this issue: the size of the country and the nature of its healthcare system. Larger countries struggle to ensure widespread availability of resources due to the high costs and investments required to reach remote areas. Public healthcare systems focus on providing care to those who cannot afford it, often exacerbating the issue of access, especially for patients living far from health centers.

Addressing these challenges is complex and demands innovative solutions. As the complexity of the problem increases, so must our creativity in analyzing, assessing, and developing effective strategies to improve resource availability for healthcare professionals. The objective is to make technical and scientific resources broadly available in public and private systems to support MM treatment in nationwide coverage.

To enhance the availability of technical and scientific resources for MM treatment, several strategies can be implemented:

Establish clinical research centers

Creating regional clinical research centers can attract public-private partnerships, fostering innovation and development in healthcare. Input from experience in developed countries is essential for effective implementation.

Develop a regional MM protocol

Implement a comprehensive MM protocol for diagnosis and therapy tailored to our region.

Health consortiums and referral networks

Small cities should form health consortiums to create referral networks, enabling residents to access more complex care and procedures. By considering the technical and financial aspects of each sector, treatment protocols can improve access to quality medications in both public and private systems.

Centralized referral centers

In larger countries with extensive public healthcare systems, centralized referral centers can focus on technical and scientific studies, optimizing investments by concentrating resources in fewer locations.

National funding for high-cost treatments

Local national funding provides high-cost medications and procedures (including autologous stem cell transplantation [ASCT]) for all citizens, regardless of their healthcare provider, funded through taxes paid by the populace.

Telemedicine platforms

Implement teleconsultation services allowing specialists from major centers to support healthcare providers in smaller or remote facilities. Developing mobile applications and digital platforms can provide educational materials and updates on MM treatment.

Online education resources

Create a dedicated webpage offering information, online continuing education, and mailing lists to keep healthcare professionals informed about MM advancements and funding opportunities.

SMS communication

Utilize SMS to disseminate important information to healthcare providers in remote areas with limited internet access.

Mobile clinics

Deploy mobile clinics to deliver specialized healthcare services directly to underserved populations.

Virtual reality training

Incorporate virtual reality technology to offer immersive training experiences for healthcare professionals on MM treatment.

Artificial intelligence (AI) algorithms

Leverage AI to provide personalized recommendations and decision support for managing MM, based on patient data and clinical guidelines.

Proposed solutions to improve progression management

To enhance the progression of care in the public healthcare system, several key strategies should be implemented. First, incorporating new drugs along with an access strategy will broaden treatment options and improve patient outcomes. Increasing clinical trials is also crucial. Attracting pharmaceutical companies to support regional studies can foster innovation and provide valuable training in relapse treatment for healthcare professionals.

Effective fund management protocols are essential for optimizing the use of expensive medications, ensuring they reach the patients who need them most. Additionally, advocacy for broader insurance coverage is necessary. We should push for policies that require health insurers to cover a wider range of approved and newer treatments, improving access to essential drugs.

This study offers insights into managing MM in Latin America, but it is limited to qualitative content. The group of experts represents a non-probabilistic sample, likely determined by participant availability, and is therefore a convenience sample. Additionally, assessing the health system in Latin America as a single entity may not be ideal due to the significant diversity among countries.

CONCLUSION

Improving MM healthcare in Latin America faces significant challenges, necessitating research to identify key issues affecting patients. This study shows that a multifaceted approach is required, focusing on training, access, stakeholder involvement, data enhancement, and financial resources. Essential strategies include awareness campaigns, establishing regional reference centers to ensure equitable access to treatments, and advocating for government funding and improved pharmaceutical policies. Implementing these measures can enhance the quality of care for patients facing MM and, consequently, improve outcomes.

CONFLICTS OF INTEREST

Corzo A: Speaker: Johnson & Johnson, BMS, Takeda, Sanofi, AbbVie, Pfizer, GSK. Gusmão B: Speaker: AbbVie, Amgen, BMS, Janssen, Novartis, Sanofi, United Medical, and Takeda. Developer of technical-scientific material: Gilead, United Medical, and Takeda. Scientific support to participate in events: AbbVie, Amgen, AstraZeneca, BMS, Gilead, Janssen, United Medical and Takeda. Funding for clinical research: Amgen, AstraZeneca, GSK, Janssen, Novartis, Pfizer, and Sanofi. Advisory board: Amgen, Gilead, Janssen, and Sanofi. Peña C: Honoraria for medical conferences: Janssen, Tecnofarma, Pfizer. Investigator: Pfizer, BindingSite. Speaker: Janssen, Bristol, Varifarma. Almaguer DG: Speaker/advisory board: Takeda, Amgen, Janssen, Novartis, BMS, Abbvie, Roche, Sanofi, Asofarma, and Teva. Fantl D: Honoraria from medical conferences, investigator in clinical trials, and participation in advisory boards: BMS, Takeda, Janssen, Tecnofarma, Amgen Sanofi, Roche, Glaxo, Pfizer, and AbbVie. Romero E: Speaker: Janssen, Roche, Infaca, AstraZeneca, AbbVie, Roche, and Novartis. Advisory board: AbbVie, AstraZeneca, Novartis, and Janssen. Moura FL: Investigator in clinical studies sponsored by Johnson & Johnson, BMS, Takeda, and Pfizer. Academic-scientific or product presentations: Speaker at events sponsored by Amgen, Johnson & Johnson, Takeda, and BMS. Consulting activities: advisory boards sponsored by Amgen, Johnson & Johnson, Sanofi, and Pfizer. Support for participation in congresses of Amgen, Takeda, BMS, Johnson & Johnson, Sanofi, and Pfizer. Mateos MV: Honoraria derived from lectures and participation in advisory boards from Janssen, Celgene-BMs, Amgen, GSK, AbbVie, Pfizer, Regeneron, Roche, Sanofi, Oncopeptides, and Kite. Cunha R: Advisory board: Amben, Bristol, GSK, Johnson & Johnson, Pfizer, Sanofi; Speaker: Amgen, Bristol, Johnson & Johnson, Takeda, Sanofi. Meneces R: Speaker: Johnson & Johnson. The other authors report no conflicts of interest.

DECLARATION OF USE OF ARTIFICIAL INTELLIGENCE TOOLS

The authors confirm that artificial intelligence tools were used solely for orthographic review and language refinement. The scientific content of the manuscript was developed by the authors, with support from a human medical writer.

DATA AVAILABILITY STATEMENT

Data will be provided upon request.

AUTHOR CONTRIBUTIONS

Conceptualization: Peña C, Gusmão B, Mateos MV; **Investigation:** Peña C, Gusmão B, Riva E, Glasenapp A, Fantl D, Meneces R, Ramirez A, Almaguer DG, Fernández-Aguila JD, Granja MA, Romero E, Vasquez J, Martinez-Cordero H, Corzo A, Cunha R, Moura FL; **Methodology:** Peña C; **Data Curation:** Martinez-Cordero H; **Project Administration:** Peña C; **Writing:** Peña C, Gusmão B, Riva E, Glasenapp A, Fantl D, Meneces R, Ramirez A, Almaguer DG, Fernández-Aguila JD, Granja MA, Romero E, Vasquez J, Martinez-Cordero H, Corzo A, Cunha R, Moura FL, Mateos MV; **Supervision:** Mateos MV; **Final Approval:** Peña C.

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