

Brazilian Neurology: From Population Health to Clinical and Biological Perspectives

Contemporary neurology requires an integrated perspective that connects population health, clinical observation, diagnostic reasoning, patient-centered outcomes, and advances in neuroscience. The articles presented in this issue of the *Revista Brasileira de Neurologia* reflect this broad scope, addressing neurological disease from epidemiological, historical, clinical, biological, therapeutic, and humanistic perspectives.

An epidemiological study of mortality in Northeast Brazil demonstrates an overall declining trend over the past decade, while highlighting persistent regional disparities and a substantial burden among older adults. Complementing this population-level perspective, a prospective Brazilian cohort assessing health 90 days after stroke emphasizes the importance of patient-reported outcomes, showing how neurological severity and functional status at discharge influence subsequent physical and mental health.

Health inequalities are further illustrated by the analysis of malignant brain neoplasms within the Brazilian Unified Health System (SUS). Increasing hospitalizations, high mortality, and regional differences in access to procedures underscore the need to strengthen specialized neuro-oncological care and improve referral networks across the country.

The historical foundations of the specialty are explored in a review of the early institutional development of neurology and psychiatry in Rio de Janeiro between 1881 and 1912. By examining medical education, scientific publishing, professional societies, and psychiatric classification, the study shows that the emergence of neurological autonomy was gradual and asynchronous rather than the result of an abrupt separation. The parallel role of legal medicine further illustrates the complexity of the institutional boundaries that shaped the early development of these disciplines.

Diagnostic reasoning represents another important theme of this issue. A case-based review of central nervous system demyelinating disorders illustrates the challenges of distinguishing multiple sclerosis, neuromyelitis optica spectrum disorder, and MOG antibody-associated disease (MOGAD), emphasizing the integration of clinical presentation, magnetic resonance imaging, cerebrospinal fluid analysis, and antibody testing. Similarly, a case report of brachial amyotrophic diplegia presenting with a man-in-the-barrel phenotype underscores the enduring value of detailed neurological examination, careful phenotyping, and

systematic consideration of potentially treatable mimics.

The issue also explores advances in the biological understanding of neurodegenerative diseases. An integrative review of complement and glial activation biomarkers in Alzheimer's disease examines the interactions among microglia, astrocytes, complement pathways, and synaptic dysfunction, illustrating how emerging biomarkers may contribute to a more dynamic characterization of disease mechanisms. Rehabilitation and emerging therapeutic approaches are also represented. A systematic review and meta-analysis highlights the potential of virtual reality as a complementary strategy for improving balance in Parkinson's disease, while underscoring the need for standardized protocols and larger, longer-term studies to establish its clinical relevance.

A narrative review of neurological hand signs further emphasizes the diagnostic value of careful inspection of hand postures and movements, reinforcing the role of the neurological examination in lesion localization and differential diagnosis. Two additional narrative reviews broaden the therapeutic and human dimensions of neurological care. One examines the GABAergic system as a promising therapeutic target in motion sickness, linking GABA-B-mediated modulation of vestibular velocity storage to susceptibility and highlighting the potential of targeted and combination therapies. The other explores neurospirituality as an emerging framework connecting neuroscience, neurology, and palliative care with the spiritual and existential dimensions of health. Although current evidence remains predominantly correlational and culturally heterogeneous, the review highlights the potential relevance of spiritual well-being to coping, resilience, and quality of life.

Taken together, the contributions in this issue reflect the multidimensional nature of contemporary neurology, bringing together historical perspectives, population-level evidence, clinical observation, diagnostic reasoning, advances in neurobiology, and emerging approaches to treatment and rehabilitation. They underscore that the development and practice of neurology are shaped not only by scientific and technological advances, but also by clinical experience, institutional structures, and the evolving needs of patients. We hope this issue encourages further research, interdisciplinary collaboration, and continued dialogue across the different dimensions of neurological science and practice.

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