Abstracts - Poster Presentation

Headache and Pain

342 | Epidemiological and Cost Analysis of Urgency Admissions for Migraine and Headache Syndromes in Rio de Janeiro, 2021–2024

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ABSTRACT

Objectives: To investigate the epidemiological and economic burden of emergency hospitalizations due to migraine and other headache syndromes in the state of Rio de Janeiro between 2021 and 2024.
Methods: This was a descriptive and retrospective study using data on hospital morbidity in the population of Rio de Janeiro state, obtained from the Brazilian Unified Health System Hospital Information System (SIH/SUS) via the DATASUS platform, covering the period from 2021 to 2024. Hospital admissions classified as emergency care and related to ICD-10 codes for migraine and other headache syndromes were selected. The variables analyzed included the total number of hospitalizations and the average cost per hospitalization, stratified by Health Region (CIR), age group, and sex.
Results: Between 2021 and 2024, a total of 844 emergency hospitalizations related to migraine and other headache syndromes were recorded in the state of Rio de Janeiro. The highest incidence was observed in the 30–39-year age group (19.43%), with a predominance of females (64.22%), consistent with the higher prevalence of these conditions in women of reproductive age. Regarding geographic distribution, the health regions with the highest number of hospitalizations were Médio Paraíba (195 admissions; 23.1%), Metropolitan II (191; 22.6%), and Metropolitan I (163; 19.3%), reflecting greater demand in urban centers and densely populated areas. The regions with the lowest hospitalization numbers were Baía da Ilha Grande (7; 0.8%), Baixada Litorânea (16; 1.9%), and Centro-Sul (35; 4.1%). In 2024, the average cost per hospitalization was R$ 330.53, ranging from R$ 155.57 in Baixada Litorânea to R$ 412.27 in Metropolitan I. Médio Paraíba, which had the highest number of hospitalizations, showed an average cost of R$ 362.83, whereas Baía da Ilha Grande, with the lowest number of hospitalizations, had an average cost of R$ 156.83. These differences likely reflect variations in care complexity and hospital resource availability across regions.
Conclusion: Emergency hospitalizations for migraine and other headache syndromes in Rio de Janeiro from 2021 to 2024 were concentrated among women aged 30–39 and in regions with higher population density. Regional differences in hospitalization costs suggest variability in care complexity and resource allocation, highlighting the importance of targeted healthcare planning and resource distribution.

311 | EXCRUCIATING PAIN DURING EXERCISE REVEALS COLLOID CYST: A CASE OF POTENTIAL LIFE-THREATENING RISK

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ABSTRACT

Case Report: A 42-year-old Italian man, a regular practitioner of physical activities, experienced sudden and intense headache during a high-load isometric leg press exercise. The pain was described as excruciating, without associated autonomic symptoms such as nausea, vomiting, or visual changes. Persistent pain led him to seek medical attention one week later. Cranial MRI revealed a colloid cyst in the third ventricle. A conservative management approach was chosen, including regular monitoring and analgesic therapy.
Discussion: Effort-induced headache is a characteristic symptom in patients with colloid cysts, caused by increased intracranial pressure during activities that elevate intrathoracic pressure. High-intensity isometric exercises can exacerbate this condition, and the headache may be positional, worsening in lying or inclined positions. Colloid cysts pose a risk of obstructing the foramen of Monro, potentially causing hydrocephalus, increased intracranial pressure, and, in severe cases, sudden death. MRI remains the diagnostic method of choice. Management of colloid cysts depends on symptoms and complication risk. Conservative approaches are suitable for asymptomatic or mildly symptomatic patients, while surgical intervention is reserved for severe symptoms or risk of obstruction. In this case, conservative treatment led to pain control and close monitoring without immediate surgery.
Final Comments: This report highlights the importance of considering colloid cysts in patients presenting with sudden headache during intense physical exertion. Although rare, colloid cysts can produce significant clinical symptoms impacting quality of life. Early recognition, accurate diagnosis, and appropriate management are crucial to prevent severe complications. Awareness among clinicians facilitates prompt intervention and optimized patient outcomes, demonstrating the need for a comprehensive diagnostic approach in similar cases.

724 | Headache and migraine incidence in users of combined oral contraceptives with bioidentical estrogens (E2, E2V, E4) versus ethinylestradiol: a systematic review

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ABSTRACT

Objectives: To compare the incidence of headache/migraine and discontinuation due to headache in women using combined oral contraceptives (COCs) containing bioidentical estrogens (17β-estradiol [E2], estradiol valerate [E2V], estetrol [E4]) versus traditional ethinylestradiol (EE) formulations.

Methods: A systematic review was conducted according to PRISMA 2020. The PICO strategy was defined as follows: population, reproductive-aged women using combined oral contraceptives (COCs); intervention, COCs containing bioidentical estrogens (E2, E2V, E4); comparator, COCs containing ethinylestradiol (EE); outcomes, incidence of headache or migraine, discontinuation due to headache, and vascular events (exploratory). Searches were performed in PubMed and Cochrane CENTRAL up to March 2025. The initial strategy combined estrogen type with headache and migraine descriptors, and as some phase 3 trials reported headache only as an adverse event, a complementary search was carried out using specific drug combinations (E2/NOMAC, E2V/DNG, E4/DRSP). After removal of duplicates, titles and abstracts were screened and full texts assessed. The PRISMA flow identified 44 records, of which 42 were screened, 10 were evaluated in full text, 9 were excluded, and 2 randomized controlled trials (RCTs) were included, with additional EE-based trials used as comparators.
Results: The Turkish RCT (NCT03124524) compared E2V/DNG with EE/DRSP in women with severe dysmenorrhea, reporting headache as an adverse event without migraine subtyping. Archer et al. (2022) integrated data from RCTs of E2V/DNG, E2/NOMAC, E4/DRSP and EE/NETA over 12 cycles, with headache incidence of 5–10% and discontinuation rates of 2–4%. Phase 3 trials of E4/DRSP reported headache in ~5% and discontinuation <1%. E2/NOMAC studies showed headache in ~10% with discontinuation around 3–4%. In contrast, EE-based COCs consistently listed headache among the most frequent adverse events, with discontinuation rates of 3–5%. No trial systematically evaluated migraine subtypes or cerebrovascular outcomes.
Conclusion: Evidence remains limited, but COCs with bioidentical estrogens (E2, E2V, E4) show similar or slightly lower incidence of headache and lower discontinuation compared to EE formulations. These agents may represent valid alternatives with a potentially safer vascular profile, although robust RCTs with standardized migraine and vascular endpoints are warranted.

323 | Migraine as an Evolutionary Advantage: An Integrative Review

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ABSTRACT

Objectives: The objective of the study is to synthesize the scientific literature regarding the adaptive advantages associated with migraine, exploring the evolutionary hypotheses proposed for the persistence of this disorder.
Methods: A search was conducted on the PubMed and Google Scholar databases for articles relating migraine to evolutionary advantages. Six articles addressing adaptive and evolutionary theories were selected. Studies focusing exclusively on pathological or pharmacological aspects were excluded.
Results: Researchers have questioned whether migraine might have conferred adaptive advantages to individuals with the condition. These potential evolutionary benefits may be related to factors such as hypersensitivity to sensory stimuli, the preservation of cerebral energy, neuroprotective responses, and an enhanced perception of environmental threats. Migraine may be associated with human migration to the northern hemisphere (TRPM8 gene). Hypersensitivity to sensory stimuli could favor threat detection. An enhanced sense of smell might help in avoiding infections, while the vomiting that sometimes accompanies attacks could help eliminate toxins. Components of a migraine attack, such as cortical spreading depression, platelet activation, CGRP, BDNF, and Substance P, appear to have a neuroprotective role by decreasing oxidant production and neuronal energy consumption while supplying the brain with antioxidants and growth factors. Patients with migraine may exhibit a cognitive advantage, with enhanced sustained attention and faster stimulus perception, leading to more effective problem-solving. Migraine could thus function to conserve cerebral homeostasis and restore energy, with only the chronification of migraine representing a pathological process.
Conclusion: Migraine is a primary headache disorder characterized by moderate to severe pain and other disabling symptoms, affecting millions of patients worldwide and is typically viewed in terms of its negative aspects. Although clinically debilitating, migraine may have played a relevant adaptive role in evolutionary contexts, providing advantageous survival responses in threatening environments. This evolutionary understanding contributes to a more comprehensive perspective on migraine, offering new understanding of its pathological process and highlighting the therapeutic value of informing patients about the broader significance of their condition.

276 | Tolosa–Hunt Syndrome: A Case Report of Painful Ophthalmoplegia in a Young Patient

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ABSTRACT

Case Report: A young patient, without previous comorbidities, was admitted to the neurology ward with painful ophthalmoparesis, headache, photophobia, and diplopia. On examination, she presented with left eyelid ptosis, left mydriatic pupil, normal confrontation visual field testing, intact color naming (red, green, and blue), binocular diplopia, and extraocular muscle paresis. Vascular malformations, aneurysms, masses or tumors, sinus thrombosis, and clinical or laboratory evidence of infection were excluded. The patient presented with unilateral orbital pain associated with left third and fourth cranial nerve palsy, with pain resolution within 48 hours after analgesia. Brain MRI revealed discrete inflammation in the left cavernous sinus and orbital fissure. Common and potentially severe causes of orbital pain with ophthalmoplegia were ruled out. Lumbar puncture was performed on July 10, with cerebrospinal fluid sent for analysis—viral panel negative, CSF biochemistry within normal limits, and oligoclonal band testing negative. Tolosa–Hunt syndrome was considered.
Discussion: Tolosa–Hunt syndrome is a rare inflammatory disorder characterized by painful ophthalmoplegia, typically involving the cavernous sinus or superior orbital fissure. Its diagnosis is one of exclusion, after ruling out more common and potentially severe etiologies. The patient presented with unilateral orbital pain associated with left third and fourth cranial nerve palsy. Pain resolved within 48 hours after analgesia. Brain MRI demonstrated discrete inflammation of the left cavernous sinus and orbital fissure. Lumbar puncture performed on July 10 revealed normal cerebrospinal fluid biochemistry, negative viral panel, and absence of oligoclonal bands. After exclusion of alternative etiologies, the diagnosis of Tolosa–Hunt syndrome was established.

Final Comments: This case highlights the importance of considering Tolosa–Hunt syndrome in the differential diagnosis of orbital pain with ophthalmoplegia, especially after exclusion of more frequent and life-threatening conditions.

295 | Trigeminal Schwannoma-An important differential diagnosis of headache

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ABSTRACT

Case Report: We report the case of a 62-year-old female patient, caregiver, and resident of Duque de Caxias, who since 2018 had presented paresthesia in the right hemiface associated with hypoesthesia and balance reduction, without seeking medical care at that time. In 2022, she suffered an ischemic stroke and retinal detachment, evolving with hemiplegia, limb pain, and wheelchair dependence. Despite partial motor recovery after physiotherapy, painful symptoms and neurological deficits persisted, in addition to recurrent episodes of severe holocranial headache. Delays in the public health referral system hindered access to specialized care, resulting in fragmented management limited to symptomatic therapy. Only in 2024, through a contrast-enhanced MRI, was an oval heterogeneous lesion in the right cerebellopontine angle identified, compatible with trigeminal schwannoma. The patient showed a favorable response to carbamazepine and was referred to neurosurgery.

Discussion: Schwannoma is a rare benign neoplasm originating from Schwann cells, with slow growth and predominance in adults between the 4th and 6th decades. The vagus nerve and cervical sympathetic chain are the most frequently affected in head and neck schwannomas; however, trigeminal involvement is even rarer, representing 0.07–0.33% of intracranial neoplasms. Symptoms are related to neural compression and may include unilateral facial pain, paresthesia, muscle weakness, and, in advanced cases, dysfunction of adjacent cranial nerves. Diagnosis relies mainly on imaging, with MRI as the gold standard, although definitive confirmation requires histological biopsy. Therapeutic management depends on tumor size and clinical presentation, ranging from observation to surgical resection, the latter being considered the standard approach, aiming at complete removal while preserving neurological function. Prognosis is generally favorable, although postoperative neurological complications may occur in larger or complex tumors.

Final Comments: This case highlights the relevance of early investigation in the presence of persistent neurological signs and the importance of timely access to specialized care. Trigeminal schwannoma, although rare, should be considered in the differential diagnosis of patients with chronic facial pain and sensory deficits.

Cerebrovascular Disease

731 | Case Report: Posterior Medullary Syndrome Associated with Cerebellar Ischemia

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ABSTRACT

Case Report: A 79-year-old female with a history of type 2 diabetes, hypertension, COPD, heart failure, and hypothyroidism was admitted with intractable vomiting. Initially suspected of cholestatic syndrome, imaging revealed ischemic stroke (IS) in the right cerebellar hemisphere with posterior medullary syndrome. Brain CT confirmed recent ischemia, and MRI showed extensive ischemia in the posterior medullary area. The patient was transferred to the ICU, where she stabilized clinically and hemodynamically. Neurological examination revealed cerebellar ataxia and hemiparesis, and she responded positively to physiotherapy and corticosteroids, showing progressive improvement.

Discussion: Posterior medullary syndrome is often linked to demyelinating diseases like neuromyelitis optica (NMO), where the anti-aquaporin-4 antibody targets aquaporin channels in the posterior medullary area, causing intractable vomiting. However, this syndrome can also result from ischemic stroke (IS), especially in cerebellar lesions. The posterior medullary area, located in the brainstem, regulates the vomiting reflex. Lesions here can disinhibit this reflex, leading to persistent vomiting. Although NMO is a known cause, ischemic strokes in cerebellar regions can affect the posterior medullary area, presenting with similar symptoms. This case stresses the need to consider vascular causes in the differential diagnosis of posterior medullary syndrome. Neurological symptoms like ataxia and motor deficits, along with vomiting, should lead clinicians to explore potential acute brain lesions, not just gastrointestinal issues. MRI is vital for accurate diagnosis, as CT may miss subtle brainstem lesions.

Final Comments: This case emphasizes the importance of a thorough differential diagnosis in patients with acute neurological symptoms like intractable vomiting. Early identification of posterior medullary syndrome, whether from demyelinating diseases or ischemic stroke, is crucial for appropriate management. Treatment should be tailored to the underlying cause—immunotherapy in NMO to control inflammation and thrombolysis or endovascular intervention for ischemic stroke. Recognizing the diverse causes of this syndrome ensures timely and accurate treatment. Continued research into its etiology and management will further improve diagnostic accuracy and treatment protocols, ultimately enhancing patient prognosis and quality of life.

054 | Epidemiological patterns of stroke hospitalizations in young adults in Brazil between 2012 and 2024: by sex and region

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ABSTRACT

Objectives: To evaluate the epidemiological profile of hospitalizations for stroke in young adults in Brazil. The study aims to identify possible regional disparities and sex-related differences, scientifically contributing to the development of effective public policies focused on prevention, early diagnosis, and proper management of stroke among young adults.
Methods: Ecological, retrospective, cross-sectional, descriptive study using secondary data from the Hospital Information System (SIH) of DATASUS. Hospitalizations recorded between 2012 and 2024 were included, concerning the age group between 20 and 39 years, classified by ICD-10 codes I61 (Intracerebral hemorrhage), I63 (Cerebral infarction), I64 (Stroke not specified as hemorrhage or infarction), I67 (Other cerebrovascular diseases), and G45 (Transient ischemic attack and related syndromes). The sample was stratified by sex (male and female) and geographic region (North, Northeast, Midwest, Southeast, and South). Quantitative analysis was performed to identify distribution and variations between regions.
Results: Between 2012 and 2024, 171,681 hospitalizations for stroke in young adults were registered, with 88,933 in females and 82,748 in males. The highest concentration of cases occurred in the Southeast (35,938 females and 32,039 males) and Northeast (24,264 females and 23,393 males), followed by the South, Midwest, and North regions, which presented lower numbers, respectively. The data indicate a relatively balanced distribution between sexes, with a slight female predominance, corroborating recent epidemiological data indicating regional variations and sociodemographic profile differences.
Conclusion: Stroke in young adults represents a growing challenge for public health in Brazil, given its significant hospital morbidity and social impact. The geographic distribution of hospitalizations highlights the need for public policies that contemplate regional specificities, including inequalities in access to healthcare. Emphasis is placed on intensifying preventive strategies focused on modifiable risk factors such as hypertension, obesity, and smoking, adapted to the characteristics of the young population. These measures may contribute to reducing the incidence and complications resulting from stroke in this population.

339 | Hospital-Based Inequalities in Stroke Outcomes: Mortality, Costs, and Hospitalization Volume in Rio de Janeiro, 2021–2024

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ABSTRACT

Objectives: To assess the epidemiological profile of hospitalizations for stroke-related treatments in hospitals across the city of Rio de Janeiro, focusing on public emergency and urgent care hospitals from 2021 to 2024.
Methods: A descriptive, retrospective study was conducted using data from patients hospitalized for treatment procedures related to acute ischemic or hemorrhagic stroke in 16 emergency and urgent care hospitals in Rio de Janeiro between 2021 and 2024. Data were extracted from the Hospital Information System of the Brazilian Unified Health System (SIH/SUS) via the DATASUS database. The variables analyzed included the number of hospital admissions, institutional mortality rate, and average hospitalization cost.
Results: Between 2021 and 2024, a total of 15,641 stroke-related hospitalizations were recorded across the 16 hospitals. The highest institutional mortality rates were observed at SMS Hospital Municipal Pedro II (63.27%, average cost R$1,473.45), SMS Hospital Municipal Salgado Filho (30.03%, R$1,472.24), and SMS Hospital Municipal Miguel Couto (29.47%, R$2,077.89), indicating a burden of severe cases and limited resources despite moderate costs. Lower mortality rates were found at SMS Hospital Municipal Francisco da Silva Telles (17.95%, R$865.93), Hospital Universitário Clementino Fraga Filho (15.17%, R$2,163.53), and SES RJ Hospital Estadual Carlos Chagas (12.77%, R$1,068.45). Hospitals with the highest average hospitalization costs included Hospital Geral de Bonsucesso (24.56%, R$2,686.22), Hospital Estadual Getúlio Vargas (20.11%, R$2,281.50), and Hospital Universitário Clementino Fraga Filho (15.17%, R$2,163.53), reflecting the management of more complex cases. Facilities with the largest admission volumes, such as Hospital Estadual Getúlio Vargas (3,223 admissions, 20.11%), Hospital Municipal Albert Schweitzer (1,902, 23.61%), and Hospital Municipal Rocha Faria (1,845, 19.40%), showed intermediate mortality rates, suggesting operational efficiency under high demand.
Conclusion: This study highlights disparities in outcomes for stroke patients in Rio de Janeiro between 2021 and 2024, with differences in mortality, cost, and hospitalization volume among institutions reflecting variations in case complexity and resource availability. Strengthening the stroke care network within SUS is essential to promote equity and improve clinical outcomes.

419 | Hospitalizations for Microsurgery of Anterior and Posterior Cerebral Circulation Aneurysms in Brazil from 2018 to 2024

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ABSTRACT

Objectives: To describe data on hospitalizations for microsurgery to treat anterior and posterior cerebral circulation (ACC) aneurysms, smaller (<) and larger (>) than 1.5 centimeters (cm), in Brazil from the perspective of the Unified Health System (SUS), between 2018 and 2024.
Methods: Ecological study, conducted in September 2025, based on hospitalization data for ACC treatment in the SUS from January 2018 to December 2024. Variables analyzed were hospitalizations, year of admission, length of stay, and deaths. Data were obtained from the SUS Hospital Information System (SIH/SUS) and analyzed using Microsoft Excel. Ethics committee approval was not required, as this study used public data. Limitations include the absence of individual clinical information, such as sex, age group, and comorbidities.
Results: A total of 5,165 procedures were recorded, accounting for 77,861 hospital days (average 15 days/case) and an overall mortality rate

of 13%. In 2018, there were 929 hospitalizations (mean 17.3 days; 12.3% mortality); in 2019, 828 (16.4 days; 12.8%); in 2020, 737 (14.6 days; 14.5%); in 2021, 686 (15.3 days; 15.6%); in 2022, 682 (14.5 days; 10.2%); in 2023, 748 (13 days; 13.3%); and in 2024, 555 (13 days; 12.4%). Among anterior ACC, 2,618 were <1.5 cm (15.4 days; 12.2%) and 1,773 >1.5 cm (14.1 days; 13.3%). Among posterior ACC, 442 were <1.5 cm (16.7 days) and 332 >1.5 cm (15.4 days), both groups with a 15% mortality rate.
Conclusion: Hospitalizations showed a decreasing trend in the absolute number of procedures over the years, along with a slight reduction in average length of stay. The highest mortality rate was observed in 2021 and the lowest in 2022. Of the aneurysms, 85% were located in the anterior circulation, with 59.6% <1.5 cm – the most common, consistent with the literature. The highest lethality occurred in posterior ACC, regardless of size, and the longest average hospital stay was observed among aneurysms <1.5 cm in this location. These findings highlight the complexity of surgical management of ACC within the SUS, emphasizing the need for policies to improve early diagnosis, therapeutic decision-making, and specialized hospital care.

420 | Long-term neurological and systemic outcomes in paroxysmal nocturnal hemoglobinuria: A case report of stroke and hepatic thrombosis

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ABSTRACT

Case Report: A 46-year-old woman, previously healthy, presented with symptoms of nausea, vomiting, abdominal pain and distension. She was hospitalized for 15 days and discharged with a diagnosis of chronic liver disease. A few weeks later, she experienced an episode of sudden vertigo while on the street.Several weeks later, the patient required hospital admission for comprehensive investigation of persistent and functionally disabling vertigo. On neurological examination, the patient was alert, in a wheelchair, unable to stand unaided, with mild right-sided dysmetria, nystagmus, and no motor or sensory deficits. Brain MRI revealed a small area of encephalomalacia in the right cerebellar hemisphere, consistent with a chronic ischemic insult. ECG, Holter monitoring, transthoracic echocardiogram, and cervical CT angiography —were all unremarkable. Concomitantly, the patient presented with abnormal liver function, abdominal distension, jaundice, coagulopathy, and bilateral pleural effusion. Imaging demonstrated hepatomegaly with absent hepatic venous flow, consistent with Budd–Chiari syndrome. Comprehensive etiological investigation, including viral hepatitis panel, autoantibodies, antiphospholipid antibodies, coagulation studies, homocysteine, and factor V Leiden, was negative. A peripheral blood flow cytometry panel was then performed, identifying significant populations of GPI-deficient blood cells, confirming the diagnosis of paroxysmal nocturnal hemoglobinuria (PNH).
Discussion: PNH is a rare multisystemic disorder caused by mutations in hematopoietic stem cells, resulting in the loss of complement inhibitors and leading to intravascular hemolysis, thrombosis, and bone marrow failure. Thrombosis is the leading cause of mortality in PNH, most frequently occurring in the hepatic vein, where it can lead to Budd–Chiari syndrome, but also in the vena cava, portal vein, and cerebral veins. Although less common, cerebral arterial thrombosis is increased in PNH, particularly in younger patients, and may even represent the first clinical manifestation. This case underscores the importance of considering PNH in the differential diagnosis of young stroke patients presenting with anemia, hemoglobinuria and systemic thrombotic manifestations.
Final Comments: The nonspecific presentation of PNH frequently results in diagnostic delays, which negatively affect patient prognosis. Consequently, a high index suspicious for PNH is warranted in young stroke patients presenting with unexplained anemia and thrombosis.

196 | Minocycline Ameliorates Cognitive Impairments Without Modulating Microglial Reactivity in Sporadic Hypercholesterolemia: A Sex-Specific Analysis in Mice

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ABSTRACT

Objectives: Hypercholesterolemia affects approximately 40% of the adult population. This disorder, characterized by high blood cholesterol levels, may have a genetic origin or result from inadequate dietary habits. In addition to its well-known cardiovascular consequences, the condition has been identified as a risk factor for dementia, associated with blood–brain barrier (BBB) dysfunction and microglia-mediated neuroinflammation. In this study, we investigated sex-dependent differences in cognitive deficits, microglial reactivity, and neurovascular alterations in a model of sporadic hypercholesterolemia, as well as the modulatory effects of minocycline.
Methods: Male and female CF-1 mice were fed for eight weeks with either a standard or a high-fat, high-cholesterol diet; during the last four weeks, they received oral minocycline treatment. Male and female CF-1 mice were assessed for metabolic, behavioral, molecular, and cellular parameters linked to hypercholesterolemia. Plasma cholesterol and glucose tolerance (i.p-GTT) were measured, and cognition was tested by open field, novel object recognition, and object location tasks. Hippocampal and cortical proteins (Claudin-5, RAGE) were analyzed by Western blotting, neurovascular integrity by lectin staining, and microglial reactivity/morphology by immunofluorescence and confocal microscopy. Analyses were blinded.
Results: The diet significantly increased plasma cholesterol levels and promoted memory impairments in object recognition and location tests, in addition to reducing claudin-5, lectin-positive cells, and perivascular microglia in the hippocampus. Hypercholesterolemia was also associated with diminished microglial presence in the hippocampal perivascular area. Minocycline treatment attenuated the cognitive deficits, increased claudin-5 levels and lectin-positive cell numbers, and enhanced BBB integrity, although no significant effects of either diet or treatment were observed on classical microglial reactivity parameters. Notably, female mice exhibited greater susceptibility to metabolic and cognitive alterations and showed a more pronounced response to minocycline, suggesting sex-dependent mechanisms in the interplay between hypercholesterolemia, neurovascular dysfunction, and therapeutic efficacy.
Conclusion: Given its anti-inflammatory, neuroprotective profile and good tolerability, minocycline emerges as a promising intervention to prevent or mitigate cognitive impairments associated with hypercholesterolemia.

Movement Disorders

431 | CANVAS: An Important Differential Diagnosis of Cerebellar Ataxia – A Case Report

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ABSTRACT

Case Report: A 60-year-old female, previously healthy, developed imbalance and gait disturbance in November 2022, described as an "intoxicated sensation," progressing to the inability to ride a bicycle. She reported frequent near-falls and began avoiding going out alone. About one year prior, she experienced spontaneous episodic vertigo, and in recent months, episodes of slurred speech. She also reported thigh and knee pain, cold feet, and tremor in the upper limbs. Neurological examination revealed a wide-based ataxic gait, positive Romberg sign, mild postural and kinetic tremor, decreased vibration sense and proprioceptive impairment in the lower limbs, gaze-evoked nystagmus, bilateral positive Head Impulse Test, and signs of length-dependent sensory neuropathy. During hospitalization, complementary tests were performed: brain MRI showed no cerebellar atrophy or relevant abnormalities; electroneuromyography suggested sensory polyneuropathy; cerebrospinal fluid was normal; and a video Head Impulse Test performed prior to admission demonstrated bilateral vestibular deficit. Laboratory investigations for peripheral neuropathies and hereditary ataxias were negative. Based on clinical features and ancillary findings, the diagnostic hypothesis of CANVAS syndrome (Cerebellar Ataxia, Neuropathy, and Vestibular Areflexia Syndrome) was raised, pending genetic confirmation.

Discussion: CANVAS is a rare neurodegenerative disorder defined by the triad of progressive cerebellar ataxia, sensory neuropathy, and vestibular areflexia. It commonly presents with imbalance, gait instability, chronic vertigo, and length-dependent neuropathy, confirmed by vestibular and electrophysiological testing. Diagnosis is challenging, often reached after extensive exclusion of other causes of ataxia and neuropathy. Genetic testing for biallelic AAGGG repeat expansion in the RFC1 gene is considered the diagnostic gold standard.

Final Comments: This case underscores the importance of accurate clinical assessment and systematic workup in hereditary ataxia syndromes. Clinical suspicion of CANVAS should be considered in patients with progressive ataxia associated with peripheral neuropathy and vestibulopathy. Early diagnosis prevents unnecessary investigations and guides appropriate follow-up, highlighting the role of genetic testing for definitive confirmation.

303 | Metachromatic Leukodystrophy: A Key Differential in Neuropsychomotor Development Delay – Case Report

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ABSTRACT

Case Report: A 26-month-old male, previously healthy, was referred for neuropsychomotor development delay (DNPM). The mother reported axial hypertonia, absence of crawling or independent walking. Initially, language development was normal, with babbling at 6 months and functional speech at 12 months. However, at 18 months, regression with frequent falls, dysarthria, and aphasia was observed.At 14 months, an orthopedic evaluation ruled out musculoskeletal disorders. Neurological examination revealed truncal instability, lower limb spasticity, hyperreflexia, bilateral clonus, and ataxic gait with right-sided claudication.Brain MRI showed confluent white matter hyperintensities on T2/FLAIR, consistent with hypomyelination. The enzymatic panel revealed: Arylsulfatase A activity in leukocytes: 1st test = 11 nmol/h/mg; 2nd test = 2 nmol/h/mg (VR: 320–1200) → Confirmatory for MLD.Galactose 6-sulfatase and Beta-galactosidase → Normal levels. The patient was diagnosed with MLD and started on baclofen for spasticity, along with multidisciplinary rehabilitation (physiotherapy, speech therapy, occupational therapy).

Discussion: MLD should be considered a differential diagnosis for neuropsychomotor delay and regression, especially when common causes are excluded. MRI and enzymatic analysis are critical for diagnosis.Currently, no curative treatment exists. However, hematopoietic stem cell transplantation (HSCT) may delay progression in pre-symptomatic or mildly symptomatic patients. Recently, the FDA approved Lenmeldy, a gene therapy modifying hematopoietic stem cells, offering a new therapeutic approach for MLD.

Final Comments: MLD is a progressive neurodegenerative disorder, where early identification enables optimized management and genetic counseling. Neuropsychomotor regression and milestone loss are critical warning signs. With gene therapy and HSCT advancements, early diagnosis is crucial for potential disease-modifying interventions. Vanessa Gil Humberto Dos santos , Amanda Melo Leite Leão, William De Souza Santos, Caroline Grijó e Silva, Frederico Del Duca Frazão, Filipe Luiz Oliveira Bernardes, Priscila de Freias Salles de Azeredo, José Ronyerson dos Santos Evangelista.

Degenerative Diseases

291 | Application of Machine Learning Algorithms in the Analysis of Clinical and Neuroimaging Data for Early Diagnosis of Alzheimer's Disease in Individuals with Initial Symptoms

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ABSTRACT

Objectives: This review aimed to identify the potential of machine learning algorithms in the early detection of Alzheimer's disease.

Methods: This is a scoping review based on articles indexed in PubMed, Scopus, and CAPES Periodicals Portal, using the descriptors "Early Diagnosis", "Alzheimer Disease", and "Machine Learning", combined with the Boolean operator AND. Only studies published within the last year, available in full text, and addressing machine learning in the early diagnosis of Alzheimer's disease as the primary theme, were included. Duplicate articles, articles that dealt with other pathologies, or that didn't focus on machine learning were excluded. In total, 263 articles were found in Scopus, 194 in PubMed, and 187 in CAPES. After screening by titles, abstracts, and full text, 25 articles were selected for final analysis.

Results: In all studies analyzed, machine learning algorithms showed promise in the early detection of Alzheimer's disease, such as in the identification of GFAP and CXCL17 biomarkers, as well as APOE and UBE2N genes, in addition to resources extracted from neuroimaging, including the size of the hippocampus and lateral ventricles. Among the articles reviewed, 9 used neuroimaging (2D, 3D, structural and functional magnetic resonance imaging at rest; electroencephalogram; and

positron emission tomography); 10 used blood biomarkers; 3 cerebrospinal fluid; and 2 combined neuroimaging with blood biomarkers. The best performances were observed with support vector machines, a method that categorizes new data by finding the maximum margin between classes and the optimal hyperplane, and random forest, an ensemble learning model based on the combination of several decision trees, whose predictions are aggregated to form a more robust and accurate model. The studies found that machine learning algorithms have been shown to predict the conversion from mild cognitive impairment to Alzheimer's disease.
Conclusion: Machine learning algorithms demonstrated great potential in the early detection of Alzheimer's disease, offering relevant perspectives for early diagnosis and the development of more effective therapeutic interventions. However, despite the advances, additional studies with larger samples and standardized methodologies are still needed in order to ensure the robustness, reproducibility, and clinical applicability of these models.

421 | Early Biomarkers in the Diagnosis of Alzheimer's Disease: New Horizons

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ABSTRACT

Objectives: Summarize and discuss the emerging biomarkers in the current literature for the early diagnosis of Alzheimer's disease and their importance as less invasive methods, contributing to better prognoses and more efficient treatment during the early stages of the disease.
Methods: This is a systematic review based on articles published in English and Portuguese between 2020 and 2025, found in the PubMed and SciELO Brazil databases, using the descriptors: "early diagnosis," "biomarkers," and "Alzheimer's disease." Each article was evaluated by all authors and selected based on full-text analysis.
Results: Blood-based biomarkers represent a significant advancement in non-invasive methods for the early diagnosis of Alzheimer's disease. Beta-amyloid (Aβ) and phosphorylated tau (p-tau) proteins, as well as neurofilament light chain (NfL), are considered the most promising. Another study also showed that p-tau181 and total tau (t-tau) levels are elevated in the blood even during mild cognitive impairment, with a more pronounced increase in established Alzheimer's disease. The pupillary light reflex has emerged as a potential disease marker, however, reproducible parameters, such as changes in constriction and velocity, need to be better defined. Extracellular vesicles require further research before being validated as reliable biomarkers.
Conclusion: Alzheimer's disease stands as the leading cause of dementia, with its growing impact closely linked to population aging, emphasizing the urgency to establish early diagnostic strategies and effective management. Blood biomarkers, especially p-tau, Aβ, and NfL, emerge as promising, non-invasive methods for early detection of Alzheimer's disease. Nevertheless, potential techniques such as pupillary reflex and extracellular vesicles still require further validation.

292 | Effects of Noninvasive Transcutaneous Vagal Stimulation on Memory and Mild Cognitive Impairment: a Systematic Review

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ABSTRACT

Objectives: To systematically review the efficacy and safety of transcutaneous vagal stimulation in patients with mild cognitive impairment (MCI).
Methods: A systematic review was performed using the Medline and LILACS databases, with filters for English/Spanish articles published in the last 10 years. Studies involving epilepsy, trauma, or stroke were excluded.
Results: In total, three randomized clinical trials (RCTs) were included, which were conducted in China, Belgium and Netherlands. All the included studies analyzed Transcutaneous Auricular Vagal Nerve Stimulation (taVNS). The studies totalized one hundred and fifty five (155) patients. Jacobs et al. (2015) reported improved associative memory in healthy elderly after one taVNS session. Mertens et al. (2020) found no significant improvement in verbal memory. Wang et al. (2022) showed cognitive and functional gains in MCI patients after 24 weeks of twice-daily taVNS. Adverse events were mild and transient in all studies. A single participant with a history of tympanic membrane perforation experienced mild side effects, including toothache, sore throat, and tinnitus. Symptoms resolved within one week after temporarily discontinuing the intervention (Wang et al., 2022).
Conclusion: TaVNS appears to be a safe and potentially effective intervention to improve memory and mitigate MCI. However, more robust studies are required to confirm its efficacy.

452 | O CONHECIMENTO DOS PROFISSIONAIS DE SAÚDE DO RIO DE JANEIRO SOBRE A AFASIA PROGRESSIVA PRIMÁRIA

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ABSTRACT

Objectives: A Afasia Progressiva Primária (APP) é uma doença neurodegenerativa rara e progressiva, caracterizada como uma síndrome demencial que tem na linguagem o comprometimento predominante inicial. Com a evolução do quadro outros domínios cognitivos, comportamentais e motores passam a ser evidenciados. permitindo uma melhor caracterização do fenótipo neurológico subjacente. Apesar do consenso da literatura ainda é um desafio estabelecer as variantes de APP em momentos iniciais da doença, o que motivou este estudo que objetivou mapear o conhecimento de diferentes profissionais de saúde do Rio de Janeiro sobre a APP.

Methods: Foi feito um estudo descritivo, observacional e quantitativo, aprovado pelo Comitê de Ética em Pesquisa do Instituto de Neurologia Deolindo Couto -UFRJ sob parecer 7.149.465. Os participantes incluídos no estudo atuavam no Rio de Janeiro em serviços públicos ou privados em uma das seguintes ocupações: medico (neurologista, psiquiatra e geriatra), neuropsicólogo, fonoaudiólogo, fisioterapeuta e terapeuta ocupacional. Todos responderam a um questionário estruturado, via google forms. Além de dados sócio demográficos, os participantes responderam perguntas relacionadas à APP: conceito, causas, variantes, subtipos, biomarcadores, condições clínicas relacionadas, evolução e tratamento. O recrutamento ocorreu entre outubro de 2024 e março de 2025, via Instagram, Facebook e WhatsApp. Foi feita análise quantitativa de frequência dos resultados.
Results: Foram coletadas 102 respostas: 38 fonoaudiólogos, 28 médicos, 17 fisioterapeutas, 15 psicólogos e 4 terapeutas ocupacionais. O perfil sociodemográfico revelou participantes de 20 a 40 anos, 72,5% do gênero feminino. Médicos e fonoaudiólogos tiveram melhor dominio sobre a APP. A variante semântica foi a mais facilmente identificada. 88%, consideraram a Demência Frontotemporal como a associação de maior prevalência. Em todas as especialidades houve confundimento com a afasia adquirida por lesão cerebral e desconhecimento sobre biomarcadores . 97% apontaram a possibilidade.de intervenção terapêutica e incerteza (27%) no tratamento farmacológico.
Conclusion: A amostra foi heterogênea e pequena na distribuição por especialidades. Apesar de boa familiaridade com o tema ficou clara a necessidade de maior conhecimento e divulgação sobre a especificidade da neuropatologia. O envolvimento direto de médicos e fonoaudiólogos com pacientes com APP, no diagnóstico e tratamento, justifica melhor acurácia destes grupos nas respostas.

312 | Rare Overlap: VAPB-Associated Amyotrophic Lateral Sclerosis and Multiple Sclerosis

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ABSTRACT

Case Report: A 52-year-old woman with hypertension, type 2 diabetes, and anxiety disorder presented in 2019 with progressive proximal weakness in the lower limbs, initially causing difficulty climbing stairs. The weakness gradually progressed to the upper limbs. In 2020, she developed worsening gait with cramps in the lower limbs. By 2021, she required assistance to walk and developed urinary and fecal incontinence. In 2022, neurophysiological studies were consistent with motor neuron disease, and genetic testing confirmed amyotrophic lateral sclerosis (ALS) associated with a VAPB mutation. Magnetic resonance imaging (MRI) of the neuroaxis revealed demyelinating lesions in the corpus callosum, periventricular, subcortical, infratentorial, cervical, and dorsal regions, without gadolinium enhancement. Cerebrospinal fluid analysis showed positive oligoclonal bands, supporting inflammatory activity. In 2023, she experienced marked worsening of weakness, becoming wheelchair-bound. Follow-up MRI showed cervical lesions with gadolinium enhancement, fulfilling current diagnostic criteria for multiple sclerosis (MS). She underwent a five-day course of intravenous methylprednisolone with partial clinical improvement.
Discussion: This case illustrates a rare overlap between ALS due to VAPB mutation and MS, two entities with distinct pathophysiology. ALS is characterized by progressive motor neuron degeneration, while MS involves central nervous system inflammation and demyelination. The presence of enhancing lesions, partial steroid response, and positive oligoclonal bands in CSF strongly supported a concomitant MS diagnosis in a genetically confirmed ALS patient, rather than nonspecific radiological findings. Few cases of coexistence have been reported in the literature, reinforcing its rarity and clinical relevance. This dual diagnosis also creates therapeutic challenges, since immunomodulation is standard in MS, while ALS still lacks effective disease-modifying therapies.
Final Comments: The coexistence of VAPB-related ALS and MS is extremely rare and expands the clinical spectrum of both diseases. This case highlights the importance of considering dual diagnoses when atypical features arise and underscores the need to integrate clinical, genetic, radiological, and laboratory data to guide therapeutic decisions.

298 | Sudden Cognitive Decline in Huntington-like 2 Disease: A Case Report

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ABSTRACT

Case Report: Female, Black, 39 years old, elementary education, developed progressive dysarthria in 2019 at the age of 32, associated with involuntary movements of the neck and proximal trunk. After one year, she began to walk with a "twisted" posture and reduced arm swing, with gradual reduction of the abnormal movements. Her husband reported that during pregnancy in 2021 there was a sudden cognitive decline, with development of difficulty performing all activities of daily living within a few months. There was a family history of similar symptoms in three women. In 2023 she was referred to our hospital, where investigation for the main differential diagnoses was initiated: Huntington Disease (HD), Wilson's disease and atypical parkinsonism, all of which were negative. Due to the possibility that the previously reported movements corresponded to chorea, along with the current presence of lingual dyskinesia observed during consultation and a dementia syndrome, the hypothesis of a HD variant was considered. Genetic testing for JPH3 (specific for HDL-2) returned positive. In 2024, MRI and CT of the brain showed diffuse cerebral atrophy and regional atrophy of the caudate nuclei. The patient evolved with an accelerated cognitive and behavioral decline, presenting episodes of hostility, confusion, and "deep sadness, every day, all the time," without chorea.
Discussion: The diagnosis of HDL-2 is often difficult, mainly due to its clinical resemblance to HD. Dysarthria, neuropsychiatric decline and chorea are symptoms present in both diseases. However, some particular features of the patient, such as African ancestry, dysarthria as the initial symptom and choreiform movements restricted to the neck and shoulders at disease onset, suggest the possibility of HDL-2. The variant presents with more intense psychiatric symptoms as the initial manifestation and a slower progression of motor symptoms, with a less diffuse and less prominent chorea. Accelerated cognitive decline during pregnancy in women with HDL-2 has not yet been reported in the literature, although chorea gravidarum has been described in cases of rheumatic fever or antiphospholipid antibody syndrome.
Final Comments: This report highlights the difficulty in differentiating HD from HDL-2 due to their phenotypic similarities. We emphasize subtle differences in neurological examination and disease evolution in order to draw neurologists' attention to the possibility of HDL-2, thereby shortening the time to genetic diagnosis.

Systemic Diseases

304 | Atypical Korsakoff Syndrome with Gerstmann Syndrome features in a patient with prior ischemic stroke: A case report

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ABSTRACT

Case Report: A 54-year-old male with a history of chronic alcohol use disorder and a prior ischemic stroke was brought to the emergency department following an episode of acute spatial disorientation. According to relatives, the patient had shown insidious and progressive neuropsychiatric decline over the preceding four years, characterized by apathy, social withdrawal, and episodes of confusion and disorientation. Neurological examination revealed severe anterograde amnesia with frequent confabulations, associated with features of Gerstmann syndrome (GS), simultanagnosia, and bilateral pyramidal signs. Infectious, metabolic, and toxic etiologies were excluded. Brain MRI revealed a chronic area of encephalomalacia in the left parieto-occipital region and multiple lacunar infarcts in the basal ganglia. Atrophy of the mammillary bodies and thinning of the corpus callosum were also noted. The combined cognitive-behavioral and focal deficits with these imaging changes supported mixed dementia due to vascular and alcohol-related etiologies within the Korsakoff syndrome (KS) spectrum.
Discussion: This case illustrates the complex overlap of neurocognitive syndromes. The insidious progression of behavioral, executive, and memory dysfunction, compounded by a history of chronic alcohol abuse and cerebrovascular disease, exemplifies the concept of mixed dementia, often more prevalent than single-etiology dementias. Profound amnesia with confabulations and mammillary body atrophy is highly suggestive of KS, particularly with untreated thiamine deficiency. KS is a prototypical example of non-Alzheimer memory impairment, and thiamine replacement is foundational to its management. Recent literature underscores that cerebrovascular disease not only contributes directly to cognitive impairment but also lowers the threshold for clinical expression of neurodegenerative syndromes in the setting of limited brain reserve. Ultimately, the coexistence of alcohol-induced neurotoxicity, strategic vascular lesions, and possibly nutritional deficits likely explains the multifaceted phenotype observed. Early intervention with thiamine in at-risk individuals remains critical, although prognosis in established KS is poor.
Final Comments: The intersection of history and clinical findings, including complete GS and suspected atypical KS, underscores the importance of early thiamine therapy. Prognosis is limited, requiring multidisciplinary follow-up focused on alcohol abstinence, cognitive rehabilitation, and vascular control.

701 | Gamification of clinical reasoning: the Detective game in medical training

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ABSTRACT

Objectives: nly improves clinical skills but also increases student satisfaction;
Objectives: The purpose of this proposal is to present the applicability of gamification, using the game Detective as a teaching resource, to assist in the development of clinical reasoning in medical students.
Methods: The Detective game has been adapted to the medical context, so a serious clinical incident has occurred in a specific medical area. Each student takes on the role of a suspected disease and must "prove their innocence" by collecting clues, analyzing hypotheses, accusing other diseases, and integrating clinical information until the truth is revealed. The dynamics combine competition and cooperation, stimulating the formulation of hypotheses, critical analysis of risk factors, and the integration of multiple specialties;
Results: Based on findings in the literature, the application of this resource will promote the retention of medical knowledge compared to expository methods; stimulate structured clinical reasoning, integrating signs, symptoms, and risk factors; increase student engagement and motivation as the experience becomes more meaningful; and develop collaborative and communication skills among peers;
Conclusion: The adaptation of this game illustrates how gamification can be incorporated into the teaching of clinical reasoning as a complementary resource to the traditional method incorporated into the medical curriculum. Evidence in the current literature supports the positive impact of this approach, reinforcing the role of active methodologies in strengthening contemporary medical education.

Epilepsy

299 | ABDOMINAL EPILEPSY: A LATE DIAGNOSIS AFTER DECADES OF GASTROINTESTINAL SYMPTOMS

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ABSTRACT

Case Report: A 77-year-old woman presented with a long-standing history of paroxysmal nocturnal episodes beginning at age 13, marked by intense abdominal pain and cramping, followed by brief mental confusion or transient loss of consciousness. Episodes resolved spontaneously within minutes and occurred every five to six months. Over several decades, the patient underwent multiple gastrointestinal

investigations, all inconclusive. At age 60, a neurological assessment raised suspicion of abdominal epilepsy. After a subsequent seizure, cranial MRI revealed cortical hypersignal with diffusion restriction in the left opercular region of the frontal lobe. EEG was not available. Phenytoin therapy was initiated, resulting in complete seizure control over the past three years.

Discussion: Abdominal epilepsy (AE) is a rare and often misdiagnosed form of epilepsy in which gastrointestinal symptoms are the predominant clinical manifestation of seizure activity. While more commonly described in pediatric populations, adult cases are increasingly recognized. AE is typically characterized by paroxysmal abdominal pain, nausea, bloating, and sometimes diarrhea, often accompanied by transient confusion, altered consciousness, or other neurological symptoms such as headache, dizziness, or syncope. Its pathophysiology involves abnormal electrical discharges in regions regulating visceral-autonomic function, including the hippocampus, amygdala, rhinencephalon, and parietal cortex (area 5). These discharges can produce gastrointestinal symptoms via dysregulation of autonomic pathways. Diagnosis is primarily clinical, supported by EEG findings—most often with temporal lobe epileptiform activity, though frontal and parietal foci are also reported. MRI may reveal structural abnormalities, but findings are often nonspecific.

Final Comments: This case highlights the diagnostic challenges associated with AE, especially when symptoms are vague and longstanding. It underscores the need to consider neurological causes in chronic abdominal pain when conventional investigations are unrevealing. Early diagnosis and antiepileptic treatment can significantly improve patient outcomes. Abdominal epilepsy should remain in the differential diagnosis of recurrent abdominal symptoms with paroxysmal and neurocognitive features, even in older adults.

320 | Benefits and Risks of Cannabinoid Use in the Treatment of Dravet Syndrome Epilepsy

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ABSTRACT

Objectives: To analyze the benefits and risks of cannabinoid use in the treatment of refractory epilepsy due to Dravet Syndrome.

Methods: A narrative literature review was conducted using PubMed and BVS databases, as well as guidelines from the Brazilian Academy of Neurology. Randomized clinical trials, extension studies, and reviews published between 2015 and 2024 addressing the efficacy and safety of cannabinoids in DS were included.

Results: Clinical trials demonstrate that CBD can significantly reduce seizure occurrence when compared with placebo, although complete remission is rare. In some cases, seizure frequency was reduced by up to 50%. Caregivers reported improvements in the general condition of DS patients. Adverse effects such as somnolence, fatigue, diarrhea, and altered liver function tests were frequent. The effects observed with CBD should not be extended to cannabis-based products containing tetrahydrocannabinol (THC).

Conclusion: The use of cannabidiol in children with drug-resistant epilepsy presents clinically relevant reduction in seizure frequency, representing a promising finding. However, its safety and efficacy still require further confirmation through long-term studies with greater methodological rigor. Therefore, although CBD may play an important role in the treatment of intractable epilepsies, its use should be cautious and limited to specific cases under strict medical supervision.

347 | Evolution of Regional Inequalities in Hospital Access for Epilepsy in Rio de Janeiro (2015–2024)

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ABSTRACT

Objectives: To evaluate regional inequalities in hospital admissions for epilepsy in Rio de Janeiro (2015–2024), according to sociodemographic characteristics and Health Regions, aiming to identify disparities in hospital access.

Methods: This is an ecological study using data from the Department of Informatics of the Brazilian Unified Health System (DATASUS), covering the period from 2015 to 2024. Regional inequalities in hospital admissions for epilepsy (ICD-10: G40) in the state of Rio de Janeiro were analyzed according to sex, age group, race/skin color, and Health Regions. All admissions of state residents, both urgent and elective, recorded during the study period were included. Records of non-resident patients,and those with inconsistent or missing data were excluded.

Results: Between January 2015 and December 2024, 30,024 hospital admissions for epilepsy were recorded in Rio de Janeiro, according to SIH/SUS. A predominance of males (58%) was observed, as well as a bimodal age distribution, with higher concentrations in children aged 1 to 9 years (≈7.7k cases) and elderly individuals over 60 years (≈5.4k cases), while young adults presented intermediate values. Regarding race/skin color, mixed-race individuals accounted for 38%, followed by white (21%) and black (13%), but 26% of records lacked this information, limiting the analysis of ethnic-racial inequalities. Over time, admissions increased until 2019, dropped sharply in 2020 with the COVID-19 pandemic, and stabilized at 280–300 monthly cases between 2022–2024. Regionally, admissions concentrated in Metropolitan Regions I and II, especially Metropolitan I, while areas such as Baía da Ilha Grande and Serrana had much lower numbers, suggesting disparities in access and service use.

Conclusion: Hospital admissions for epilepsy in Rio de Janeiro reveal significant regional and sociodemographic inequalities. Concentration in metropolitan areas indicates greater service availability, contrasting with potential access barriers in peripheral regions. The predominance in children and elderly individuals highlights vulnerable groups requiring specific care strategies.The high proportion of records without race/skin color exposes data weaknesses, limiting deeper assessment of ethnic-racial disparities. These findings underscore the need for policies promoting equity in epilepsy care and strengthening the healthcare network.

306 | Juvenile myoclonic epilepsy (JME): late diagnosis and impact on quality of life.

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ABSTRACT

Case Report: TMS, a 58-year-old female Portuguese teacher, hypertensive and diabetic, sought the Service for a second opinion. She reported episodes of sudden, involuntary "muscle tremors" in her upper limbs, which began around the age of 12. These events occurred most frequently in the morning, and she noted that alcohol and stress intensified their frequency. The episodes were sporadic, without interfering with daily activities, and she required various medical appointments, but without investigation, and the cause was attributed to an emotional component. At the age of 56, she developed intensified tremors and a generalized tonic-clonic seizure. She sought medical care again, where she underwent a brain MRI, laboratory tests, and a routine EEG, the results of which were normal. She was prescribed carbamazepine 400mg/day, without seizure control. Upon admission to the Service, she presented with limitations in social and occupational activities, in addition to cognitive complaints. She reported needing to reread a text several times to retain information, skipping certain words in her speech, and memory lapses. The neurological examination was normal. A prolonged EEG was requested, revealing irregular slow-wave bursts of 5-7Hz, with a spike-wave outline in the temporal and posterior regions bilaterally. Carbamazepine was weaned and valproic acid was initiated, achieving seizure control with 750mg/day. A neuropsychological evaluation revealed mild impairment in phonemic fluency, which may be related to the described sensation of certain words escaping during speech. Annual neuropsychological reevaluation is recommended.
Discussion: JME is an idiopathic generalized epilepsy that, despite being described over a century ago, is underdiagnosed. TMS was diagnosed 46 years after symptom onset. Characterized by onset around puberty and myoclonic jerks, with or without tonic-clonic and/or absence seizures, can be precipitated by sleep deprivation, alcohol, and stress. The EEG pattern is represented by spike-wave complexes, with a frequency above 3Hz, generalized and symmetrical. A normal routine EEG does not exclude the diagnosis. Although there are other therapeutic options, valproic acid continues to be recommended as monotherapy. Carbamazepine may increase myoclonus. Patients with JME tend to have impaired cognitive functions.
Final Comments: Knowledge of the clinical, electroencephalographic and therapeutic characteristics prevents errors and late diagnoses.

505 | Juvenile Myoclonic Epilepsy: Diagnostic and Therapeutic Impact on Adolescence

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ABSTRACT

Case Report: A 14-year-old female, presented with a one-year history of involuntary, abrupt myoclonic jerks in her arms, mainly in the morning and triggered by daily tasks, worsened by stress, light stimuli, and sleep deprivation. She also reported two absence seizures and one generalized tonic-clonic seizure, leading to medical evaluation. Initially treated with carbamazepine by a primary care physician, her myoclonic jerks worsened. Neurological assessment (history, examination, and EEG) established the diagnosis of Juvenile Myoclonic Epilepsy (JME). Carbamazepine was discontinued and Levetiracetam introduced, with clinical improvement. She is currently stable and seizure-free on Levetiracetam 1500 mg/day, reporting no cognitive or intellectual deficits. EEG: posterior alpha rhythm (8–9 Hz), with generalized 4–6 Hz spike-wave complexes activated by photic stimulation and hyperventilation. Brain MRI: unremarkable.
Discussion: JME requires special attention because it arises during adolescence, a period of psychosocial vulnerability. Lifestyle factors such as sleep deprivation, strobe light exposure, alcohol consumption, stress, and poor adherence to antiseizure medication (ASM) increase seizure risk. Depression is more prevalent, often related to the unpredictability of seizures and resulting negative self-perception. Careful history-taking is crucial, as myoclonic seizures are frequently overlooked, delaying diagnosis. Typically, the first generalized tonic–clonic seizure prompts evaluation, but identifying precipitating factors for myoclonus is essential. EEG may be normal and should be repeated after sleep deprivation, as emphasized by Janz and Christian (1957). Misdiagnosis or delay contributes to underrecognition and postpones effective treatment. ASM choice is critical: carbamazepine, oxcarbazepine, and phenytoin may worsen myoclonus, while valproate, although effective, should be avoided in females due to teratogenicity. Patient and family counseling on trigger avoidance and adherence is fundamental. Adjunctive measures such as psychotherapy, exercise, and yoga may reduce stress, anxiety, and depression, supporting treatment success.
Final Comments: Early recognition of JME is essential to avoid misdiagnosis, treatment delay, and inappropriate drug use that may worsen seizures. Comprehensive evaluation, individualized ASM selection, and counseling on lifestyle modifications are key to long-term seizure control and quality of life.

Inflammation and Infection

691 | Diagnostic challenges of longitudinally extensive transverse myelitis: two case reports of unusual etiology

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ABSTRACT

Case Report: Case 1: A 43-year-old man presented with subacute ascending paresthesia and hypoesthesia. After one month, symptoms worsened, with lower limb paresis and urinary/fecal retention. He was diagnosed with a herniated disc and received intramuscular corticosteroids, followed by rapid progression to severe tetraparesis. Hospitalized for investigation, MRI revealed longitudinally extensive transverse myelitis from C1 to C7. Despite suspicion of inflammatory myelitis, lab tests were negative for inflammatory or infectious causes. Vascular etiology was considered, and spinal arteriography revealed a dural arteriovenous fistula at the bulbocervical junction. Case 2: A 68-year-old man developed subacute paraparesis with paresthesia and a sensory level up to the umbilicus over two weeks. Initially diagnosed with compressive radiculopathy, he was treated with intramuscular corticosteroids and nonsteroidal anti-inflammatory drugs. His condition significantly worsened, progressing to paraplegia and infraumbilical

anesthesia (tactile and painful). MRI showed a longitudinally extensive T2 hyperintensity from D6 to the epiconus, sparing the conus medullaris. Immune and infectious investigations were negative. Arteriography revealed a dural arteriovenous fistula at D12.
Discussion: Dural arteriovenous fistula (AVF) is a vascular malformation involving abnormal connections between meningeal arteries and dural or subarachnoid veins. It can occur in intracranial or spinal locations, more frequently in the thoracic and lumbar spinal cord. The pathophysiology mechanism involves spinal venous hypertension and congestion, leading to edema and progressive ischemia. On imaging, it typically presents as a high hyperintense signal in T2/FLAIR sequences and represents an important differential diagnosis for longitudinal extensive myelitis.
Final Comments: These cases underscore the diagnostic challenge of longitudinally extensive myelitis and highlight spinal dural arteriovenous fistula as an important, often overlooked etiology. A key diagnostic clue was clinical deterioration following corticosteroid therapy—a classic feature that should raise suspicion for this vascular condition.

570 | Epidemiological Characteristics of Confirmed Cases of Meningitis by Seroroup in the State of Rio de Janeiro during the period from 2019 to 2024

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ABSTRACT

Objectives: This study aims to evaluate the epidemiological characteristics of confirmed cases of meningitis in the state of Rio de Janeiro between 2019 and 2024, with a focus on the occurrence of each subtype of the disease and on case outcomes.
Methods: This is a descriptive, quantitative, and temporal study, based on data obtained from the Sistema de Doenças e Agravos de Notificação (SINAN), available in the Departamento de Dados do SUS (DATASUS), referring to confirmed cases of meningitis in Rio de Janeiro state from 2019 to 2024. The variables analyzed were: year of symptom onset, serogroup, clinical outcome, and number of confirmed cases.The information collected was organized and subjected to descriptive statistical analysis.
Results: Between 2019 and 2024, a total of 4188 cases of meningitis were confirmed in the state. In 2019, 1022 cases were confirmed: 974 with unidentified serogroup, 23 serogroup B, 22 serogroup C, 2 serogroup Y, and 1 serogroup W135. In 2020, 382 cases were confirmed: 364 with unidentified serogroup, 7 serogroup B, 9 serogroup C, 1 serogroup Y, and 1 serogroup W135. In 2021, 473 cases were confirmed: 460 with undefined serogroup, 5 serogroup B, 7 serogroup C, and 1 serogroup Y. In 2022, 887 cases were confirmed: 866 with unidentified serogroup, 6 serogroup B, 13 serogroup C, and 2 serogroup Y. In 2023, 1,022 cases were confirmed: 985 with undefined serogroup, 10 serogroup B, 25 serogroup C, and 2 serogroup Y. In 2024, 369 cases were confirmed: 359 with unidentified serogroup, 2 serogroup B, 5 serogroup C, 1 serogroup Y, and 2 serogroup W135. Among the 4,040 cases without an identified serogroup, 2,865 evolved to hospital discharge and 670 evolved to death due to meningitis. Among the 53 confirmed cases of serogroup B, 41 evolved to discharge and 12 to death. Among the 82 confirmed cases of serogroup C, 60 evolved to discharge and 21 to death. Of the 9 confirmed cases of serogroup Y, 7 evolved to discharge and 1 to death. All 4 confirmed cases of serogroup W135 evolved to death. Excluding deaths unrelated to meningitis and cases with unknown outcomes, mortality rates were: 16.58% for undefined serogroup, 22.64% for serogroup B, 25% for serogroup C, 11.23% for serogroup Y, and 100% for serogroup W135.
Conclusion: The results reinforce and emphasize the importance of public health policies that promote prevention, early diagnosis and adequate management of meningitis cases, in order to reduce disease incidence and mortality.

660 | Epidemiological Profile of Confirmed Meningitis Cases in the State of Rio de Janeiro, Brazil (2020–2024)

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ABSTRACT

Objectives: This study aims to describe the epidemiological characteristics of confirmed meningitis cases recorded in the Brazilian Unified Health System (SUS) between the years 2020 and 2024, in the state of Rio de Janeiro (RJ).
Methods: This is a descriptive, retrospective study with a quantitative approach. The data source was the Department of Informatics of the Unified Health System (DATASUS), accessed through the TABNET platform. Records of confirmed meningitis cases reported in the Notifiable Diseases Information System (SINAN), based on the definitions of the Epidemiological Surveillance System of the Ministry of Health, were extracted for the state of Rio de Janeiro between 2020 and 2024. Variables analyzed included the year of symptom onset, race, sex, death, and age group—from under 1 year old to 80 years or older.
Results: Between 2020 and 2024, a total of 3,133 confirmed cases of meningitis were recorded in Rio de Janeiro. Temporal analysis showed 382 cases in 2020, with a progressive increase until 2023—the year with the highest number of cases (1,022). In 2024, a sharp decline was observed, totaling 369 cases. In terms of age distribution, the highest concentration of cases was among individuals aged 20 to 39 years (20.5%; 643 cases), followed by those aged 40 to 59 years (18.9%; 592 cases). A predominance of cases was found among males, with 1,283 cases (57.2%), while females accounted for 958 cases (42.7%). Regarding race/skin color, most cases occurred in individuals who self-identified as mixed-race ("pardo"), representing 1,007 cases (44.9%), followed by white individuals with 937 cases (41.8%) and black individuals with 284 cases (11.0%). Other categories presented lower frequencies. The number of deaths due to meningitis peaked in 2023, with 169 deaths (32% of total deaths), followed by a significant drop in 2024, with 50 deaths (9.5% of cases that year).
Conclusion: The data analyzed revealed that meningitis occurred more frequently among the adult population in the state of Rio de Janeiro from 2020 to 2024, with a higher incidence among males. The peak in notifications and deaths was observed in 2023, followed by a notable decline in 2024. These findings underscore the importance of maintaining an active and targeted surveillance system, which is essential to support effective disease prevention and management strategies.

322 | Epidemiological Study of Viral Meningitis in the municipality of Volta Redonda from 2014 to 2024

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ABSTRACT

Objectives: Thus, the study aims to describe and discuss, using data from the scientific literature, the rates of viral meningitis (VM) in the municipality of Volta Redonda, Rio de Janeiro State, from 2014 to 2024.
Methods: This is a descriptive observational epidemiological study based on registered VM cases available in the DATASUS public database, with information from the Notifiable Diseases Information System (SINAN). The meningitis rate for the Brazilian Macroregions, the State of Rio de Janeiro, and the municipality of Volta Redonda was used. Filters were applied to identify etiologies, with VM being the most prevalent. Specific filters were applied for VM in relation to age, sex, and race. Tables and graphs were prepared from this collection.
Results: A higher prevalence of VM was observed in the Brazilian Macroregions, mainly in the Southeast, and also in the State of Rio de Janeiro. In Volta Redonda, the prevalence of viral meningitis (VM) peaked in 2019, declined in 2021, and rose again between 2022 and 2024, though it has remained lower than meningococcal meningitis (MNE) in recent years. VM was more prevalent in the 1-4 and 20-39 age groups, among males, and among white people. A decrease in all etiologies was also observed by 2024.
Conclusion: In Volta Redonda, the prevalence of viral meningitis (VM) fluctuated between 2014 and 2024, ultimately falling below that of meningococcal meningitis (MNE) in 2024. There was a generalized decrease in all etiologies in 2024, suggesting greater control of neuropathology in Volta Redonda.

541 | HHV-7 ENCEPHALITIS WITH ACUTE LESION OF THE EIGHTH CRANIAL NERVE IN AN IMMUNOCOMPETENT PATIENT: NINTH CASE REPORT IN WORLD LITERATURE

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ABSTRACT

Case Report: This study aims to describe a case of infectious encephalitis (IE) caused by Human Herpesvirus 7 (HHV-7) in an immunocompetent patient treated at a hospital in the city of Rio de Janeiro. A 43-year-old woman, native of Rio de Janeiro, reported progressive right-sided hemicranial headache associated with fatigue, chills, conjunctival hyperemia, and photophobia. She sought emergency care, was discharged, and in the following days continued to experience headache unresponsive to oral analgesics, along with right-sided hearing loss, tinnitus, vertigo, painful labial and oropharyngeal vesicles, and a brief episode of syncope with rapid recovery and no sphincter release. On physical examination: vesicular lesions on lips and oropharynx, photophobia with conjunctival hyperemia, and bilateral positive Lasègue sign on passive extension. Cranial CT scan was unchanged. Laboratory tests showed elevated serum C-reactive protein. Lumbar puncture was requested with routine analysis, culture, Gram stain, and polymerase chain reaction (PCR) for Herpesvirus, as well as contrast-enhanced MRI of the brain, paranasal sinuses, and mastoid, and a rheumatologic panel. CSF appeared slightly cloudy, with 123 leukocytes/mm³ (72% lymphocytes), 2 red blood cells/mm³, total protein of 67 mg/dL, glucose of 26 mg/dL, and lactate of 29 mg/dL. Cultures were negative for bacteria and fungi, and HHV-7 was detected by PCR. MRI findings suggested possible encephalitis and signs of inflammatory or infectious process involving the right eighth cranial nerve. Rheumatologic panel showed no abnormalities. After treatment, the patient showed clinical and laboratory improvement and was discharged. Cases of HHV-7 IE in immunocompetent individuals are rarely reported, and according to our review, this is the ninth case described.
Discussion: IE is a manifestation of central nervous system infection. The most common cause is viral, with high morbidity and mortality, and its incidence may vary with climate changes. This case highlights the importance of considering Herpesvirus as a cause of IE, even in immunocompetent individuals.
Final Comments: According to our reference laboratory for HHV-7 molecular identification in the state of Rio de Janeiro, the virus was detected in 8 patients (36.3%) in 2021, none in 2022, 6 (27.2%) in 2023, 7 (31.8%) in 2024, and 1 patient (4.5%) up to March 2025. Thanks to molecular biology, the identification of HHV-7 in IE cases has increased.

319 | Idiopathic Inflammatory Lesion of the Cavernous Sinus: A Case Report

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ABSTRACT

Case Report: A 28-year-old woman, previously healthy, presented with acute partial ptosis of the right eye and blurred vision. Initial treatment with systemic corticosteroids (prednisone 60 mg for 2 days followed by 40 mg for 4 days) led to complete resolution of symptoms within 48 hours. Symptoms recurred three days after discontinuation. She reported pulsatile pain in the right orbit and pain on eye movement, denying fever, weight loss, fatigue, weakness, nausea, vomiting, or headache. On examination, the left pupil was reactive to light, while the right pupil was midriatic with minimal direct photomotor response. Right oculomotor palsy, right proptosis, and hypoesthesia in the V1 territory of the trigeminal nerve were noted. Fundoscopy revealed no papilledema. Brain MRI revealed prominence of the right cavernous sinus with a fusiform T2/STIR hyperintense tissue extending to the ipsilateral orbital apex, involving the optic nerve and causing mild proptosis. Asymmetric enhancement extended to the right Meckel's cave and infratemporal fossa. Lacrimal glands and orbital extraocular muscles were normal. Findings suggested either an inflammatory process (e.g., idiopathic orbital pseudotumor, sarcoidosis) or a lymphoproliferative disorder. CSF analysis showed opening pressure 14 cmH2O, protein 33 mg/dL, glucose 57 mg/dL, lactate 12 mg/dL, and 3 lymphocytes/field. Whole-body scintigraphy and CT scan showed no abnormal uptake or lymphadenopathy. IgG4 levels were within normal limits.
Discussion: Differential diagnoses of cavernous sinus lesions include primary lymphoma, sarcoidosis, IgG4-related disease, infectious processes, and idiopathic inflammatory pseudotumor. In this case, the lesion's inflammatory appearance, unilateral involvement, steroid responsiveness, and absence of systemic disease supported an idiopathic inflammatory etiology. Biopsy is mandatory for diagnosis, but was not performed due to the lesion's location and procedure risk, which led the patient to decline the procedure.Sarcoidosis and IgG4 disease were considered but less likely given normal systemic evaluation and laboratory markers.
Final Comments: This case highlights a rare cause of painful ophthalmoplegia secondary to an isolated cavernous sinus inflammatory lesion. Corticosteroid responsiveness may allow for

conservative management in selected patients, especially when biopsy is not possible. The patient remained stable without long-term immunosuppressive therapy and experienced spontaneous improvement over several weeks.

669 | Lemierre's Syndrome Presenting with Central Venous Thrombosis: A Challenging Case Report

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ABSTRACT

Case Report: A female patient was admitted to the intensive care unit with occipital headache for five days, low-grade fever, and tachycardia, initially managed as sepsis of undetermined source. Due to gallbladder distension and wall thickening, an abdominal focus was suspected, and she underwent cholecystectomy without immediate complications. During hospitalization, she developed severe refractory arterial hypertension, requiring high-dose vasodilators, as well as a seizure, which prompted transfer to the neuro-intensive care unit. Contrast-enhanced chest CT revealed pulmonary thromboembolism and multiple cavitated nodules consistent with septic emboli. She progressed to severe acute respiratory failure, requiring orotracheal intubation. Cranial venous CT angiography demonstrated extensive thrombosis of the right internal jugular vein and occlusion of the jugular bulb by infected thrombus. The patient persisted with headache, vomiting, and hallucinations, and was later found to have sigmoid sinus thrombosis as an extension of jugular thrombosis. Given the suspicion of septic endocarditis as an embolic source, a transesophageal echocardiogram was performed, which ruled out this hypothesis and reinforced the diagnosis of septic jugular vein thrombophlebitis with embolization. Blood cultures collected before the initiation of antibiotic therapy grew Streptococcus oralis. Dental evaluation revealed retained root fragments in the maxilla, representing a likely odontogenic infectious focus, which was later treated surgically. The patient received broad-spectrum antibiotic therapy and full anticoagulation, with favorable clinical evolution, improved headache, and discharge from the ICU without neurological deficits.
Discussion: Lemierre's syndrome is septic thrombophlebitis of the internal jugular vein, often followed by pulmonary emboli and severe neurological complications. Classically linked to pharyngo-tonsillitis by Fusobacterium necrophorum, this case shows an odontogenic origin by Streptococcus oralis, with multisystemic involvement of respiratory, neurological, and vascular systems. Diagnosis relied on serial imaging, microbiology, and thorough dental evaluation. Management with prolonged antibiotics, anticoagulation, and focus eradication sustained recovery.
Final Comments: This case highlights a rare odontogenic subtype with neurological involvement. Clinical awareness is crucial when septic emboli or venous thrombosis accompany infection, enabling early diagnosis and targeted treatment.

540 | Optic Neuritis caused by Cryptococcus Neoformans in an Immunocompetent Patient: a Case Report

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ABSTRACT

Case Report: Female, 45 years old, white, with endometriosis. The patient sought care at the Neurology outpatient clinic of the Central Hospital of the Air Force in September 2023, complaining of a loss of visual acuity in the bitemporal region that began two years prior without an etiological definition. She already had an optical coherence tomography showing temporal chorioretinal atrophy in both eyes. A skull and orbit MRI was requested, which revealed thickening and tortuosity of the left optic nerve suggesting neuritis, in addition to downward displacement of the sellar floor. A subsequent MRI of the sella turcica showed a pituitary macroadenoma, with a normal stalk, and an unchanged optic chiasm and cavernous sinus. Laboratory tests showed no rheumatological or hormonal changes; rapid tests for HIV and VDRL were negative. The investigation was complemented with a cerebrospinal fluid (CSF) analysis, which showed an absence of intrathecal light chain synthesis, 33 leukocytes per mm³ (with 86% lymphocytes), protein of 46 mg/dL, glucose of 49 mg/dL, a positive latex test for Cryptococcus neoformans (1/64), and a fungal culture with growth of the same pathogen. Given the MRI findings and a CSF positive for Cryptococcus neoformans, a diagnosis of optic neuritis caused by Cryptococcus neoformans was made. The patient was hospitalized in March 2024 to start treatment with intravenous antifungals (amphotericin B deoxycholate combined with flucytosine), with subsequent outpatient follow-up using fluconazol.
Discussion: The report describes a rare case of chronic optic neuritis caused by Cryptococcus neoformans in an immunocompetent patient, with no signs of encephalitis or meningitis. This case highlights the need to include central nervous system infections, even fungal and atypical ones, in the differential etiological diagnosis of neuritis. The CSF analysis was pivotal for the correct diagnosis and for guiding the appropriate treatment.
Final Comments: Optic neuritis caused by Cryptococcus neoformans is a rare condition and is highly unlikely in an immunocompetent patient without manifestations of fungal meningoencephalitis. Healthcare professionals should be attentive to this diagnosis.

536 | Technological advances and application of rapid and automated tests using the multiplex PCR methodology to aid in the diagnosis of nosocomial meningitis in the state of Rio de Janeiro

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ABSTRACT

Objectives: Infectious meningitis/encephalitis (ME) are pathological conditions associated with high morbidity and mortality rates, for which cerebrospinal fluid (CSF) examination is essential for diagnosis. However, conventional CSF tests are not rapid (cultures) and often have low sensitivity. These limitations are being overcome through the development of molecular tests for the simultaneous detection of infectious agents. To evaluate the clinical utility of the HS12 and Filmarray platforms for the simultaneous detection of nosocomial pathogens in CSF.
Methods: Sample selection was performed consecutively from 2019 to 2025. CSF samples were collected and sent to the Neurolife Laboratory immediately after lumbar puncture for diagnostic investigation. CSF was analyzed using conventional and molecular tests. Panel screening was performed based on clinical indications, epidemiology, and patient history.

Results: 1,241 CSF samples were analyzed. The Xgen SEPSIS Panel (HS12) detected 15 different pathogens in 117 CSF samples. The BCID Panel (Filmarray), specific for nosocomial infectious agents, detected 14 different pathogens in 51 CSF samples. Furthermore, these panels also evaluated resistance genes (RG), with 23 samples identified with RG, the most common being mecA and KPC. The pathogens and RG detected through the panels showed good agreement with the patients clinical suspicion and other findings in the CSF examination, especially culture and antimicrobial susceptibility testing.
Conclusion: the use of rapid multiplex PCR tests in CSF allowed the rapid and accurate diagnosis of the etiological agent in nosocomial meningitis, as well as predicting phenotypic resistance through the detection of RG, even before bacterial growth, possibly contributing to the early initiation of appropriate treatment and de-escalation of antibiotics.

366 | Trends in Hospitalizations for Bacterial Meningitis and Vaccine Coverage in Brazil: A Temporal Analysis (2012–2022)

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ABSTRACT

Objectives: To analyze the evolution of coverage for the meningococcal C, pentavalent, and conjugate pneumococcal (PCV-10) vaccines, as well as hospitalizations due to bacterial meningitis (BM) in Brazil between 2012 and 2022, evaluating regional differences and variations across the pre-pandemic (2012–2019), pandemic (2020), and post-pandemic (2021–2022) periods. The study aims to understand a possible relationship between childhood vaccine coverage and the number of hospitalizations for bacterial meningitis, identifying regions with higher vulnerability and potential impacts of the COVID-19 pandemic and vaccine hesitancy on the protection of children under five years of age.
Methods: This is an ecological, retrospective, cross-sectional, descriptive study using secondary data from DATASUS. Vaccine coverage indicators for meningococcal C, pentavalent, and PCV-10 were extracted from the National Immunization Program Information System (SI-PNI). Hospitalization records for viral meningitis (ICD-10 A87), bacterial meningitis not classified elsewhere (G00), and meningococcal infection (A39) were obtained from the Hospital Information System (SIH) for children under five years old. Data were stratified by year of hospitalization, geographic region, and type of meningitis.
Results: Between 2012 and 2022, there were 8,129 hospitalizations for bacterial meningitis not classified elsewhere, 4,206 for meningococcal infection, and 10,325 for viral meningitis in children under five years old. Hospitalizations for G00 increased from 2012 to 2019, and for A87 from 2016 to 2019, with the Southeast region accounting for approximately 50% of deaths due to G00 and A39 during this period. Between 2020 and 2021, a reduction in the number of cases was observed across the analyzed meningitis categories. Childhood vaccine coverage for meningococcal C, pentavalent, and PCV-10 declined from 2012 to 2021, with a slight recovery in 2022.
Conclusion: Hospitalizations for G00 and A87 increased until 2019, in parallel with the reduction in childhood vaccine coverage for pentavalent and PCV-10 vaccines. During the pandemic, cases and vaccination rates declined, possibly related to vaccine hesitancy and underreporting. The study highlights the importance of epidemiological surveillance, particularly regarding the need for strategies to reinforce childhood immunization. Maintaining vaccination is crucial to prevent the resurgence of severe cases in children under five years old.

247 | Tuberculous Meningoencephalitis in a Patient with Atopic Dermatitis on Dupilumab treatment

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ABSTRACT

Case Report: A 19-year-old male with atopic dermatitis, diagnosed at age six, underwent multiple treatments with poor response, including corticosteroids. Dupilumab was started in February 2024. In January 2025, he presented a frontal headache lasting two weeks, with no response to analgesics use, visual blurring, tremor, weakness, postural instability and vomiting. He was alert, oriented, with normal limb strength, reactive isochoric pupils, and no cranial nerve deficits. Laboratory tests and cranial CT were unremarkable. Empirical ceftriaxone and acyclovir were initiated. Cerebrospinal fluid analysis revealed opening pressure of 27 mmHg, 490 leukocytes (47% lymphocytes), protein 112 mg/dL, glucose 38 mg/dL, lactate 26 mg/dL, negative Gram stain, fungal studies, acid-fast bacilli, and viral PCR. He progressed with fever, decreased consciousness, and nystagmus. Brain MRI revealed multiple small leptomeningeal nodules, mainly in the left middle cranial fossa, suggestive of leptomeningitis. A T2/FLAIR hyperintense area was associated with broader leptomeningeal enhancement, indicating edema. Chest CT showed an elongated hypodense lesion in the middle lobe and nodular opacities in right paratracheal and hilar regions, suggesting necrotic lymph node conglomerates. He developed disorientation, fluent receptive aphasia, and inattention. EEG showed left temporoparietal interictal discharges and one focal seizure with secondary generalization. Levetiracetam was adjusted, and oxcarbazepine 900 mg twice daily was added, resolving EEG changes. Bronchoalveolar lavage was positive for Mycobacterium tuberculosis. Treatment with rifampin, isoniazid, pyrazinamide, and ethambutol was initiated for disseminated tuberculosis. He improved progressively and was discharged without neurological deficits.
Discussion: Dupilumab is a monoclonal antibody that blocks interleukins 4 and 13 pathways involved in atopic dermatitis. It is considered safe, with reported adverse events including local reactions, ocular symptoms, and herpes simplex infection. Tuberculosis infection or reactivation are associated with anti-TNF agents. Only one similar case was found in the literature, involving a patient on dupilumab who developed tuberculous lymphadenitis.
Final Comments: This case raises concerns about the use of immunobiological agents in endemic areas. Although no direct association with dupilumab has been established, screening for latent tuberculosis is essential before initiating therapy.

Myopathies and Neuropathies

308 | Case Report: Emery-Dreifuss Phenotype and a Variant of Uncertain Significance in the LMNA Gene in an Adolescent

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ABSTRACT

Case Report: A 13-year-old male presented with a history of altered gait (waddling gait) since age 4, progressing to proximal limb weakness and post-exertional pain. Paternal family history was highly suggestive of muscular dystrophy. Examination revealed scapular and pelvic girdle atrophy, contractures of the Achilles (worse on the right) and bilateral biceps tendons, and toe-walking. Global muscle strength was MRC grade 4. Investigation identified a heterozygous VUS in the LMNA gene (c.1115A>G; p.Glu372Gly). Serial cardiac exams (ECG, echocardiogram) were normal, while creatine kinase (CK) levels were consistently elevated (237-320 U/L) and Vitamin B12 levels were reduced (194 pg/ml). EMG was inconclusive. The patient remained with stable strength with multidisciplinary management: orthopedic follow-up for contractures, Vitamin B12 supplementation, physical therapy, and escitalopram for associated depression.

Discussion: This case highlights the diagnostic challenge of a VUS. The clinical phenotype (contractures, weakness pattern, family history) is highly suggestive of laminopathy, strongly supporting the variant's pathogenicity. The absence of cardiomyopathy is a favorable yet typical early finding, mandating continuous annual cardiac surveillance. The concomitant Vitamin B12 deficiency is a potentially treatable contributor to symptoms.

Final Comments: This report reinforces the genotype-phenotype correlation in laminopathies, suggesting the p.Glu372Gly VUS may be the etiology. It underscores the critical need for serial cardiac follow-up and a multidisciplinary approach to manage this condition's musculoskeletal and systemic complications.

679 | Chronic inflammatory demyelinating polyneuropathy with atypical progression and azathioprine-induced hepatic complications: a case report

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ABSTRACT

Case Report: A 70-year-old male with a 14-year history of chronic inflammatory demyelinating polyneuropathy (CIDP) had been on maintenance therapy with azathioprine and prednisone for two years. A few weeks after increasing azathioprine from 50 to 100 mg/day (May 2025), he developed acute abdominal pain, nausea, vomiting, jaundice, and dark urine. Azathioprine was discontinued at admission. Labs showed marked cholestatic injury: total bilirubin 38 mg/dL (direct 29), ALT 498 U/L, AST 247 U/L, alkaline phosphatase 1155 U/L, and GGT 2881 U/L. MRCP revealed no biliary abnormalities. Autoimmune markers were negative. Over the following weeks, clinical and biochemical recovery occurred with progressive normalization of liver tests. Given the timing of dose escalation and exclusion of other etiologies, the liver injury was attributed to azathioprine-induced hepatotoxicity.

Discussion: This case illustrates a typical presentation of azathioprine-induced cholestatic liver injury, triggered shortly after dose escalation in a patient under long-term therapy for CIDP. The temporal relationship, biochemical profile, exclusion of competing diagnoses, and resolution after drug withdrawal strongly support causality. Azathioprine hepatotoxicity generally arises in the first months of therapy or following dose adjustments, with cholestatic or mixed patterns, as observed here. Histological confirmation is often unnecessary when imaging rules out obstruction and autoantibodies are negative. Most cases follow a self-limited course, though rare progression to vanishing bile duct syndrome has been described. In this case, complete recovery excluded chronic evolution.

Final Comments: This report highlights the importance of close monitoring after azathioprine dose changes and of educating patients to recognize early signs of liver injury. In those requiring long-term immunosuppression, alternative steroid-sparing agents should be considered if hepatotoxicity develops.

313 | Congenital myopathy associated with MYBPC1 gene mutation and myogenic tremor: case report

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ABSTRACT

Case Report: A 13-year-old male, son of non-consanguineous parents, without relevant family history, presented at birth with myogenic tremors of the jaw and limbs, axial hypotonia, and cleft palate. He developed feeding difficulties, requiring gastrostomy until the age of 2. Neuropsychomotor development was delayed: he walked at 16 months, climbed stairs at 3 years, and spoke his first words at 3 years. During follow-up, tremors improved with clonazepam. Complementary exams showed normal serum creatine kinase levels, electromyography with a myopathic pattern, normal brain MRI, mild spinal lordosis, and normal electrocardiography. Genetic testing confirmed a diagnosis of congenital myopathy associated with MYBPC1 mutation. The most recent transthoracic echocardiogram (27/05/2025) revealed a left ventricular mass measuring 1.6 × 1.4 mm near the subvalvular mitral tissue, with preserved ejection fraction (75%) and no hemodynamic repercussion, currently under investigation.

Discussion: This case corroborates previous descriptions of MYBPC1 mutations, associated with neonatal hypotonia, characteristic myogenic tremor, and delayed motor milestones. Partial improvement with benzodiazepines and a globally stable course are consistent with recent reports. The association with cleft palate broadens the phenotypic spectrum already recognized. The incidental finding of a small left ventricular mass, not previously reported in this context, highlights the importance of multidisciplinary follow-up, including genetics, neurology, cardiology, and rehabilitation.

Final Comments: Congenital myopathy due to MYBPC1 mutation should be considered in the differential diagnosis of infants with hypotonia and early tremor. Early genetic confirmation allows appropriate therapeutic and prognostic strategies. This case reinforces the clinical variability of the disease and the importance of genetic testing in rare neuromuscular disorders.

301 | Overlap of Myasthenia Gravis and Parsonage-Turner Syndrome: A Rare Coexistence of Two Autoimmune Neuromuscular Disorders

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ABSTRACT

Case Report: A 63-year-old male with a diagnosis of myasthenia gravis (MG) since 2016, confirmed by electromyography after presenting with ptosis, diplopia, and fluctuating fatigue, remained clinically stable on prednisone 5 mg/day. He had no history of thymectomy or azathioprine use. In June 2022, seven years after diagnosis, he developed sudden, intense neuropathic pain in the right shoulder and cervical region, which rapidly escalated over 48 hours. On the third day, the pain was followed by progressive right upper limb weakness, stabilizing after one week with significant functional impairment, especially in arm elevation. Orthopedic evaluation led to symptomatic treatment with Deocil, with partial pain relief but no motor improvement. Neurological exam revealed weakness in the right shoulder, biceps, and triceps, sensory deficits from shoulder to forearm, and reduced reflexes in the right upper limb. Lower limb reflexes were preserved. MG remained stable. The findings were consistent with subacute brachial plexopathy, suggestive of Parsonage-Turner Syndrome (PTS). Corticosteroids were increased to prednisone 40 mg/day for one month, followed by tapering. Serologies, including hepatitis E, were requested. By August 2025, the patient reported complete recovery of strength and resumed prednisone 5 mg/day. He also reported lumbar pain radiating to the lower limbs; lumbar spine MRI showed disc bulging at L1–L2 and L3–L4 with foraminal narrowing.

Discussion: PTS is a rare autoimmune brachial plexopathy presenting with acute neuropathic pain, followed by flaccid, asymmetric weakness and slow recovery. Though idiopathic, PTS may be triggered by infections, vaccinations, or immune stimuli. Diagnosis is clinical, supported by EMG and MRI. Treatment includes corticosteroids and physiotherapy. Recovery may take months, and some patients experience lasting deficits. The coexistence of PTS and MG is rare. Both are autoimmune diseases targeting different components of the peripheral neuromuscular system. Their overlap suggests a shared autoimmune susceptibility. In this case, timely recognition and immunosuppressive adjustment led to full motor recovery.

Final Comments: This case illustrates a rare overlap between MG and PTS. Clinicians should consider PTS in patients with abrupt scapular pain followed by asymmetric upper limb weakness, even in the presence of pre-existing neuromuscular disease. Awareness of such overlaps is essential for early diagnosis, appropriate management, and long-term follow-up.

197 | Painful Sensory Polyneuropathy with Distal Erythromelalgia: Diagnostic Challenges and Possible Vasculitic Etiology

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ABSTRACT

Case Report: Erythromelalgia is a rare pain syndrome characterized by erythema, increased temperature, and burning pain in the extremities, often exacerbated by heat and relieved by cooling [1]. Although most cases are idiopathic or secondary to myeloproliferative disorders, associations with small fiber neuropathy and vasculitic peripheral neuropathy have been described [2]. Distinguishing erythromelalgia from diabetic neuropathy or other length-dependent polyneuropathies is critical for management. A 52-year-old male with type 2 diabetes mellitus and hypertension reported a two-year history of erythema and paresthesias initially in the right lower limb, later progressing to all four limbs. The main complaint was persistent burning pain and redness of hands and feet. He was on empagliflozin, losartan, escitalopram, and gabapentin 300 mg twice daily. Neurological examination showed distal hypoesthesia, preserved strength, and global reflexes graded 2+. Distal erythema was noted in both hands and feet. Screening laboratory workup for neuropathy was negative. Nerve conduction studies revealed asymmetric sensory axonal polyneuropathy with bilateral carpal tunnel syndrome. The differential diagnosis included diabetic sensory neuropathy, erythromelalgia, and vasculitic peripheral neuropathy. Gabapentin was increased to 1800 mg/day. At follow-up, the patient reported partial symptom relief. Duloxetine 30 mg and valproate 250 mg were added. A nerve biopsy showed focal fiber loss, raising suspicion for vasculitis. On subsequent examination, he developed mild distal weakness of toe extensors bilaterally. The management plan included monthly corticosteroid pulses for six months, with reevaluation for possible cyclophosphamide therapy.

Discussion: This case underscores the diagnostic complexity when erythromelalgia-like symptoms coexist with length-dependent polyneuropathy. While diabetic neuropathy could explain some findings, focal fiber loss on biopsy raised suspicion for vasculitic neuropathy, such as polyarteritis nodosa or vasculitic involvement of the peripheral nervous system. The distinction is crucial, since vasculitic neuropathy may respond to immunosuppressive therapy, unlike diabetic neuropathy.

Final Comments: This case highlights the diagnostic challenge of distinguishing erythromelalgia from diabetic neuropathy, showing the importance of integrating clinical and pathological data.

317 | Polyneuropathy as a Hallmark in POEMS syndrome

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ABSTRACT

Case Report: A 54-year-old brown male presented with a two-year history of sensory-motor polyneuropathy with ascending, symmetrical limb involvement in a gloves-and-boots pattern. Physical examination showed reduced distal strength in upper limbs, distal paralysis, mildly reduced proximal strength in lower limbs, and thermal-painful anesthesia with preserved proprioception. Deep tendon reflexes were globally abolished with reduced distal tone. Additional findings included angiomatous papular lesions on the abdomen, bilateral perimalleolar edema, and cervical lymphadenopathy. Laboratory results revealed thrombocytosis and monoclonal IgG and lambda light chain bands on serum immunofixation. Imaging showed mixed blastic and lytic spinal lesions. Electroneuromyography indicated severe sensory-motor polyneuropathy, and ultrasound of peripheral nerves demonstrated proximal thickening with increased echogenicity and loss of fascicular

pattern. Biopsies showed negative findings for Castleman's disease in cervical lymph nodes and typical plasma cells (CD138 positive) in bone marrow. Endocrinopathies were absent, and VEGF testing was not performed. Diagnosis of POEMS syndrome was based on mandatory criteria (monoclonal plasma cell disorder and polyneuropathy), one major criterion (sclerotic bone lesions), and four minor criteria (lymphadenopathy, edema, skin changes, thrombocytosis). The patient was referred for hematology follow-up.

Discussion: POEMS syndrome, a rare paraneoplastic disorder first described in 1980 by Bardwick, combines polyneuropathy (100%), organomegaly (45–85%), endocrinopathy (67–84%), monoclonal plasma cell disorder (100%), and skin lesions (68–89%), with lambda light chain in over 95% of cases. Neuropathy with monoclonal plasma cell disorder, thrombocytosis, anasarca, or papilledema should prompt suspicion for POEMS syndrome, particularly in CIDP-resistant cases. Elevated platelets occur in 54% of POEMS versus 1.5% of CIDP. Distinctions from multiple myeloma include neuropathy predominance, endocrine dysfunctions, and volume overload, contrasting with myeloma's bone pain, marrow plasma cell infiltration, or renal impairment. Elevated VEGF, sclerotic bone lesions, longer survival, and lambda light chain predominance further define POEMS syndrome.

Final Comments: This case highlights the diagnostic challenges of POEMS syndrome, a rare paraneoplastic disorder. Early recognition allows timely management and should be considered in neuropathies unresponsive to standard therapies.

273 | Sensory Ataxia with Retinitis Pigmentosa in a patient with FLVCR1 Mutations

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ABSTRACT

Case Report: We report the case of a 39-year-old female patient, a schoolteacher, with no family history of neurological, auditory, or ophthalmological disorders. Psychomotor development was unremarkable until approximately five to six years of age, when she began to exhibit progressive motor incoordination, with frequent falls, clumsiness in handling objects, and difficulty with fine motor tasks. At age 12, she developed insidious hearing loss, initially presenting as difficulty understanding speech in noisy environments, without prior otitis or other otological causes. By age 20, she was unable to learn to drive due to difficulty distinguishing car pedals, later attributed to distal proprioceptive loss. In adulthood, she experienced progressive visual decline, especially under low-light conditions, evolving into nyctalopia. Over the years, she was evaluated by multiple neurologists, and only at age 32 was a genetic etiology considered. A genetic panel for retinitis pigmentosa revealed compound heterozygosity in the FLVCR1 gene: a likely pathogenic variant (class 4, c.154delG; chr1:212,858,602) and a variant of uncertain significance (class 3, c.857C>T; chr1:212,863,843). Relevant history included premature menopause at age 30. She had been using coenzyme Q10, which was later discontinued.

Discussion: Posterior column ataxia with retinitis pigmentosa (PCARP) is a rare autosomal recessive disorder caused by biallelic FLVCR1 mutations. It presents in childhood with a slowly progressive course, characterized by the clinical triad of sensory ataxia (due to dorsal root ganglionopathy), sensorineural hearing loss, and retinitis pigmentosa. Differential diagnoses include Friedreich's ataxia, mitochondrial disorders, and metabolic diseases such as Refsum syndrome. However, systemic features were absent, and genetic testing confirmed the diagnosis. Notably, many cases like this are initially misdiagnosed as mitochondrial diseases and may undergo unnecessary interventions. Additionally, FLVCR1 variants are not included in most standard mitochondrial panels, making phenotype recognition critical. There is no disease-modifying therapy to date; management is supportive.

Final Comments: This case highlights the importance of phenotype-guided genetic testing in early-onset ataxias with multisystem involvement and contributes to increasing awareness of FLVCR1-related disorders.Final Comments: This case highlights the diagnostic challenge of distinguishing erythromelalgia from diabetic neuropathy, showing the importance of integrating clinical and pathological data.

563 | SPINAL CORD STIMULATION AS A TREATMENT ALTERNATIVE FOR DIABETIC NEUROPATHY

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ABSTRACT

Objectives: To evaluate the efficacy and outcomes of spinal cord stimulation (SCS) as a treatment for diabetic neuropathy.

Methods: This is a systematic literature review conducted following the guidelines of the PRISMA protocol for systematic reviews and meta-analyses. A search was performed in the databases PubMed, Medline, SciELO, Scopus, LILACS, and Cochrane Library, using the Health Sciences Descriptors (DeCS): "Spinal Cord Stimulation" AND "Treatment" AND "Diabetic Neuropathies." The selected articles were published between 2020 and 2025, and included texts related to randomized clinical trials available in full text on the respective platforms, in Portuguese, Spanish, or English. Articles without a clear outcome, animal studies, inadequate methodologies, or those that did not meet inclusion criteria were excluded.

Results: The patients involved in the studies showed symptomatic reduction related to diabetic neuropathy, with pain relief observed in at least half of the participants in each study. As a secondary effect, improvements in quality of life and sleep were observed, including better peripheral sensory function and greater control over the progression of nerve damage, thus stabilizing the condition and providing a better prognosis for patients treated with SCS. Additionally, secondary outcomes included increased autonomy due to the development and recovery of motor activity in the affected limbs, with a significant improvement in the quality of life of the individuals. As a consequence of these results, a significant reduction in morbidity and mortality was noted in individuals with the syndrome, decreasing the likelihood of complications related to the initial condition. Among the adverse effects, electrode migration was highlighted as it reduces the effectiveness of the device. Although these occurrences are not very prevalent, there is an urgent need for the development of techniques to better fix the electrodes with fewer risks to patients.

Conclusion: The Spinal Cord Stimulation has proven to be an effective and promising alternative for treating diabetic neuropathic pain, providing pain relief and reduction in the majority of the patients assessed in the studies. Although the results are hopeful and favorable for treating DPN, further refinement of techniques and additional studies are needed to offer the best possible treatment for patients.

309 | The Critical Role of Clinical Examination in Anti-MuSK Myasthenia Gravis: Unmasking Confounding Symptoms

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ABSTRACT

Case Report: A 42-year-old woman with a confirmed history of anti-MuSK Myasthenia Gravis (positive serology, prior myasthenic crisis) presented with a relapse featuring typical MG symptoms (ptosis, generalized fatigue) and an atypical complaint: diplopia that persisted with one eye closed. While the overall presentation suggested a myasthenic exacerbation, this specific finding was inconsistent with the classic binocular diplopia of MG.
Discussion: In patients with complex autoimmune diseases, there is a significant risk of attributing all new symptoms to the primary diagnosis. This case highlights a critical confounding factor. A detailed clinical examination revealed that the persistent monocular diplopia was a "red flag," pathognomonic for a non-neuromuscular etiology . This finding mandated a referral to ophthalmology, revealing an ocular cause for the finding (refractive error) and therefore preventing the error of simply escalating immunosuppressive therapy for a symptom it was unlikely to address. A thorough exam was essential to dissect the clinical picture and avoid misdiagnosis.
Final Comments: A meticulous clinical examination remains the cornerstone of neurology. It is crucial for differentiating between a true disease relapse and unrelated or confounding symptoms. This prevents therapeutic missteps and ensures that additional, potentially treatable conditions are not overlooked in complex patients with rare diseases like anti-MuSK MG.

305 | Use of Medicinal Cannabis for Chronic Pain Management

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ABSTRACT

Objectives: To comparatively analyze the intensity of symptoms reported by patients before and after using medicinal cannabis for chronic pain treatment, in order to evaluate the medication's effectiveness and safety.
Methods: Retrospective data were collected from the electronic health records of 8 patients enrolled in the Coordinated Care Program (Cannect Cuida) between February 2022 and February 2023. The main complaint, pain intensity on a 0-10 scale (before and after treatment), prescribed product, dosage, and presence of adverse reactions were assessed. For each patient, the difference in pain intensity before and after treatment was calculated to evaluate individual variation. The normality of the distribution of these differences was verified using the Shapiro-Wilk test. As the differences showed a normal distribution, a paired t-test was conducted to compare the mean pain intensities before and after treatment. The significance level adopted was 5% ($p<0.05$).
Results: The collected data revealed a statistically significant reduction in mean pain intensity. Before treatment, the average score was 8.9, dropping to 5.4 after using medicinal cannabis. This difference was corroborated by the paired t-test ($t=3.42$; $p=0.011$). Furthermore, an increase in data dispersion was observed after treatment (standard deviation from 1.32 to 2.34), indicating that while most patients benefited, the intensity of improvement varied among individuals. A considerable portion of patients (75%) experienced improvement in pain symptoms.
Conclusion: Medicinal cannabis can be an effective alternative for managing chronic pain, improving the clinical condition of patients in the program. However, the heterogeneity in therapeutic response suggests the need for individualized treatment approaches.

315 | Vitamin D Deficiency as a Reversible Cause of Myopathy

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ABSTRACT

Case Report: Case Presentation A 28-year-old previously healthy male presented with progressive lower limb weakness. He also developed cough, fever, hemoptysis, and weight loss. Pulmonary tuberculosis was confirmed and treated with standard RIPE therapy, leading to improvement in systemic symptoms. However, motor deficits persisted, especially in the lower limbs. Neurological examination revealed proximal and distal weakness (MRC 4-/5 in hip flexors and 3/5 in ankle dorsiflexors bilaterally), absent deep tendon reflexes, and distal hypoesthesia to pinprick and temperature in a stocking distribution. Electroneuromyography showed mixed myopathic and neurogenic findings. CK was markedly elevated (9,941 U/L), and 25-hydroxyvitamin D was severely low (2.3 ng/mL). A diagnosis of proximal myopathy and distal symmetric sensory-motor neuropathy, both likely due to nutritional deficiency, was made. The patient was hospitalized and started on high-dose oral vitamin D (7,000 IU, five times weekly). MRI showed proximal-predominant muscle liposubstitution involving the posterior thighs and gluteal muscles, supporting the diagnosis of myopathy. With physiotherapy and vitamin D correction, there was significant improvement in gait, strength, and reflexes. By April 2025, vitamin D normalized (43 ng/mL), CK declined, and clinical recovery was evident.
Discussion: Discussion Vitamin D deficiency, defined as levels below 20 ng/mL and severe when <10 ng/mL, is a reversible but often overlooked cause of myopathy, especially in malnourished or chronically ill individuals. It typically presents with proximal muscle weakness, elevated CK, and gait disturbances. Neuropathy may also coexist due to overlapping nutritional deficits, particularly in contexts of chronic infection or catabolic states such as tuberculosis. In this case, the combination of a myopathic pattern, neurogenic findings, and dramatic improvement following vitamin D repletion strongly supports the diagnosis of hypovitaminosis D–related neuromuscular dysfunction.
Final Comments: Final Remarks This case underscores the need to consider vitamin D deficiency in patients with subacute muscle weakness, especially in the setting of malnutrition or chronic infectious disease. Early diagnosis and correction can result in full functional recovery and prevent unnecessary investigations or long-term disability.

Neuroimmunology

532 | ADEM-like Presentation as an Initial Manifestation of Possible Multiple Scleoris: Case Report

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ABSTRACT

Case Report: A 41-year-old male with no relevant comorbidities presented with fever, headache, and myalgia, progressing within 24 hours to bradypsychism, drowsiness, confusion, and crural paraparesis with urinary retention. On examination, he was disoriented, with miotic pupils, asymmetric crural paraparesis, areflexia in the left lower limb, and no meningeal signs. Cerebrospinal fluid showed lymphocytic pleocytosis (~80 cells/mm³), hyperproteinorrhachia (78 mg/dL), high kappa index, negative PCRs for infectious agents, and negative anti-NMO/MOG antibodies. Brain MRI revealed T2/FLAIR hyperintense lesions in bilateral frontoparietal subcortical white matter, thalami, and brainstem, including tumefactive bulbar lesions. Spinal MRI showed a hyperintense lesion from D9 to D12. The patient was initially treated with antibiotics and antivirals without improvement. After exclusion of infectious causes, intravenous immunoglobulin was administered for 5 days, with marked clinical improvement.

Discussion: Acute disseminated encephalomyelitis (ADEM) is an inflammatory demyelinating syndrome of the central nervous system (CNS), typically monophasic, characterized by multifocal involvement and encephalopathy. In adults, it may resemble the first episode of multiple sclerosis (MS), complicating early differential diagnosis. In this case, The clinical and radiological features suggested ADEM, especially due to encephalopathy and multifocal lesions. However, findings such as longitudinal spinal involvement, periventricular lesions, CSF profile, and absence of infection history raised the suspicion of a first MS episode. According to the updated McDonald criteria, the presence of dissemination in space and a positive kappa index (a sensitive marker of intrathecal immunoglobulin synthesis) supports early MS diagnosis, even without dissemination in time. The 2024 revision emphasizes the kappa index over oligoclonal bands for identifying dissemination over time. This supports an MS diagnosis at first event and warrants close follow-up and early initiation of disease-modifying therapy (DMT).

Final Comments: This case represents an ADEM-like event potentially marking the onset of MS. Early recognition, timely DMT initiation, and regular clinical-radiological monitoring are essential to optimize outcomes and prevent recurrence.

489 | Association between Sjögren's Syndrome and Neuromyelitis Optica Spectrum Disorders: an exploratory systematic review

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ABSTRACT

Objectives: To investigate the interrelation between Sjögren's Syndrome (SS) and neuromyelitis optica spectrum disorders (NMOSD), describing prevalence, clinical and serological features, and prognostic implications.

Methods: Systematic review conducted according to PRISMA 2020 guidelines. PubMed, Embase, Scopus, Web of Science, SciELO, LILACS, and Cochrane were searched up to September 2025 using the descriptors Sjögren's syndrome, neuromyelitis optica, NMOSD, and aquaporin-4. We included human studies explicitly addressing the SS–NMOSD association, with recognized diagnostic criteria (ACR/EULAR for SS; Wingerchuk 2006/IPND 2015 for NMOSD). Observational studies, case series ≥5, and reviews presenting relevant clinical or serological data were eligible. Case reports, small series without aggregable data, articles lacking clear diagnostic criteria, and studies focused on MOGAD without separate analysis were excluded. Two reviewers performed screening and standardized data extraction. Due to the scarcity and heterogeneity of studies, synthesis was narrative, without meta-analysis.

Results: The three studies analyzed (Pimentel 2014; Carvalho et al. 2014; Lana-Peixoto et al. 2012/2013) reported 49 patients with SS–NMOSD association. There was a female predominance (95%) and the mean age at onset of neurological manifestations was 36.2 years (10–74). Positive serology for anti-AQP4-IgG was observed in 86.5% (32/37), while anti-SSA/SSB antibodies were present in 7.7–12% of cases. The most common clinical manifestations were recurrent optic neuritis and longitudinally extensive transverse myelitis; in 20–34% of patients with SS, myelopathy was the initial manifestation. The temporal relationship varied: in some cases SS preceded NMOSD, in others the opposite or simultaneous onset occurred. The studies support the hypothesis of a shared autoimmune milieu between SS and NMOSD, not exclusively dependent on aquaporin-4 autoimmunity.

Conclusion: Although limited to three publications, the literature suggests a strong association between SS and NMOSD, characterized by female predominance, high AQP4-IgG seropositivity, and severe neurological manifestations. These findings reinforce the need to investigate anti-AQP4 in patients with SS and neurological symptoms, as well as to encourage prospective multicenter studies to clarify the prevalence, pathophysiology, and therapeutic implications of this autoimmune overlap.

599 | Atypical Primary Progressive Multiple Sclerosis presenting with severe muscle atrophy

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ABSTRACT

Case Report: A 48-year-old woman presented with a 5-year history of progressive tetraparesis, initially involving the left lower limb (LLL), spreading to the right lower limb within 1 year, and to the upper limbs over 2 years. She reported manual incoordination and paresthesia confined to the LLL, associated with major depressive disorder and a 15-kg weight loss over 2 years. On examination, global muscle atrophy was observed, predominating in the interosseus and hypothenar muscles; unstable gait with hip flexion, mild knee and elbow flexion and external rotation and foot droop (spastic gait with an ataxic component); tetraparesis, more pronounced in the lower limbs and flexors; diffuse hyperreflexia; bilateral Babinski sign; spasticity and mild dysmetria on finger-to-nose test. No dysdiadochokinesia, sensory deficits, or cranial nerve abnormalities were noted. Brain MRI revealed oval hyperintense T2/FLAIR lesions >3 mm in size, located in juxtacortical, periventricular and infratentorial regions, including the left middle cerebellar peduncle. A small contrast-enhancing lesion was observed in the right temporo-occipital region. Spinal MRI showed extensive STIR hyperintense lesions from C1 to L2, compatible with anterior central myelitis. Cerebrospinal fluid analysis revealed type 2 oligoclonal bands. Other laboratory tests and electroneuromyography were unremarkable. A diagnosis of Primary Progressive Multiple Sclerosis (PPMS) was established. EDSS score was 6.

Discussion: This case highlights an atypical PPMS presentation, with rapid progression to a disabling condition, characterized by significant muscle atrophy, weight loss, and a predominantly motor phenotype, with mild cerebellar ataxia, despite extensive lesion dissemination on MRI. Initially, involvement of the second motor neuron was considered, with a differential diagnosis including motor neuron disease, compressive/metabolic myelopathies, and demyelinating disorders. Weight loss and muscle atrophy may be partially attributable to depressive disorder.

Final Comments: PPMS exhibits substantial phenotypic heterogeneity and the major depressive disorder can be a confounding factor in the differential diagnosis for others diseases. In middle-aged patients with a chronic progressive course, EMPP should always be included in the differential diagnosis. Clinical-radiological correlation and cerebrospinal fluid analysis are essential for diagnostic confirmation and exclusion of other etiologies, especially in atypical presentations.

275 | Differential Diagnosis of Visual Loss: Neuromyelitis Optica Spectrum Disorder versus Ocular Syphilis

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ABSTRACT

Case Report: A 28-year-old female, with history of ocular syphilis treated in 2023 (leaving visual sequelae in the right eye), presented on April 5th, 2025 with sudden visual loss in the left eye. She reported partial improvement in bright environments and concomitant paresthesia in the left upper limb. Neurological examination revealed bilateral visual field deficits, preserved ocular motility, and impaired color recognition (mainly preserved for blue). MRI demonstrated sequelae of prior right optic neuritis, acute neuritis/perineuritis of the left optic nerve, and nonspecific white-matter lesions. Ophthalmological evaluation showed a pale right optic disc and normal left optic disc. CSF analysis revealed normal biochemistry, negative VDRL, and a type 4 oligoclonal band pattern. Serum studies demonstrated reactive treponemal test, VDRL 1:2, and strongly positive anti-AQP4 antibody (1:640).
Discussion: The clinical course, radiological findings, and positive anti-AQP4 antibody supported the diagnosis of NMOSD. The coexistence of prior ocular syphilis complicated the diagnostic process, underscoring the importance of considering autoimmune etiologies even in patients with infectious history.
Final Comments: This case highlights NMOSD as a differential diagnosis in acute optic neuritis, even in patients with previous infectious optic neuropathies. Early recognition and differentiation are critical to optimize management and prevent irreversible visual disability.

324 | Epidemiological Analysis of Multiple Sclerosis in Brazil: A Statistical Approach to Mortality, Hospital Admissions, and Length of Stay

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ABSTRACT

Objectives: Multiple sclerosis (MS) is a chronic inflammatory and neurodegenerative disease of the central nervous system that primarily affects young adults, leading to progressive disability. In Brazil, its epidemiological profile shows regional and demographic variations influenced by genetic, environmental, and socioeconomic factors. This study analyzes patterns of mortality, hospitalizations, and length of stay using national data from the past decade. Thus, the study aims to characterize the epidemiological profile of EM in Brazil, evaluating deaths, hospitalizations and length of hospital stay, seeking associations with demographic, regional and temporal variables.
Methods: A retrospective analysis of SIH/SUS data between June 2015 and June 2025 was conducted, including deaths, hospitalizations, and days of stay related to MS (ICD-10 G35). Descriptive statistics were applied by sex, region, and race/color; Chi-square tests for associations; linear regression for trends; odds ratio for relative risks; and coefficient of variation for regional variability.
Results: A total of 274 deaths and 48,537 hospitalizations related to MS were identified, with a female predominance (55.5% of deaths; 70.3% of hospitalizations), and an odds ratio of 2.9 for hospitalization in women. The Southeast and South regions accounted for 73.4% of deaths and 76.3% of hospitalizations. Race/color was significantly associated with region, with a higher risk of death among white individuals in the Southeast (OR=1.65). There was an annual increase of 463 hospitalizations ($p<0.05$), while mortality remained stable ($p>0.05$). Length of stay showed high variability (CV=174.6%).
Conclusion: The findings confirm higher incidence in women, explained by hormonal and immunological factors. Regional concentration reflects greater population density and the availability of specialized services in the Southeast and South. The association between race/color and region suggests both genetic influences and inequalities in healthcare access. Stability in mortality may be influenced by fluctuations such as the COVID-19 pandemic. The increase in hospitalizations highlights the need for policies focused on prevention and early management. This study underscores the epidemiological profile of MS in Brazil, revealing regional and racial disparities, and reinforces the importance of policies to expand diagnosis, treatment, and equity in care.

432 | Mononeuritis multiplex in Systemic Lupus Erythematosus: A case of vasculitic neuropathy with peripheral nervous system involvement

Gabrielle Gomes Garcia[1]; José Antonio Vieira da Silva Calsoni[1]; Michel Figueiredo de Barros[1]; Liene Duarte Silva[1]; Diego Gomes Brandão[1]; Caroline Bittar Braune[1]; Ester Dayani Gosaves da Silva[1]; Izabela Jardim Rodrigues Pitta[1]

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ABSTRACT

Case Report: A 21-year-old woman with a history of systemic lupus erythematosus (SLE) diagnosed at age 14, with prior articular and hematologic involvement, presented with burning pain and paresthesia in the posterolateral aspect of the left foot, radiating around the ankle. Four months later, she noted the onset of painful paresthesia in the right hand. Neurological examination revealed atrophy of the thenar eminence on the right hand, preserved global muscle strength, and superficial sensory deficits in the dorsolateral region of the left foot and the first three digits of the right hand. Nerve conduction studies demonstrated focal neuropathies of the left tibial and right median nerves, consistent with mononeuritis multiplex. Laboratory workup showed evidence of SLE activity, including low complement levels (C3/C4), elevated anti-dsDNA antibodies, and positive p-ANCA titers. Based on the clinical, electrophysiological, and immunological findings, a diagnosis of ANCA-associated peripheral nervous system vasculitis was established. The patient underwent treatment with a pulse regimen of intravenous methylprednisolone, resulting in significant improvement of neuropathic pain and stabilization of neurological deficits.
Discussion: The case highlights the complexity of neurological manifestations in SLE, particularly when peripheral nervous system involvement occurs in the form of mononeuritis multiplex. While central nervous system complications of SLE are well recognized, peripheral neuropathies remain less frequently reported and often pose a diagnostic challenge. The coexistence of painful distal neuropathy, Raynaud phenomenon, and focal median nerve involvement raised a

broad differential, including compressive neuropathy and Hansen's disease. Vasculitic neuropathy in SLE is associated with significant morbidity and requires early recognition. The partial response to immunosuppressive therapy with corticosteroids and cyclophosphamide emphasizes the importance of aggressive treatment, although neuropathic pain often remains a debilitating sequela.
Final Comments: Peripheral nervous system involvement is common in SLE, yet reports of mononeuritis multiplex due to lupus vasculitis are scarce. This case reinforces the importance of integrating clinical, electrophysiological, and immunological findings, as well as the need for early recognition of vasculitic neuropathy, as immunosuppressive therapy with corticosteroids and cyclophosphamide can improve outcomes.

451 | Neurodegeneração na Esclerose Múltipla: tomografia de coerência óptica versus volumetria cerebral

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ABSTRACT

Objectives: Descrever e correlacionar as medidas das camadas retinianas com os parâmetros volumétricos cerebrais em pacientes com Esclerose Múltipla Óptico Espinhal (EMOS) no Rio de Janeiro.
Methods: Um estudo descritivo, retrospectivo e transversal foi realizado em pacientes com EMOS. Pacientes e participantes do grupo controle (GC) foram avaliados quanto à acuidade visual (AV) em logMAR, desvio médio (DM) do campo visual e tomografia de coerência óptica (OCT). O estudo volumétrico cerebral foi realizado com o software ICOMETRIX, utilizando a ressonância magnética. As análises estatísticas foram realizadas com os testes de Shapiro-Wilk, R de Pearson e R de Spearman.
Results: Os 30 pacientes avaliados eram do sexo feminino (83,3%) e brancos (70%). A média de idade foi de 48 anos (variação de 20 a 70) e o período de acompanhamento foi de 18 anos (variação de 3 a 37). Neurite óptica unilateral foi apresentada em 83,3%. A AV e a MD foram de 0,07 ± 0,14/ -5,37 ± 5,88 dB no olho direito (OD) e 0,13 ± 0,30/ -5,23 ± 3,34 dB no olho esquerdo (OE), respectivamente. A redução da espessura da camada de fibras nervosas retinianas peridiscais (pRNFL) foi significativa em EMOS (OD: 78,62 ± 16,01 µm; OE: 79,86 ± 13,79 µm) em comparação com o GC (OD: 98,87 ± 10,68 µm; OE 97,87 ± 10,85 µm, p=0,0001). Da mesma forma, houve redução significativa do complexo de células ganglionares e da plexiforme interna macular (mGCIPL) em EMOS (OD: 74,96 ± 14,46 µm; OE 73,88 ± 13,79 µm) quando comparado ao GC (OD: 90,50 ± 6,74 µm; OE: 90,41 ± 6,89 µm, p = 0,0001). Nos 19 pacientes que correlacionaram a espessura da pRNFL com parâmetros volumétricos cerebrais, houve uma correlação significativa ($p < 0,001$), com um forte valor de r ($r = 0,691$) em relação à volumetria cerebral total e uma correlação significativa ($p < 0,05$) com o valor moderado de r ($r = 0,461$) em relação à substância cinzenta. Em relação à correlação da espessura do mGCIPL com os parâmetros volumétricos cerebrais, há correlação significativa ($p < 0,05$), com forte valor de r ($r = 0,587$) em relação à volumetria cerebral total.
Conclusion: Foi demonstrado um "paradoxo funcional-estrutural", com boa função visual apesar de danos estruturais significativos nas camadas da retina e volume cerebral reduzido.

332 | Neurological Complications of Dengue: a preliminary analysis of a systematic review on prevalence and clinical profile

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ABSTRACT

Objectives: This study has the main objective of analysing the updated prevalence of neurological complications associated to dengue infection in Brazil and worldwide. As secondary objective, we describe the demographic profile and the main neurological complications of the infection.
Methods: A systematic review was conducted by searching articles in the MedLine, Scopus and Embase platforms, regardless of date or place. The authors used the terms "dengue" combined with "encephal*", "neurolog*", "myositis", "neuromyelitis optica", "Guillain-Barre syndrome", "mening*" and "myelitis". The search was made by two independent reviewers and conflicts were solved by a third author. Observational studies with more than 10 cases (cohort, case-control and cross-sectional) with dengue laboratory-confirmed results were included (CDC, 2015). Co-infections, pre-existing neurological comorbidities and case reports were excluded.
Results: Twenty one out of 1.293 (1.62%) articles were included in the analysis. From 59.298 cases, 375 (0.63%) had neurological complications associated with dengue. There was a predominance of female (58%). The median (range) age was 33 (1 month-91yrs.) years old. The main complications were encephalitis (25.86%), encephalopathy (20.5%), febrile convulsions (8.8%) and meningoencephalitis (5.06%). Less frequent manifestations were Guillain-Barré syndrome (2.6%), cerebellar dysfunction (2.13%), transverse myelitis (1.33%), acute disseminated encephalomyelitis [ADEM] (1.33%) and others. The largest studies were from India (61%) and Brazil (9.52%). Although the largest number of cases (81.59%) were from Brazil, followed by Asian countries (15.72%).
Conclusion: We found a prevalence of neurological complications of 0.63% in patients with dengue infection, with predominance of encephalic involvement. There was a lack of data from Africa and Latin America, but for Brazil. The findings raise the awareness of a necessity for dengue infection in the nervous system investigation, specially in endemic areas.

314 | NMOSD Patients Have Low Quality of Life

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ABSTRACT

Objectives: To report quality of life in a cohort of people with Neuromyelitis Optica Spectrum Disorder (NMOSD).
Methods: We evaluated 105 patients in ten reference centers over a period of 24 months. Inclusion criteria was diagnosis of NMOSD according to IPND 2015. Demograhic and clinical data were evaluated. To evaluate life quality we use the Brazilian version of life quality SF-36. The research is in progress and will be applied in several regions of Brazil.

Results: 105 NMOSD patients in the states of São Paulo, Paraíba, Goiás, Ceará, Bahia, Rio Grande do Sul, Amazonas, Rio de Janeiro, Rio Grande do Norte and Maranhão, with 82% of female preponderance were evaluated. Median age was 42 and disease duration was 7.09 years. According to the instrument, results are seen on a scale ranging from 0 to 100, where zero is the worst state and 100 is the best. Results obtained: regarding the physical functioning domain, the mean value obtained was 50; regarding the role limitations due to physical health domain, the mean value obtained was 28; regarding the pain domain, the mean value obtained was 62; regarding the general health domain, the mean value obtained was 45; regarding the energy/fatigue domain, the mean value obtained was 42; regarding the social functioning domain, the mean value obtained was 53; regarding the role limitations due to emotional problems domain, the mean value obtained was 33; regarding the emotional well-being domain, the mean value obtained was 56.
Conclusion: In this research, it was demonstrated that role limitations due to physical health domain and role limitations due to emotional problems domain were more prominent for the reduction in the Quality of Life of people with NMOSD. Compared with national and international studies, NMOSD appears to have a negative impact on quality of life.

338 | Paraneoplastic Neuromyelitis Optica Spectrum Disorder Associated with Hodgkin Lymphoma: A Case Report

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ABSTRACT

Case Report: A 44-year-old woman presented with left frontal headache and pain on ocular movement, followed by progressive visual loss in the left eye, leading to amaurosis within four days. Six months later, she developed a systemic inflammatory syndrome characterized by daily fever, weight loss, and night sweats, and was subsequently diagnosed with Hodgkin lymphoma. She underwent chemotherapy with favorable clinical response and complete remission. Approximately one year after hematologic remission, the patient experienced pain on movement of the right eye, dyschromatopsia, and decreased visual acuity. Orbital MRI revealed optic nerve atrophy on the left and extensive gadolinium-enhancing lesions in the right optic nerve, involving the optic chiasm and extending to the floor of the third ventricle, consistent with active right optic neuritis. She was treated with high-dose intravenous methylprednisolone and plasma exchange, resulting in significant improvement of visual acuity in the right eye. Further immunological workup revealed high-titer anti-aquaporin-4 (AQP4) antibodies, confirming the diagnosis of neuromyelitis optica spectrum disorder (NMOSD).
Discussion: NMOSD is an autoimmune disorder mediated by AQP4 antibodies. Although most cases are idiopathic or associated with systemic autoimmunity, a paraneoplastic form has also been recognized. The 2021 criteria for paraneoplastic neurologic syndromes include NMOSD when a compatible malignancy and immunopathological correlation are present. In our patient, optic neuritis was the first manifestation, followed months later by systemic symptoms that led to the diagnosis of Hodgkin lymphoma. A second episode occurred with chiasmal involvement and AQP4-IgG seropositivity, supporting a paraneoplastic mechanism. While Hodgkin lymphoma is rarely associated with paraneoplastic NMOSD, it has been linked to other autoimmune neurological syndromes. Paraneoplastic NMOSD typically occurs later in life, most often after the fifth decade, and symptoms may improve or stabilize after tumor treatment when AQP4 expression is detected in neoplastic tissue.
Final Comments: Although the patient achieved remission of lymphoma before NMOSD relapse, delayed neuroinflammatory symptoms and AQP4-IgG seroconversion suggest a paraneoplastic mechanism, underscoring the need for oncological surveillance in late-onset or atypical NMOSD cases.

646 | PESQUISA DE BIOMARCADORES ANTI-AQP4 E ANTI-MOG EM PACIENTES COM NEURITE ÓPTICA INICIAL

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ABSTRACT

Objectives: Avaliar a frequência dos biomarcadores anti-aquaporina 4 (anti-AQP4) e anti-glicoproteína da mielina do oligodendrócito (anti-MOG) em casos de Neurite Óptica (NO) prévia como evento inicial. Classificar os casos de NO em diferentes subgrupos: NO-Esclerose Múltipla, NO com anticorpo anti-AQP4 positivo (NO-AQP4+), Neuromielite Óptica com anticorpo AQP4 negativo (NMO-AQP4-), NO com anticorpo anti-MOG positivo (NO-MOG), episódio único de NO com biomarcadores negativos (SION), episódios recorrentes de NO com biomarcadores negativos (RION), episódios recorrentes de NO ao retirar o corticoide (CRION) e NO relacionada à doença sistêmica (NO sistêmica).
Methods: Um estudo retrospectivo, observacional e transversal foi realizado pela Neurologia, com um total de 45 pacientes, encaminhados ao setor, com suspeita de Neurite Óptica, há pelo menos 3 meses, em avaliação conjunta com a Oftalmologia. A pesquisa dos biomarcadores foi realizada através do método Cell Based Assay (CBA) com citometria de fluxo, pelo laboratório de NEUROIMMUNOLOGY.
Results: A série apresentou um total de 45 casos, sendo 36 (80.0%) do sexo feminino e 9 (20.0%) do sexo masculino, com idade média de 38.1 (±15 anos). Em relação aos biomarcadores, 7 (15.6%) tinham anti-MOG positivo e 11 (24.4%) eram NO-AQP4 positivo, enquanto que 22 (48.9%) tinham sorologias duplamente negativas. Ao considerar os diferentes subgrupos de NO com sorologias duplamente negativas, um total de 6 subtipos foi obtido: 5 NO-Esclerose Múltipla (11.1%), 5 NMO-AQP4 negativo (11.1%), 8 SION (17.8%), 6 RION (13.3%), 2 CRION (4.4%) e 1 caso de NO sistêmica (Doença de Behcet).
Conclusion: O número de sorologias duplamente negativas e sem causa definida representa uma parcela significativa (35.5%), sendo necessário um maior número de pesquisas nessa Area.

450 | Prognóstico a longo prazo da neurite óptica em pacientes com Esclerose Múltipla

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ABSTRACT

Objectives: Investigar a função visual e estrutural de pacientes com neurite óptica(NO) na esclerose múltipla remitente recorrente (EMRR).
Methods: O estudo incluiu pacientes com diagnóstico de Esclerose Múltipla com evolução remitente recorrente, classificada como forma

convencional (EMC) ou forma óptico espinhal (EMOS), que apresentaram, ao longo da doença, pelo menos um evento de NO. A avaliação oftalmológica incluiu acuidade visual, senso cromático, campo visual computadorizado e OCT. Os Results foram comparados entre os grupos. A análise estatística foi realizada utilizando os softwares IBM SPSS Statistical for Windows e JASP versão 0.18.1. O estudo foi aprovado pelo Comitê de Ética em Pesquisa do HUGG.

Results: A amostra foi composta por 55 pacientes, 81,8% mulheres e 72,7% brancos, com duração média da doença de 17,50 ± 8,25 anos. Foram avaliados 110 olhos, dos quais 82 com NO e 28 sem NO. Dos 82 olhos com NO, a acuidade visual corrigida por logMAR foi de 0,0 em 58 olhos (70,7%). Dos 28 olhos sem NO, a acuidade visual corrigida foi de 0,0 em 25 olhos (89,2%). A percepção de cores foi normal em 71,8% dos 110 olhos. No campo visual computadorizado realizado em 139 olhos, o índice MD teve média de -5,05 dB em 58 olhos com NO, -3,92 dB em 21 olhos sem NO e -2,11 nos 60 olhos do grupo controle. Na OCT realizada em 162 olhos, a espessura média da camada de fibras nervosas retinianas peridiscais (pRNFL) foi de 77,24 µm em 75 olhos com NO, 83,14 µm em 27 olhos sem NO e 98,36 µm em 60 olhos do grupo controle.

Conclusion: A EMRR apresenta um bom prognóstico para a função visual em olhos com e sem histórico de NO. A OCT mostra alterações em olhos com e sem NO. Pacientes com EMC e EMOS não apresentam diferenças significativas na função visual ou estrutural.

435 | Secondary Trigeminal Neuralgia Due Multiple Sclerosis lesion in the Brain Stem

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ABSTRACT

Case Report: A 38-year-old woman with a diagnosis of relapsing-remitting multiple sclerosis (RRMS) since the age of 15, and a history of migraine without aura, presented with paroxysmal, electric shock-like pain in the left mandibular (V3) distribution of the trigeminal nerve. The pain was brief, triggered by mastication and toothbrushing, and occurred multiple times per day. She was on stable disease-modifying therapy with dimethyl fumarate. Neurological examination revealed an asymmetrical corneal reflex, diminished on the left side. Follow-up brain MRI demonstrated a focal demyelinating lesion at the left trigeminal nerve root entry zone (REZ) in the pons. Based on clinical and radiological findings, a diagnosis of symptomatic trigeminal neuralgia secondary to multiple sclerosis (MS-TN) was established. The patient was started on carbamazepine, with gradual titration to 1200 mg/day, resulting in complete resolution of symptoms.

Discussion: This case represents a typical presentation of MS-TN. Patients with sclerosis multiple (MS) are more likely to develop trigeminal neuralgia (TN), which, unlike the classic form caused by neurovascular compression, is characterized by extensive involvement of demyelinating plaques. Although the low prevalence of about 6%, its clinical impact is substantial, underscoring the importance of this presentation. It is noteworthy that the patient is a good responder to treatment with carbamazepine, since in MS-TN resistance to drug treatment or neurovascular decompression is common. Compared with classical TN, MS-related TN pain is usually bilateral, and objective sensory abnormalities on examination are more common. Furthermore, the symptomatology of such diseases has a direct impact on patients' quality of life, which can lead to sleep dysregulation and anxiety, both of which can be migraine triggers. Finally, the identification of TN can often occur before diagnosing MS, making it essential to know about the close relationship between them.

Final Comments: Based on the case presented, MS-TN, while rare, has a significant clinical impact and can be a presenting symptom of MS, making it essential for healthcare professionals to consider it in the differential diagnosis. The patient's atypical response to carbamazepine, the coexistence of migraine, and the episode of scintillating scotomas highlight the complexity and overlap of neurological comorbidities, reinforcing the need for a comprehensive diagnostic and therapeutic approach to optimize patient management.

554 | Seronegative limbic encephalitis: a case report.

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ABSTRACT

Case Report: A 54-year-old male patient presented with aggressiveness and anterograde amnesia beginning in January 2022, progressing in April with bilateral tonic–clonic seizures. Neuroimaging and clinical data supported the diagnosis of limbic encephalitis. At that time, he improved after a cycle of intravenous immunoglobulin and pulse therapy with methylprednisolone. In April 2023, he developed focal seizures characterized by behavioral arrest, leading to the initiation of azathioprine. Onconeural antibody panel testing, cerebrospinal fluid analysis, and neoplastic screening with imaging studies were performed, all of which were negative for paraneoplastic limbic encephalitis. In April 2024, he developed suicidal ideation, requiring medication adjustment and repetition of the previous year's tests, which again yielded negative results. This time, however, an autoimmune encephalitis panel was added, with no autoantibody detected. In May 2025, he was hospitalized again due to suspected disease reactivation, presenting with anhedonia, psychomotor slowing, memory impairment, and imbalance. After the admission, cerebrospinal fluid analysis revealed 39 mononuclear cells and type 2 oligoclonal bands (with IgG index of 0.77), along with less prominent insular and parahippocampal enhancement compared to the previous study in 2022. The patient underwent pulse therapy with methylprednisolone 1000 mg for 5 days, with improvement in gait, balance, and psychomotor slowing. Rituximab was indicated due to refractoriness to azathioprine.

Discussion: This is a case of seronegative limbic encephalitis with new disease activity despite optimized azathioprine therapy. Limbic encephalitis typically has a subacute onset and may cause altered mental status, cognitive impairment, psychiatric symptoms and epileptic seizures, supported by the possibility of medial temporal lobe changes on magnetic resonance imaging and inflammatory findings in cerebrospinal fluid, such as pleocytosis and hyperproteinorrachia. Investigation for infectious, paraneoplastic or autoimmune causes is required.

Final Comments: Limbic encephalitis is a severe neurological syndrome with a wide range of etiologies. In cases of uncertain or seronegative etiology, immunosuppression may be considered as a therapeutic approach after excluding infectious causes.

528 | The Influence of Gut Microbiota on the Pathogenesis and Progression of Multiple Sclerosis: A Literature Review

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ABSTRACT

Objectives: This work aims to review the scientific literature on the role of the intestinal microbiota in the pathogenesis and progression of multiple sclerosis (MS), a chronic autoimmune disease of the central nervous system. The research seeks to analyze the interactions between the intestinal microbiota and the immune system, investigating the immune mechanisms involved, the effects of intestinal dysbiosis, and the implications of microbiota modulation in the progression of MS.
Methods: The review was conducted through qualitative research, with articles selected from the PubMed and MEDLINE databases, covering experimental studies, clinical trials, and reviews published between 2012 and 2024. Articles addressing the relationship between the intestinal microbiota and MS were considered, focusing on clinical, pathophysiological, and therapeutic aspects, with the aim of understanding how the microbiota may influence the course of the disease and its manifestations.
Results: The results indicate that the intestinal microbiota plays a crucial role in regulating the immune system, directly impacting the development and progression of MS. Intestinal dysbiosis, characterized by an imbalance between beneficial and pathogenic microorganisms, is associated with the activation of inflammatory responses that may exacerbate the disease. The composition of the microbiota is influenced by factors such as diet, medication use, and genetic predisposition. While microbiota modulation through probiotics, prebiotics, and specific diets has shown therapeutic potential, most studies have significant limitations, such as small sample sizes and short duration, which restrict the ability to generalize the results.
Conclusion: It is concluded that the intestinal microbiota plays a crucial role in the pathogenesis and evolution of MS. The interaction between the microbiome and the immune system can influence the activation of inflammatory responses, promoting demyelination and neurodegeneration, key characteristics of the disease. Microbiota modulation through therapies such as probiotics, prebiotics, and dietary interventions has shown potential for treating disease progression and improving patients' quality of life. However, it is essential to conduct larger-scale, long-duration studies to validate these therapies, gain a better understanding of the underlying mechanisms, and develop personalized approaches that may be effective in treating MS.

Neuropediatrics

594 | Do Neurodivergent Children and Adolescents with Higher Fluid Intelligence Perform Better in Sustained Attention?

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ABSTRACT

Objectives: Sustained attention is a core cognitive ability essential to learning and adaptive behavior, especially in neurodivergent populations. Although previous research has linked fluid intelligence to attentional control, this relationship remains understudied in children with Autism Spectrum Disorder (ASD). This exploratory study examined whether higher fluid intelligence predicts better performance in sustained attention tasks in this group.
Methods: Twenty children and adolescents with ASD (levels 1 and 2), aged 6 to 16 years (M = 10.6; SD = 3.25), completed a visual sustained attention task (Computerized Visual Attention Test CVAT – task duration 1.5 minutes) and the Matrix Reasoning subtest of the Weschler Abreviated Intelligence Scale (WASI). The dependent variable was reaction time variability (VTR), and fluid intelligence T-score was a predictor in a multiple linear regression, along with age and sex as control variables.
Results: The model explained 60.1% of the variance in attention performance (R^2 = 0.601). Fluid intelligence showed a negative, non-significant association with attention variability (β = -1.45; p = 0.100), indicating no statistically supported link between higher intelligence and improved sustained attention in this sample.
Conclusion: The absence of significant correlation may be due to the short duration and simplicity of the task (1.5 minutes), which may not have engaged sufficient cognitive resources to reflect differences in fluid intelligence. The study suggests that the relationship between attention and intelligence may depend on the complexity of the task used to measure attention, emphasizing the need to consider intellectual factors —especially in contexts of educational inequality, such as Brazil. Further studies using more demanding paradigms and larger samples are recommended.

252 | Efficacy and Safety of Transcutaneous Electrical Nerve Stimulation in Children with Nocturnal Enuresis: a Systematic Review of Randomized Clinical Trials

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ABSTRACT

Objectives: The aim of this study is to systematically review the literature on the efficacy and safety of transcutaneous electrical nerve stimulation (TENS) in children with nocturnal enuresis.
Methods: The PICO strategy was used: P – pediatric population with nocturnal enuresis; I – transcutaneous electrical nerve stimulation; C – standard treatment or placebo; O – clinical improvement and quality of life. The keywords "Nocturnal Enuresis," "Transcutaneous Electric Nerve Stimulation," and "Child," defined by the Health Sciences Descriptors (DeCS) platform and combined with the Boolean operator "AND," were applied to the PubMed (Medline) and Lilacs databases, with filters for randomized clinical trials published in full within the last ten years. The selected studies were independently analyzed by two authors, and their results were discussed in light of the most current scientific evidence.
Results: Four randomized clinical trials were evaluated, totaling 230 children (N=230) aged 6 to 14 years, conducted in Egypt, Denmark, Iran, and Brazil. The interventions included different modalities of electrical stimulation, such as parasacral TENS, sacral TENS, and interferential

current (IFC), in protocols of 15 to 20 sessions lasting 20 to 60 minutes, applied two to three times per week. Overall, the studies by Abdelhalim et al. (2019), Kajbafzadeh et al. (2015), and Oliveira LF et al. (2023) demonstrated a reduction in the frequency of enuretic episodes and improvement in quality of life, particularly with IFC, which showed greater efficacy and sustained effects. In contrast, Jorgensen et al. (2017) found no significant difference compared to placebo, with no cases of complete resolution. Nevertheless, the technique showed good tolerability, with minimal adverse events limited to mild skin irritation and headache in a few cases.

Conclusion: TENS demonstrated moderate to significant efficacy in reducing nocturnal enuresis episodes, although the magnitude varied depending on the parameters used and follow-up duration. Major challenges include small sample sizes, heterogeneity of stimulation protocols, short follow-up, and variability in evaluated outcomes, which hinder direct comparisons between studies. Larger clinical trials with standardized protocols, including long-term outcome assessment and direct comparison with conventional treatments, are needed to more clearly define the efficacy of TENS in pediatric nocturnal enuresis.

281 | Ohdo Syndrome Associated with a KAT6B Gene Variant: A Pediatric Case Report

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ABSTRACT

Case Report: Male patient, 4 years and 9 months old, weighing 16.8 kg. During pregnancy, second-trimester ultrasound revealed morphological abnormalities, including tetralogy of Fallot (corrected in the first year of life), with an initial suspicion of trisomy 18 that was not confirmed by fetal karyotype. At birth, he presented with microcephaly, severe bilateral syndactyly, clinodactyly, and absence of effective swallowing, requiring prolonged hospitalization in the neonatal intensive care unit. He later developed the need for emergency tracheostomy and gastrostomy due to respiratory distress associated with COVID-19. Additional manifestations included eyelid coloboma, bilateral ptosis, micrognathia, microstomia, choanal atresia, cryptorchidism, phimosis, unilateral cataract under investigation, and profound bilateral deafness. Among these, ptosis, cryptorchidism, and phimosis were surgically corrected. Genetic investigation: Chromosomal microarray showed no known pathogenic alterations. Whole-exome sequencing identified the heterozygous variant c.6113T>C (p.Met2038Thr) in the KAT6B gene, initially classified as of uncertain significance, also present in the asymptomatic mother, suggesting autosomal dominant inheritance with variable penetrance. Based on phenotypic compatibility, the diagnosis of Ohdo syndrome (OS) was established. Despite structural and sensory limitations, the patient shows good adapted motor and communicative development, with independent gait, active interaction, and nonverbal communication. He is currently followed up by a multidisciplinary team.

Discussion: OS is a rare genetic condition (<1/million), with no sex predilection, usually identified in childhood. The case described is compatible with the Say-Barber-Biesecker-Young-Simpson variant, including microcephaly, facial dysmorphisms, heart defect, digital anomalies, and global developmental delay. Differential diagnoses, such as genitopatellar syndrome and structural chromosomal syndromes, were ruled out. Treatment is symptomatic and requires multidisciplinary care. Prognosis is variable, with prolonged survival but significant cognitive, motor, and sensory limitations.

Final Comments: This case contributes to the recognition of OS associated with a KAT6B variant, reinforcing the importance of genetic investigation in patients with multiple malformations. The diagnosis guided therapeutic follow-up and provided support for family genetic counseling.

598 | Reaction Time Differences Between Neurotypical and Neuroatypical Children: Evidence from a Continuous Performance Test

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ABSTRACT

Objectives: Attentional functions are crucial for the academic and social development of children and adolescents and are often compromised in individuals with Autism Spectrum Disorder (ASD). Reaction time in computerized tasks provides an objective and sensitive measure of attentional and motor efficiency, enabling the identification of group differences. This study aimed to examine reaction time differences between neurotypical and neuroatypical children, controlling for age and sex.

Methods: The sample comprised 51 children aged 6 to 16 years (M = 10.7; SD = 2.81), all enrolled in public schools. Of these, 39.2% had an ASD diagnosis and 60.8% were neurotypical, with a balanced sex distribution (52.9% boys, 47.1% girls). Attention was assessed with a task based on the Continuous Performance Test (CPT) paradigm, lasting approximately 90 seconds. Mean reaction time (ms) served as the dependent variable in a multiple linear regression, with age, sex, and diagnostic group as predictors. Assumptions of residual normality and absence of multicollinearity were met.

Results: The regression model was significant, explaining 52.8% of the variance in reaction time ($R^2 = 0.528$; adjusted $R^2 = 0.498$). Both age ($B = -21.2$; $p < .001$) and diagnostic group ($B = -86.0$; $p < .001$) emerged as significant predictors, indicating that older and neurotypical children responded faster. Sex was not significant ($B = -37.2$; $p = .084$), though a trend toward shorter reaction times in boys was observed.

Conclusion: In conclusion, neuroatypical children showed significantly slower reaction times than neurotypical peers, reflecting robust attentional differences. Importantly, these differences were detected despite the brief duration of the task, highlighting its sensitivity. The significant effect of age underscores the role of maturational development in attentional and motor efficiency. These findings support the need for tailored educational and therapeutic strategies for children with ASD, accounting for their attentional specificities. Future studies with larger samples and broader executive function measures may extend these insights and guide more effective school-based interventions.

Oncology / Palliative Medicine

425 | Case report: psychiatric manifestations of leptomeningeal carcinomatosis in a patient with lung adenocarcinoma

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ABSTRACT

Case Report: A 65-year-old woman with a history of lung adenocarcinoma with bone and central nervous system metastases developed, two years after diagnosis, moderate-to-severe frontal headache associated with decreased visual acuity and nausea. Brain MRI showed no significant progression of previously known lesions in the left thalamus and right temporo-occipital and occipital lobes. Cerebral venous thrombosis was excluded. The headache persisted and was followed by anxious and depressive symptoms, psychomotor agitation, disconnection episodes, aggressiveness, and temporal disorientation. No motor phenomena suggestive of seizures were reported. Psychiatric evaluation raised the hypothesis of bipolar affective disorder, as the patient presented tachylalia, hypertimia, pressured speech, and accelerated thought process, consistent with a manic episode. Olanzapine and sodium divalproate were initiated. Subsequently, the patient developed neck stiffness and global reduction of reflexes. EEG demonstrated preserved background rhythm for age. Cerebrospinal fluid analysis revealed an opening pressure of 55 cm H_2O, mildly hemorrhagic appearance, 15 leukocytes/mm³ (57% lymphocytes), 112 red blood cells/mm³, total protein 105 mg/dl, glucose 34 mg/dl, and atypical pleomorphic cells suggestive of neoplastic infiltration. These findings established the diagnosis of leptomeningeal carcinomatosis. Whole-brain radiotherapy was initiated, leading to partial improvement of agitation and disorientation.

Discussion: Leptomeningeal carcinomatosis is an uncommon but increasingly recognized complication of non-small cell lung cancer. Initial clinical presentation is often subtle, with headache as the most frequent symptom. Psychiatric manifestations, however, are rare.

Final Comments: This case highlights the need to include leptomeningeal carcinomatosis in the differential diagnosis of oncologic patients presenting with neuropsychiatric symptoms, particularly when these are not explained by previously known intracranial lesions.

596 | Cerebral Metastasis from Atrial Myxoma: Case Report

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ABSTRACT

Case Report: A 46-year-old female with a history of atrial myxoma presented with progressive asymmetric weakness and paresthesia in the lower limbs, predominantly on the left. She had three generalized tonic–clonic seizures in the previous month. The patient was admitted to our hospital for further investigation and the neurological examination showed tetraparesis with greater left-sided impairment, global hyperreflexia, bilateral spasticity, and Babinski sign. Cerebellar testing revealed dysmetria and intention tremor, more evident on the right. Cranial nerves and sensory exams were normal. A MRI in 2022 demonstrated multiple supra and infra tensorial nodular lesions with blooming artifact on susceptibility imaging, and irregular contrast enhancement consistent with metastatic disease from atrial myxoma. Several months later, the atrial myxoma was resected. One year after the first MRI, control angio-MRI (March 2024) showed reduction in number and size of lesions, with less edema. However, two lobulated aneurysms appeared: one near the pericallosal artery and another in a distal cortical branch of the right middle cerebral artery. They were not amenable to intervention, and she remains under surveillance with good seizure control.

Discussion: Atrial myxomas are the most common primary cardiac tumors, representing 30–50% of cases, with incidence of 0.5 per million annually. Neurological complications occur in up to 30–40% of patients, mainly ischemic strokes. True brain metastases are rare, while myxomas cause tumor emboli and vascular changes. Cerebral aneurysms are uncommon but recognized, resulting from embolization and vessel wall weakening, sometimes appearing years after resection. Clinically, myxoma-related brain disease may present with seizures, focal deficits. Imaging often shows hemorrhagic or ischemic lesions with susceptibility blooming and calcifications on CT, and aneurysms of fusiform or lobulated morphology. Regression of lesions in this case, despite no oncologic therapy, may be explained by resolution of embolic or hemorrhagic components, reduced edema, and stabilization after tumor removal.

Final Comments: This case illustrates the evolving nature of myxoma-related brain pathology. Management must prioritize seizure control, hemorrhage prevention, and close monitoring of aneurysm progression, with multidisciplinary follow-up as cornerstone.

297 | Spinal Cord Compression Syndrome Secondary to Burkitt Lymphoma: A Case Report

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ABSTRACT

Case Report: A 41-year-old married man, a helper in the loading and unloading sector, hypertensive and a cocaine user, sought medical care due to a 15-day history of burning low back pain. The pain was intermittent, improved with rest and analgesics, but then intensified and became associated with ascending and symmetrical distal paresthesia, evolving into difficulty walking and urinary retention. Neurological examination revealed a Babinski sign, clonus on the right, and an external anal sphincter without relaxation upon evacuation effort. A thoracic and lumbosacral spine MRI demonstrated a signal alteration in the bone marrow of the L1 vertebral body, with hyperintensity on STIR and suggestive contrast enhancement, associated with an expansive tissue thickening involving the epidural space from T4 to the mid-lumbar level, causing a spinal cord compression effect. The patient underwent surgical decompression. The cerebrospinal fluid (CSF) showed the presence of 24 blasts/mm³. An analysis of a peripheral blood smear was performed and revealed the presence of abnormal lymphocytes, not fully characterizable but with features suggestive of Burkitt lymphoma. The investigation proceeded with a bone marrow biopsy and collection of a myelogram, which was impossible due to a dry tap. The biopsy of the paravertebral mass revealed an atypical lymphoid proliferation of medium-sized cells with a high mitotic index, permeated by macrophages with tingible bodies. The immunohistochemistry of the paravertebral mass confirmed Burkitt lymphoma, with positivity for CD20, CD79a, CD10, and Ki-67 (100%); and negativity for BCL2 and TdT. The chemotherapy protocol was administered with a good clinical response.

Discussion: Burkitt lymphoma is a rare and highly aggressive subtype of B-cell non-Hodgkin lymphoma, and central nervous system involvement should always be investigated. Better outcomes in acute spinal cord compression are determined by early intervention. Therefore, this case highlights the importance of investigating red flags in low back pain to identify serious underlying conditions. Advanced age, trauma, family history of malignancy, osteoporosis, corticosteroid therapy, weight loss, fever, immunosuppression, and neurological deficits constitute warning signs that cannot be overlooked and require complementary diagnostic workup.
Final Comments: Although rare, Burkitt's lymphoma can cause acute spinal compression, requiring rapid diagnosis to initiate effective treatment and improve patient prognosis.