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Controversies concerning the differential diagnosis between glioblastomas and pseudotumoral multiple sclerosis in young patients

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A glioblastoma in a patient diagnosed with multiple sclerosis (MS) represents an unusual clinical situation that can raise differential diagnosis issues.

MS is not usually causing focal masses-like formations, but rather ovoid, homogeneous, small-sized, well-defined lesions without any mass effect. However, patients with multiple sclerosis can develop tumor-like growths in the so called tumefactive MS. Cerebral neoplasms can mimic, in the initial stages, MS manifestations.

Finally, there are extremely rare clinical situations in which a patient known to have MS can develop a secondary brain tumor: lymphoma, astrocytoma, oligodendroglioma, glioblastoma.

Further research needs to assess whether the rare association of the two conditions is coincidental or they may be triggered by common causal events. It is yet to be determined whether the evolution of the two coexisting ailments would have different evolutions compared to each being a singular pathology.

The frequency of brain tumors in patients with MS could be higher than in the general population, possibly due to the frequent MRI scans of these patients.

It is still unclear if the immunosuppressive treatment of MS might play a role in carcinogenesis, given that patients with MS have a lower risk of any type of cancer than the general population, except for an increased risk of brain and urinary tract malignancies.

We present the case of a female patient, known with MS, in whom, the appearance of newly rapidly evolving neurological symptoms required an imaging assessment. This revealed an expansive intracranial process. The brain biopsy established the diagnosis of glioblastoma.

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The role of SIRT1 and the possibility as a therapeutic target in multiple sclerosis

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Objective: The incidence rate of multiple sclerosis (MS) is increasing all over the world, which causes a great burden on society and the economy, and its mechanism is still unclear. To explore the role of silent information regulatory factor 1 (SIRT1) and the possibility as a therapeutic targets in MS. Methods: SIRT1 is a type of NAD+dependent histone deacetylase widely present in different cells, which can participate in and regulate processes such as energy metabolism, oxidative stress, and inflammatory response in the body. It is an important molecular target for various traditional Chinese medicine monomers to exert disease protective effects and is involved in MS. Therefore, this article uses literature search methods to conduct relevant research on the pathogenesis and therapeutic targets of SIRT1 in MS. Results: SIRT1 is highly expressed in the brain. When MS occurs, the SIRT1 protein plays an important role in its damage and neuroprotection. Research has shown that SIRT1 can exert anti-inflammatory, antioxidant stress, anti-apoptotic, and induced autophagy effects in MS. As a protective factor, SIRT1 exhibits a negative regulatory effect on various inflammatory cytokines and can alleviate experimental autoimmune encephalomyelitis. SIRT1 can be modified by adjusting AMPK/PGC1, SIRT1/HIF1α, SIRT1/PGC-1 α/ NLRP3 to reduce cell apoptosis, alleviate oxidative stress, and alleviate MS damage through inflammation. Conclusion: SIRT1 may participate in MS by regulating oxidative stress, autophagy, apoptosis, inflammation, and other responses. Regulating SIRT1 expression may be a potential new therapeutic target for MS.

Keywords: Silent information regulatory factor 1; Multiple sclerosis; Immune mediation; Targeted regulation

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Phase 2 Efficacy and Safety of Frexalimab: 6-Month Results of a Novel CD40L Inhibitor in Relapsing Multiple Sclerosis

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INTRODUCTION: Frexalimab, a second-generation anti-CD40L monoclonal antibody blocks the CD40/CD40L costimulatory pathway that regulates adaptive and innate immune responses, without depleting lymphocytes. In the 12-week (W) double-blind-period of a phase 2 trial (NCT04879628), frexalimab$_{high\text{-}dose}$ demonstrated an 89% reduction (vs placebo) in new gadolinium-enhancing (Gd+) lesions in relapsing multiple sclerosis (MS) participants.

AIM: Present W24 efficacy and safety of frexalimab in the phase 2 open-label extension.

METHODS: Participants aged 18-55 years were randomized to frexalimab$_{high\text{-}dose}$ (N=52), frexalimab$_{low\text{-}dose}$ (N=51), or matching placebo (placebo$_{high\text{-}dose}$: N=12, placebo$_{low\text{-}dose}$: N=14). At W12, participants receiving placebos switched to respective open-label frexalimab.

RESULTS: 125/129 participants entered open-label-extension. The number of new Gd+ T1-lesions (unadjusted mean±SE) remained low in the frexalimab$_{high\text{-}dose}$ arm (W12, 0.2±0.08; W24, 0.1±0.05) and frexalimab$_{low\text{-}dose}$ arm (W12, 0.5±0.17; W24, 0.3±0.12). At W24, 96% of participants continuing frexalimab$_{high\text{-}dose}$ had no new Gd+ T1-lesions and 91% had no new/enlarging T2-lesions. In the frexalimab$_{low\text{-}dose}$ arm, 80% of participants continuing frexalimab$_{low\text{-}dose}$ had no new Gd+ T1-lesions and 74% had no new/enlarging T2-lesions at W24. In placebo-switch participants, new Gd+ T1-lesions decreased from 2.3±1.49 at W12 to 0.4±0.31 at W24 in the placebo$_{high\text{-}dose}$/frexalimab$_{high\text{-}dose}$ arm and 3.7±2.31 at W12 to 0.6±0.44 at W24 in the placebo$_{low\text{-}dose}$/frexalimab$_{low\text{-}dose}$ arm. Plasma NfL and CXCL13 levels decreased over W24 with frexalimab. There were no new safety concerns; the most common adverse events were COVID-19, nasopharyngitis and headache.

CONCLUSION: Frexalimab was well-tolerated and continued to show a pronounced reduction of new MRI lesions at W24. These findings support its development as a potential high-efficacy, non-lymphocyte-depleting, MS therapy.

Multiple Sclerosis

Is early-onset MS present with a more active course of the disease?

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Background: Multiple sclerosis (MS) is a chronic autoimmune disease of the central nervous system, usually presenting at the age of 20 and 40 years. However, in rare cases, it is diagnosed before the age of 18 years, defined as early-onset MS (EOMS), or at the age of 50 years and later, described as late-onset MS (LOMS). Our goal was to determine the difference in disease activity among EOMS and LOMS patients.
Methods: We analyzed retrospective medical data of 88 patients, including 39,8% (35) EOMS and 60,2% (53) LOMS patients. The data included demographic, clinical, and radiological findings.
Results: The mean age at the time of the symptoms' onset in the EOMS group was 14.83 (SD=3.19) and 53.91 (SD=4.19) in the LOMS group. In EOMS group, RRMS disease course was the most common, while progressive MS was more frequent among LOMS group compared to EOMS group (p=0,001). The mean number of first year relapses in EOMS patients was higher (1,69, range 1-3) as compared to LOMS patients (0,68, range 0-2) (p0,001). Brain MRI repeated during the first year after diagnosis revealed new lesions in all EOMS patients, and in only 49,05% (26) of LOMS patients (p0,001). There was no significant difference in the frequency of active foci on MRI between the two groups (p=0,276).
Conclusion: The EOMS group had a more active disease course as there were more relapses in the first year, and signs of progressive disease were more often observed radiologically.

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A simple score (MOGR) to identify individuals at high risk of Relapse after MOGAD attack

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Background: Early recognition of markers of relapse in myelin-oligodendrocyte glycoprotein antibody-associated disease (MOGAD) is key requisite of personalized attack prevention therapy and management for patients.

Objective: To identify early predictors of relapse in patients with MOGAD, derive and validate a simple risk score to predict relapse of MOGAD.

Methods: Using multi-center registry of China National Registry of Neuro-Inflammatory Diseases (CNRID, NCT05154370), identified patients with MOGAD in March 2023 and followed up prospectively in September 2023 for latest recurrence. Primary endpoint was MOGAD relapse. Included patients were randomly divided into model development (75%) and internal validation (25%) cohorts. AG models were used for prediction model construction and internal validation cohort were used to assess. Nomogram and relapse risk score were generated for the final prediction models.

Results: 188 patients (612 treatment episodes) were included in derivation and internal validation cohorts. female (HR: 0.687, 95% CI: 0.524-0.899, p = 0.006), onset Age ≥ 45 years old (HR: 1.621, 95% CI: 1.242-2.116, p 0.001), receive immunosuppressive therapy (HR: 0.338, 95% CI: 0.239-0.479, p 0.001), oral corticosteroids 3 months (HR 0.449, 95% CI 0.326-0.620, p 0.001) and onset phenotype (p 0.001) were associated with MOGAD relapse. A simple score [MOGR (Attack phenotype, Onset Age, Gender, Immunosuppressive therapy, oral Corticosteroids)] derived in prediction model was highly predictive of relapse of MOGAD. MOGR score of 13-16 indicates more higher risk of relapse (HR: 3.285, 95% CI: 1.473 - 7.327, p = 0.004).

Conclusion: The risk of MOGAD relapse seems to be predictable. MOGR score can be used in routine clinical practice helping clinicians to determine appropriate treatment.

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Patterns and Predictors of Multiple Sclerosis Phenotype Transitions Based on a Longitudinal Analysis Using the CLIMB Study

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Introduction: Multiple sclerosis (MS) characteristics vary over time, but little is known about transitions and predictors of change among phenotypes.

Objective: To investigate how people with multiple sclerosis (PwMS) transition between phenotypes, within the Comprehensive Longitudinal Investigation of MS at the Brigham and Women's Hospital (CLIMB) Study.

Methods: This retrospective analysis of US-based CLIMB Study identified PwMS (18-65 years [y]) diagnosed between 1/1/2000–31/12/2010, with ≥10y follow-up data. PwMS were categorized into relapsing-remitting MS (RRMS), primary-progressive MS (PPMS), and secondary-progressive MS (SPMS) (experiencing ≥1 relapses: active SPMS [aSPMS]; no relapses: nonrelapsing SPMS [nrSPMS] within 2y pre-index). Demographics were extracted alongside Expanded Disability Status Scale (EDSS) scores. Cox regression modelled time to MS diagnosis. Predictors of transition were determined by multivariate regression analyses.

Results: Among 565 people with RRMS, 95 (16.8%) transitioned to SPMS (median time-to-transition [range]: 10.4y [1.3-21.3y]) including 56 people with nrSPMS (58.9%) who never relapsed. Of the 39 pwMS with any aSPMS diagnosis, 32/39 (82.1%) transitioned to nrSPMS. The relative hazard to reach EDSS level 3, 4, or 6 were significantly lower for RRMS vs other phenotypes (all P0.0001). Older age at MS onset (HR [95% CI]: 1.05 [1.03-1.07]), and higher baseline EDSS (1.42 [1.26-1.62]) and DMT switches (1.21 [1.11-1.32]) were significant predictors of nrSPMS transition (all P0.001).

Conclusions: Among PwMS who transitioned from RRMS to SPMS, 41% overlapped with an active phenotype (aSPMS), while 59% transitioned without relapses (nrSPMS). Those transitioning through aSPMS were younger and more likely to have DMT escalation vs. those transitioning without relapse.

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Characteristics of People with Multiple Sclerosis by Phenotype Based on Cross-Sectional Analysis Using the CLIMB Study in the United States

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Introduction: Multiple sclerosis (MS) phenotypes are categorized based on its clinical course. Understanding how characteristics vary across phenotypes, and during transition is important, as treatment may impact long-term outcomes.

Objective: To investigate how MS prevalence and characteristics vary across phenotypes within the Comprehensive Longitudinal Investigation of MS at the Brigham and Women's Hospital (CLIMB) Study.

Methods: This retrospective analysis of the US-based CLIMB Study identified people with MS (PwMS) aged 18-65 years (y), stratified by relapsing-remitting MS (RRMS), primary-progressive MS (PPMS), active secondary-progressive MS (aSPMS), and nonrelapsing secondary-progressive MS (nrSPMS) at "index" (22/12/2021). Demographics were extracted alongside Expanded Disability Status Scale (EDSS) scores. Data are presented as mean±SD.

Results: The study included 2,599 PwMS (RRMS: 1,891 [72.8%]; PPMS: 133 [5.1%]; nrSPMS: 534 [20.5%]; aSPMS: 41 [1.6%]) with 46.6%-75.9% females. Age at MS onset was lower for aSPMS (32.2±12.7y), RRMS (32.6±9.7y), and nrSPMS (33.8±10.4y) vs. PPMS (44.4±10.7y; P0.001). Age at transition was lower for aSPMS (45.4±10.7y) vs. nrSPMS (53.1±10.5y; P0.001). RRMS group had a shorter duration to first treatment vs. other phenotypes (4.2y vs. 7.2-9.4y; P0.001). At index, more people with RRMS (68.7%) and aSPMS (61.0%) received disease-modifying therapies (DMTs) vs. nrSPMS (58.2%) and PPMS (51.9%). EDSS scores were higher for nrSPMS (5.9±1.8), PPMS (5.9±1.8), and aSPMS (5.7±1.9) vs. RRMS (1.9±1.5; P0.001).

Conclusion: Among 2,599 PwMS, 20.5% had nrSPMS. nrSPMS and PPMS groups waited longer for first treatment and were less likely to receive DMTs, despite higher disability burden vs. RRMS, highlighting an unmet clinical need among people with progressive MS.

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Impact of Alemtuzumab on Fatigue, Quality of Life, and Patient/Caregiver Reported Outcomes in Relapsing-Remitting Multiple Sclerosis: Findings from a Real-World Evidence Study

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Background

Alemtuzumab is approved for treatment of highly active relapsing–remitting multiple sclerosis (RRMS) in the European Union. Patient reported outcomes (PROs) document information on the patients' disease state and assess the impact of alemtuzumab on their quality of life (QoL). Understanding the caregiver reported outcomes (CROs) in a real-life treatment setting is essential for MS treatment.

Methods

This 36-month, real-world, observational study enrolled 87 RRMS patients undergoing alemtuzumab treatment in three European countries. The primary endpoint was the effect on MS-related fatigue (Fatigue Scale for Motor and Cognitive Functions [FSMC]). Secondary endpoints included effect on cognition (Symbol Digit Modality Test [SDMT]), depression (Beck Depression Inventory–Version II [BDI-II]), QoL (Multiple Sclerosis Impact Scale-29 item [MSIS-29]), treatment satisfaction, number of relapses, improvement in Expanded Disability Status Scale (EDSS) score, and safety. Exploratory endpoints included CROs.

Results

Of 87 enrolled patients, 72.4% (n=63) completed six follow-up visits. Statistically significant improvements were found for FSMC (p0.01), SDMT (p0.05), depression (p0.01) and QoL scores (MSIS-29, physical (p0.01) and psychological (p0.001)). Global treatment satisfaction (p0.001), effectiveness (p0.05) and side effects (p0.05; apart from at EOS) also showed significant improvements at all time points. The percentage of patients with at least one relapse remained consistent throughout the study (10.8%-13.2%). EDSS improved significantly (p0.05). Caregivers reported an increase in emotional QoL. One treatment-related death occurred, and no new safety concerns were reported.

Conclusion

This real-world study demonstrated beneficial impact of alemtuzumab on fatigue, cognition, depression, QoL and treatment satisfaction. Moreover, disability improvement over time was reported.

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“Multiple Sclerosis Hug”: Challenging of a Peculiar Symptom

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Pain syndromes in Multiple Sclerosis are a challenging aspect. "Multiple sclerosis hug" is characterised by a tight, squeezing, or burning sensation around the chest or waist, similar to a constricting band or hug, and it may indicate a relapse.

A 46-year-old female, known with SPMS diagnosed at the age of 22, comes to our clinic with severe and persistent right-sided costal pain, exacerbated during inspiration, with an onset 3 months ago, and no response to conventional treatment.

No changes were observed in the neurological examination compared to the last clinical evaluation (EDSS = 5). The patient did not exhibit any truncal level of sensitivity. Blood tests, ultrasound, and cardiology exams did not reveal any acute pathological changes. The cerebral and spinal cord MRI did not show any new or active lesions. Research findings suggest that, despite the often-established link between relapses and MRI lesions, a substantial mismatch exists between clinical symptoms and the occurrence of MRI abnormalities.

After 5 days of taking 1g of methylprednisolone daily, complete pain relief was observed.

Unfortunately, pain is not quantified in the functional sensitivity score, and in this case, despite a pain rating of 8 on the pain scale, this aspect does not increase the EDSS score.

Although it`s not extensively documented in medical journals, this painful symptom could be useful for determining the course of action regarding treating a clinical relapse, escalating the use of disease-modifying therapies, and characterizing the disease course in MS.

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Safety and Effectiveness of Cladribine Tablets after Treatment with Natalizumab (CLADRINA) Trial – Interim Analysis

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Introduction: Natalizumab is a highly effective therapy approved for relapsing forms of multiple sclerosis (RMS) associated with an increased risk of developing progressive multifocal leukoencephalopathy (PML) and disease reactivation upon cessation. Cladribine tablets (CladT) are a highly effective therapy approved for RMS patients that preferentially reduces blood B and T lymphocytes.

Objectives: CLADRINA was designed to generate effectiveness and safety data regarding the transition of RMS patients from natalizumab to CladT.

Methods: CLADRINA is an open-label, phase 4, study in 40 RMS patients who switched to CladT within 4 weeks of their last natalizumab infusion.

Results: 39 patients completed 12 months of follow-up. In the 12 months prior to CladT switch, the mean annualized relapse rate (ARR) was 0.1 (95%CI:0.00-0.22) and decreased to 0.05 (95%CI:0.00-0.12) at 12 months. At baseline, the mean Expanded Disability Status Scale (EDSS) was 2.46 (range:0.0-5.5) and remained stable 12 months after switching to CladT. At baseline, 95% of patients were free from T1 gadolinium-enhancing (Gd+) lesions, and 12 months after switching, 100% were free from T1 Gd+ lesions. At baseline, 87.5% of patients were free from new/enlarging T2 lesions, and 12 months after switching, 97% of patients were free from new/enlarging T2 lesions. The therapy was well tolerated.

Conclusion: After switching to CladT from natalizumab, ARR, EDSS and MRI activity remained stable through 12 months. No cases of PML or rebound disease activity have been reported. Continuing to evaluate immunological and clinical data may provide further insight into advantages of this therapy transition.

Multiple Sclerosis

Balance control mechanism in people with multiple sclerosis using virtual reality environment

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Multiple Sclerosis (MS) is a progressive neurological condition characterized by deteriorating balance control, significantly increasing the risk of falls. As virtual reality (VR) emerges as a promising tool for balance training, this study investigates its effectiveness and impact on balance control mechanisms in MS patients, compared to healthy individuals. The primary objective is to explore balance control in MS patients within a VR environment and assess the efficacy of VR-based balance training. Employing an empirical approach, the study evaluates balance response in MS patients using VR technology. Data collection encompasses patient observations, along with physiological and biomechanical balance assessments. A preliminary systematic review and meta-analysis reveal variability in balance response assessments among MS patients. These assessments potentially offer crucial indicators of MS progression, aiding in personalized treatment and evaluating the effectiveness of interventions. Prior research suggests that MS patients practicing in VR environments acquire transferable balance skills applicable to real-world scenarios. The current study is expected to provide vital insights into the influence of VR on balance control among MS individuals. This research offers a comprehensive examination of balance acquisition in MS patients within VR settings. By integrating various physiological and biomechanical perspectives, it contributes to a deeper understanding of balance control mechanisms in MS. The study`s empirical methodology delivers significant insights into balance in MS patients and the potential of VR in enhancing balance training effectiveness. The outcomes are anticipated to enrich our understanding of VR`s impact on balance control mechanisms, thereby informing personalized intervention strategies in MS.

Multiple Sclerosis

Characteristics of Multiple Sclerosis in Urban and Rural Areas of Azerbaijan

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Introduction. Multiple sclerosis (MS) is an autoimmune, inflammatory disorder affecting the central nervous system, whose cause remains unknown and for which there is no comprehensive cure.

The aim of the study. This scientific work presents the results of a study conducted to investigate the characteristics of MS in patients, with a focus on their place of residence.

Materials and Methods. At the Neurological Center of the Ministry of Health of the Republic of Azerbaijan, located within the Republican Clinical Hospital named after Academician M.Mirgasimov, a special expert committee over a period of 10 years (01.01.2013-31.12.2022) examined and studied the medical records of 1796 patients diagnosed with MS or those whose diagnosis was reaffirmed.

Results and discussion. Probable first attacks in patients were more common at the age of 20-29 years, both in urban (41.3±1.4%) and rural (41.2±2.0%) areas. The average age at the time of the first relapses was 29.7±0.2 years (29.6±0.3 in urban areas and 29.7±0.3 in rural areas). According to the clinical course, relapsing MS was more frequent both in rural (80.3±1.6%) and urban areas (76.5±1.2%). The lethality rate among rural residents (2.8±0.7%) was higher than urban residents (2.2±0.4%), but the difference was not statistically significant (p=0.407).

Conclusion. The share of MS is higher in urban than rural areas, possible reason can be environmental factors and better access to medical services, including neurologists and radiologists (MRI exams), in cities. This leads to earlier diagnoses and shorter times between firstattacks and diagnosis in urban populations compared to rural ones.

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MRI in multiple sclerosis follow-up: Does the BartsMS experience support the case for AI assistance?

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Introduction: The 2021 magnetic resonance imaging in MS (MAGNIMS) guidance offers benchmarks for MRI in people with multiple sclerosis (pwMS) on disease-modifying treatment (DMT). The MS service at Barts Health NHS Trust (BartsMS) has adopted an amended version of this guidance, with extended timelines following the COVID pandemic.

Aims: To review MRI monitoring of pwMS at BartsMS. To inform sample size in "AssistMS", a multicenter project testing artificial intelligence (AI) supported MRI reading in pwMS.

Methods: Demographics, timelines, reports and multi-disciplinary team (MDT) decisions were reviewed October-December 2022. Patients were identified via PACS.

Results: 189 pwMS undergoing MRI were identified. 160/189 datasets were obtained for DMT follow-up. Mean time from request to MRI 104 days (range 0-371); mean time since previous scan 595 days (9-2834); mean time for reporting 52 days (0-312). Of 25 pwMS discussed at MDT, mean time from acquisition to MDT was 84 days (11-331). MRI changes alone led to DMT changes in 9.5% (18/189).

Conclusion: Whilst MRI scans were obtained within recommended timelines, significant variation, and delays in reporting and MDT decisions, were observed. Backlogs due to shortage of neuroradiological expertise may be eased by employing AI-supported MRI registration and analysis.

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Multiple Sclerosis

Maintaining efficacy, reinstating anti-JCV immunity in people with MS: The Natalizumab to Cladribine experience at Barts Health

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Background

Rapid elimination of Natalizumab and modest speed of onset of Cladribine might lead to the risk of re-emerging disease activity.

Aim

To evaluate the safety of switching from Natalizumab to Cladribine in our cohort of patients with MS.

Methods

Clinical audit of patients with MS who switched from Natalizumab to Cladribine between July 2019 and May 2023.

Results

Six patients were identified (5 men, and 1 woman). They were between 21 and 39 years old (median: 31.5 years). Median disease duration was 5 years (range: 3-11 years). Median EDSS when starting Cladribine was 1.75.

The reason for switching was the presence of JC virus serum antibodies with an index of 1.5 in five and patient preference in one.

Median Natalizumab infusions was 14 (range: 5-47). The mean switching interval was 4.8 weeks (range: 2-8). The latency period was due to completing vaccinations or prophylactic anti-TB treatment.

The median follow-up period from the first day of taking Cladribine, was 29.5 months. None reported clinical relapse or worsening disability as assessed by EDSS. None had MRI activity, or signs of PML.

Conclusion

Switching from Natalizumab to Cladribine was safe and effective. We recommend a delay of no more than two weeks when switching.

Multiple Sclerosis

Coaching newly diagnosed people with multiple sclerosis

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Introduction

Rapid intervention to facilitate secondary prevention is key for people with multiple sclerosis (pwMS). However, the regular pathway for diagnosis and management in the UK lacks urgency, which may adversely impact on pwMS' adjustment to their new diagnosis and decision making. Evidence suggests that emotional support of pwMS during this early phase may be of particular importance for rapid disease modifying treatment (DMT) and beneficial lifestyle changes.

Aims

To report outcomes of a workshop focussing on sustainable coaching for newly diagnosed pwMS, including results of a pre- and post workshop questionnaire.

Methods

A two-day workshop, taking place in February 2024, will be led by a team experienced in coaching pwMS early after diagnosis. Modules will include (i) early interactions between healthcare professionals (HCPs) and pwMS, (ii) dealing with resistance, (iii) emotional care pathway development, (iv) goal setting, (v) role of quality of life trustees, and (vi) measuring success.

Results

Approximately 35 HCPs will participate in this first of its kind workshop, which will inform similar future training events.

Conclusion

The urgency with which pwMS should enter a holistic care setting, including early DMT, produces new challenges for HCPs and the NHS. Efficient coaching may enable pwMS to rapidly adapt to MS thereby minimising its detrimental effects on their quality of life.

Multiple Sclerosis

Exploring the Link Between Autonomic Dysregulation and Alexithymia in Patients with Multiple Sclerosis

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Introduction: Alexithymia, characterized by emotional blindness, is prevalent in numerous medical conditions, including multiple sclerosis (MS). Autonomic dysregulation (AD) is observed in MS patients due to multifaceted causes. Despite the frequent occurrence of AD in MS, the interplay between alexithymia and AD remains unexplored.

Aim: This study aimed to assess the presence of AD and alexithymia in relapsing-remitting MS (RRMS) patients.

Methods: The prospective longitudinal study included 48 RRMS patients with a median age of 48,08 ± 7,77, and a median disease duration of 15,83 ± 5,59, assessed at baseline and six years later. The following clinical assessments were done: Back Depression Inventory (BDI), Composite Autonomic Symptom Scale 31 (COMPASS-31), Expanded Disability Status Scale (EDSS), and Toronto Alexithymia Scale 20 (TAS-20) which was performed only on the second assessment, since little evidence exists on the progression of alexithymia over time.

Results: Over a six-year study period, our cohort exhibited no significant changes in EDSS scores (p=0.069) and total AD score (p=0.866). Average BDI scores showed a decrease from the initial measurement (p=0.046). Positive correlations were identified between total AD score and TAS-20 (r=0,517, p0,001) scores, as well as between BDI scores and TAS20 scores (r=0,608, p0,001) on the second assessment.

Conclusion: High levels of alexithymia correlate with AD and depression in MS patients. According to the significant positive correlation between alexithymia with high scores on BDI, and COMPASS-31, we suggest that by admitting the potential negative impact of alexithymia in MS, screening for it is relevant for better management.