P.006

Barriers and risk factors for emergency room visits vs smartphone app use for migraine in Canada and the United States

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Background: Migraine affects more than 1 billion people, with attacks triggered by a variety of factors. Knowledge of environmental triggers for migraine attacks is limited, and has mostly been studied via emergency room (ER) visits. There are significant barriers and delays for attending ER for migraine treatment, which create challenges for estimating causal links to environmental exposures. We assessed whether smartphone app records may have fewer barriers and reduced lags. Methods: American and Canadian participants completed an online survey about their migraine attacks, smartphone app use, and ER visits. Results: Among 308 participants, barriers to visiting ER were similar in both countries, except for financial concerns in the US. About half of participants who attended ER also recorded the attack in a diary or app. Whereas migraine patients often present to ER 7+ days after onset, records in a smartphone app dataset were created within 2 days of onset. Conclusions: Although not all severe migraine attacks are recorded by smartphone users, smartphone app records may have fewer barriers to creation and shorter time lags compared to ER visit records, making them a rich source of data for research on transient neurologic health outcomes and environmental exposures.

P.007

Role of neuroimaging in headache management; are we following the guidelines?

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Background: Healthcare systems incur a significant financial burden through unnecessary neuroimaging, which globally, is in the order of the billions of dollars. Current recommendations suggest avoiding neuroimaging in patients with stable headaches, particularly those meeting the criteria for migraine. Methods: We conducted a retrospective chart review of 100 headache patients in an outpatient neurology clinic. We evaluated the use of CT and MRI imaging and the impact of neuroimaging on clinical management. Results: 55% of patients had a history of migraine. Overall, 74 of 100 patients had either CT or MRI imaging. Imaging was largely normal or identified non-specific, clinically irrelevant findings. There was 1 case of a cerebellopontine angle epidermoid tumor and another of suspected MS. Neuroimaging did not alter headache management. Conclusions: The data is consistent with current guidelines suggesting that neuroimaging is not necessary in patients with stable headaches, particularly migraine. Neuroimaging overuse might reflect lack of awareness of guideline recommendations, insecurity over diagnoses, medicolegal concerns, as well as patients and primary practitioners' expectations. Resources to help improve public and physician awareness regarding neuroimaging use in patients with stable headache may help reduce unwarranted imaging studies and could have significant financial savings for healthcare systems.

Movement Disorders

P.008

Spontaneous retropulsion in autopsy verified PSP

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Background: Postural instability is a common symptom of progressive supranuclear palsy (PSP). Retropulsion is one form of postural instability. Spontaneous retropulsion involves loss of balance without external provocation. Others have reported on retropulsion in the clinical setting while testing for postural instability but rates of spontaneous retropulsion in the community have not been described. This study examines the prevalence of spontaneous retropulsion in PSP. Methods: A retrospective chart review examined 60 patients from the Saskatchewan Movement Disorders Program with clinical and pathology-confirmed diagnosis of PSP. We identified patients who endorsed spontaneous retropulsion. The data was analysed with univariate logistic regression. Results: The study included 43 males and 17 females. Spontaneous retropulsion was reported in 18 (30%) patients. Among the variables, only sex showed a statistical significance ($p = 0.0184$) with females more likely to report spontaneous retropulsion (OR = 4.25). Other variables (PSP onset age, onset age of balance impairment, gait impairment, and disease duration) were not statistically significant. Conclusions: Our data suggest that spontaneous retropulsion is common in PSP, with females being at a significantly higher risk than males. This is useful information when counselling patients on risk-avoidance behaviour to prevent falls.

MS/Neuroinflammatory Disease

P.009

Long-term comparative efficacy of inebilizumab from N-MOmentum participants versus azathioprine and immunosuppressants and placebo in NMOSD patients

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Background: Long-term efficacy of inebilizumab (INEB), an anti-CD19+ B cell-depleting antibody approved for the treatment of seropositive-aquaporin-4-antibody (AQP4+) neuromyelitis optica spectrum disorder (NMOSD) was evaluated over

N-MOmentum (NCT02200770) open-label period (OLP) vs azathioprine and other immunosuppressants (AZA/IST) and vs PBO. Methods: Two historical comparator groups (HCGs), AZA/IST (N=132) and PBO (N=106), derived from published NMOSD studies, were used to compare efficacy of INEB (N=208) over the OLP. Hazard ratios (HR) for INEB vs HCGs were estimated using Cox proportional hazards (PH) regression. Time to NMOSD attack was analysed using parametric and flexible survival (spline) models. Results: Time to NMOSD attack for N-MOmentum PBO compared to PBO was HR 1.15;(95% CI:0.67–1.91; *P*=0.58). The HRs for time to NMOSD attack for INEB vs AZA/IST and PBO groups were 0.29(95% CI:0.17, 0.42; *P*<0.001) and 0.15 (95% CI:0.10, 0.21; *P*<0.001). At 4 years, estimated attack-free survival was 77% (95% CI:71, 83) for INEB, 36% (95% CI:27, 46) for AZA/IST, and 12% (95% CI:7, 20) for PBO. Conclusions: INEB was associated with a statistically significant reduction in risk of an NMOSD attack and provided a long-term attack-free probability over the OLP compared to the relative short-term benefit observed with AZA/IST.

P.010

Safety and efficacy of inebilizumab in AQP4+ NMOSD participants with history of immunosuppression treatment prior to N-MOmentum study

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Background: The long-term outcomes of inebilizumab in participants from the N-MOmentum trial with a history of immunosuppressant therapy as compared to those without was evaluated. Methods: N-MOmentum (NCT02200770) was a 28-week randomized phase 2/3 trial of inebilizumab vs placebo, with an optional Open-Label Period (OLP) (>2 years). In this post hoc analysis, $AQP4^+$ participants who received inebilizumab (through the OLP) were grouped by no history of immunosuppression therapy beyond treatment of acute NMOSD attacks (naïve), or prior azathioprine (AZA) and/or mycophenolate mofetil (MMF) therapy. Results: Among participants who received inebilizumab during the study, 94 received prior AZA/MMF and 103 were immunosuppressant naïve. Annualized relapse rate (95%CI) for participants with prior AZA/MMF was 0.11 (0.07, 0.17), compared to 0.08 (0.05, 0.14) for naïve. The hospitalization rate (annualized rate [95% CI]) for prior AZA/MMF was 0.15 (0.08, 0.27), and 0.12 (0.06, 0.22) for naïve. Participants with ≥1 study drug-related-treatment-emergent-adverse-event (TEAE) was 30.9% (29/94) in prior AZA/MMF and 46.6% (48/103) of naïve. Most adverse events were infection-related for both groups; 72.3% (68/94) for prior AZA/MMF and 77.7% (80/94) for naïve. Conclusions: This post hoc analysis evaluating long-term outcomes of inebilizumab in $AQP4^+$ NMOSD participants treated with prior AZA/MMF therapy demonstrated a similar efficacy and safety profile as participants without prior immunosuppressant therapy.

P.011

Efficacy and safety of ravulizumab in adults with AQP4+ NMOSD: interim analysis from the ongoing phase 3 CHAMPION-NMOSD trial

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Background: CHAMPION-NMOSD (NCT04201262) is an ongoing global, open-label, phase 3 study evaluating ravulizumab in AQP4+ NMOSD. Methods: Adult patients received an intravenous, weight-based loading dose of ravulizumab on day 1 and a maintenance dose on day 15 and every 8 weeks thereafter. Following a primary treatment period (PTP; up to 2.5 years), patients could enter a long-term extension (LTE). Results: 58 patients completed the PTP; 56/2 entered/completed the LTE. As of June 16, 2023, median (range) follow-up was 138.4 (11.0-183.1) weeks for ravulizumab (n=58), with 153.9 patient-years. Across the PTP and LTE, no patients had an adjudicated on-trial relapse during ravulizumab treatment. 91.4% (53/58 patients) had stable or improved Hauser Ambulation Index score. 91.4% (53/58 patients) had no clinically important worsening in Expanded Disability Status Scale score. The incidence of treatment-emergent adverse events (TEAEs) and serious adverse events was 94.8% and 25.9%, respectively. Most TEAEs were mild to moderate in severity and unrelated to ravulizumab. TEAEs leading to withdrawal from ravulizumab occurred in 1 patient. Conclusions: Ravulizumab demonstrated long-term clinical benefit in the prevention of relapses in AQP4+ NMOSD with a safety profile consistent with prior analyses.

P.012

A global, long-term, prospective, observational registry of patients with AQP4+ NMOSD treated with complement component 5 inhibitor therapies eculizumab or ravulizumab

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Background: The complement component 5 inhibitor therapies (C5ITs) eculizumab and ravulizumab have been approved or submitted for regulatory approval in several regions for AQP4+ NMOSD. Methods: This global, long-term, prospective, multicenter, observational registry will enroll adult patients with AQP4+ NMOSD being treated with eculizumab or ravulizumab and who have received ≥1 dose of eculizumab or ravulizumab within 4 or 12 weeks prior to enrollment, respectively. Inclusion criteria include available historical data on C5IT dosing since initiation and the number and types of relapses from 1 year prior to C5IT initiation