P.042

Dopamine Dysregulation Syndrome in Parkinson's Disease and its Management with Advanced Therapies

S Sasikumar (Toronto)* *R Matta* (Sardinia), *A Fasano* (Toronto)

doi: 10.1017/cjn.2021.323

Background: Dopamine Dysregulation Syndrome (DDS) is an adverse non-motor complication of dopamine replacement therapy in Parkinson's Disease. The current literature on DDS is limited, and it remains underdiagnosed and challenging to manage. **Methods:** We performed a retrospective chart review and classified patients according to risk factors that have been identified in the literature, UPDRS scores, intervention and outcome. Univariate analyses were performed to quantify these characteristics. **Results:** Prior psychiatric illness was identified in 70% of patients, impulse control disorder in 89% and substance abuse in 3.7%. Interventions included reduction of dopamine therapy (88.9%), deep brain stimulation (DBS) of the subthalamic nucleus (STN, 48.1%) or globus pallidus interna (GPi, 7.4%), and levodopa-carbidopa intestinal gel (LCIG) infusion (11.1%). Baseline UPDRS IV before treatment and MDS III after treatment were not significant between intervention groups (p=0.09 and p=0.13 respectively). Overall 88.9% patients improved at follow up, with medication only (75%), STN DBS (100%), GPi DBS (100%) and LCIG (33%). Relapse rate was 18.2%, in the STN group only. **Conclusions:** Our results suggest that GPi DBS, in concurrence with dopaminergic medication reduction, is the most effective intervention. STN DBS might be also beneficial although the associated medications reduction causes DDS relapse in a subgroup of patients.

Multiple Sclerosis

P.043

Long term MS clinical outcomes predicted by baseline serum neurofilament light levels

M Abdoli (Ottawa)* *S Thebault* (Ottawa)* *MS Freedman* (Ottawa) *D Tessier* (Ottawa) *V Tobbard-Cossa* (Ottawa), *SM Fereshtehnejad* (Ottawa)

doi: 10.1017/cjn.2021.324

Background: Prognostic biomarkers are badly needed to direct MS treatment intensity early in the condition Levels of serum neurofilament light chains (sNfL) result from the destruction of central nervous system axons in MS and correlate with the aggressiveness of the disease. **Methods:** In this prospective cohort study, we identified patients with serum collected within 5 years of first MS symptom onset with more than 15 years of clinical follow-up. Levels of sNfL were quantified in patients and matched controls using digital immunoassay. **Results:** Sixty-seven patients had a median follow-up period of 17.4 years (range:15.1-26.1). Median serum NfL levels in baseline samples of MS patients was 10.1 pg/ml, 38.5% higher than median levels in 37 controls (7.26pg/ml, p=0.004). Baseline NfL level was most helpful as a predictive marker to rule out progression; patients with levels less 7.62pg/ml were 4.3 times less likely to develop an EDSS score of ^{3}4 (p=0.001) and 7.1 times less likely to develop progressive MS (p=0.054). Patients with the highest NfL levels (3rd-tertile, >13.2 pg/ml) progressed most rapidly with an EDSS annual rate of 0.16 (p=0.004), remaining significant after adjustment for sex, age, and disease-modifying treatment (p=0.022). **Conclusions:** This study demonstrates that baseline sNfL is associated with long term disease progression.

P.045

Aquaporin-4 and Myelin Oligodendrocyte Glycoprotein Antibody Testing in Calgary: A Quality Improvement Review

JD Krett (Calgary)* *H Hou* (Calgary) *K Alikhani* (Calgary) *MJ Fritzler* (Calgary), *JM Burton* (Calgary)

doi: 10.1017/cjn.2021.326

Background: Despite the availability of cell-based assays for aquaporin-4 (AQP4) and myelin oligodendrocyte glycoprotein (MOG) antibodies provincially, outside confirmatory testing is often performed (typically Mayo Clinic Laboratories, USA) when results deviate from expected. It is unknown how often this costly undertaking (upwards of $1,200 CAN) alters diagnosis and management. **Methods:** We undertook a quality improvement project evaluating the concordance/discordance rate with select chart review in all patients who had cell-based AQP4 or MOG IgG antibody testing at Mitogen Diagnostics (MitogenDx; Calgary, Alberta) and subsequent testing at Mayo Clinic Laboratories from as early as 2010 to July 2020. **Results:** Preliminary review of data from January 2016 to July 2020 retrieved 145 paired tests; 10 of which were discordant (concordance rate: 93.1%). Chart review confirmed 9 truly discordant cases, often associated with AQP4 or MOG weak-positive results (7/9 cases) or presumed false negative AQP4 results in prototypical neuromyelitis optica spectrum disorder (2/9 cases). **Conclusions:** Discordant results were rare when comparing MitogenDx local AQP4/MOG antibody test results to those referred out to Mayo Clinic Laboratories, impacting diagnosis and treatment in only 3 patients out of the total. Our results suggest costly outside confirmatory testing of AQP4/MOG antibodies could be reduced.

P.048

International MAGNIMS-CMSC-NAIMS consensus recommendations on the use of standardized MRI in MS

A Traboulsee (Vancouver)* *M Wattjes* (Hannover) *O Ciccarelli* (London) *D Reich* (Bethesda) *B Banwell* (Philadelphia) *N de Stefano* (Siena) *C Enzinger* (Graz) *F Fazekas* (Graz) *M Filippi* (Milan) *J Frederiksen* (Copenhagen) *C Gasperini* (Roma) *Y Hacohen* (London) *L Kappos* (Basel) *DK Li* (Vancouver) *K Mankad* (London) *X Montalban* (Barcelona) *S Newsome* (Baltimore) *J Oh* (Toronto) *J Palace* (Oxford) *M Rocca* (Milan) *J Sastre-Garriga* (Barcelona) *M Tintore* (Barcelona) *H Vrenken* (Amsterdam) *T Yours* (London) *F Barkhof* (London), *A Rovira* (Barcelona)

doi: 10.1017/cjn.2021.329

Background: Standardized magnetic resonance imaging (MRI) guidelines published in 2015 by the Europoean

MAGNIMS group and in 2016 by the CMSC are important for the diagnosis and monitoring of patients with multiple sclerosis (MS) and for the appropriate use of MRI in routine clinical practice. **Methods:** Two panels of experts convened to update existing guidelines for a standardized MRI protocol. The MAGNIMS panel convened in Graz, Austria in April 2019. The CMSC NAIMS panel met separately and independently in Newark, USA in October 2019. Subsequently, the MAGNIMS, NAIMS, and CMSC working groups combined their efforts to reach an international consensus **Results:** The revised guidelines on MRI in MS merges recommendations from MAGNIMS, CMSC, and NAIMS to improve the use of MRI for diagnosis, prognosis and monitoring of individuals with MS. 3D acquisitions are emphasized for optimal comparison over time. Core brain sequences include a 3D-T2wFLAIR for lesion identification and monitoring treatment effectiveness. Gadolinium-based contrast is recommended for diagnostic studies and judicious use for routine monitoring of MS patients. DWI sequences are recommended for PML safety monitoring. **Conclusions:** The international consensus guidelines strive for global acceptance of a useful and usable standard of care for patients with MS.

Neurocritical Care

P.050

Perspectives on the use of ancillary tests for determining neurological death: a survey of Canadian intensivists

J Neves Briard (Montreal)* *M Yu* (Montreal) *LP Carvalho* (Montreal) *SW English* (Ottawa) *F d'Aragon* (Sherbrooke) *F Lauzier* (Quebec) *A Turgeon* (Quebec) *S Dhanani* (Ottawa) *L McIntyre* (Ottawa) *SD Shemie* (Montreal) *G Knoll* (Ottawa) *DA Fergusson* (Ottawa) *SJ Anthony* (Toronto) *MJ Weiss* (Quebec), *M Chassé* (Montreal)

doi: 10.1017/cjn.2021.331

Background: Ancillary tests are indicated to diagnose death by neurological criteria whenever clinical neurological examination is unreliable, but their use is variable and subject to debate. **Methods:** Survey of Canadian intensivists providing care for potential organ donors. We included closed-ended questions and different clinical scenarios regarding the use of ancillary tests. **Results:** Among 550 identified intensivists, 249 completed the survey. Respondents indicated they would be comfortable diagnosing death based on neurological examination without ancillary tests in the following scenarios: movement in response to stimulation (48%), spontaneous peripheral movement (31%), inability to evaluate upper/lower extremity responses (34%) or both oculocephalic and oculo-caloric reflexes (17%), presence of high cervical spinal cord injury (16%) and within 24 hours of hypoxemic-ischemic brain injury (15%). Furthermore, 93% agreed that ancillary tests should always be conducted when a complete neurological examination is impossible, 89% if there remains possibility of residual sedative effect and 59% in suspected isolated brainstem death. **Conclusions:** Our findings suggest that Canadian intensivists have different perceptions on what constitutes a complete and reliable clinical neurological examination for determining death by neurologic criteria. Some self-reported practices also diverge from national recommendations. Further investigation and education are required to align and standardize medical practice across physicians and systems.

P.051

Do clinical confounders to the neurological examination modify the diagnostic accuracy of CT-angiography for death by neurological criteria/brain death?

J Neves Briard (Montreal)* *R Nitulescu* (Montreal) *É Lemoine* (Montreal) *S English* (Ottawa) *L McIntyre* (Ottawa) *G Knoll* (Ottawa) *S Shemie* (Montreal) *C Martin* (London) *A Turgeon* (Québec City) *F Lauzier* (Québec City) *D Fergusson* (Ottawa), *M Chassé* (Montreal)

doi: 10.1017/cjn.2021.332

Background: CT-angiography is an ancillary test used to diagnose death by neurological criteria (DNC), notably in cases of unreliable neurological examinations due to clinical confounders. We studied whether clinical confounders to the neurological examination modified CT-angiography diagnostic accuracy. **Methods:** Systematic review and meta-analysis of studies including deeply comatose patients undergoing DNC ancillary testing. We estimated pooled sensitivities and specificities using a Bayesian hierarchical model, including data on CT-angiography (4-point, 7-point, 10-point scales, and no intracranial flow), and performing a subgroup analysis on clinical confounders to the reference neurological examination. **Results:** Of 40 studies included in the meta-analysis, 7 involve CT-angiography (n=586). There was no difference between subgroups (Table). The degree of uncertainty involving sensitivity estimates was high in both subgroups. **Conclusions:** Statistical uncertainty in diagnostic accuracy estimates preclude any conclusion regarding the impact of clinical confounders on CT-angiography diagnostic accuracy. Further research is required to validate CT-angiography as an accurate ancillary test for DNC.

Table. Pooled sensitivities and specificities of CT-angiography for death by neurological criteria

Ancillary test (radiological criteria) [number of patients pooled]	Pooled sensitivity (95% highest density interval)	Pooled specificity (95% highest density interval)
CT-angiography (4-point scale) [N=303]	0.81 (0.57-0.94)	1.00 (1.00-1.00)
Clinical confounders (n=197)	0.82 (0.62-0.93)	1.00 (1.00-1.00)
No clinical confounders (n=106)	0.78 (0.25-0.97)	1.00 (1.00-1.00)
CT-angiography (7-point scale) [N=79]	0.93 (0.63-0.99)	1.00 (0.99-1.00)
Clinical confounders (n=79)	0.90 (0.64-0.99)	1.00 (0.99-1.00)
No clinical confounders (n=0)	0.95 (0.27-1.00)	1.00 (0.99-1.00)
CT-angiography (10-point scale) [N=54]	0.87 (0.34-0.99)	1.00 (0.99-1.00)
Clinical confounders (n=54)	0.84 (0.37-0.98)	1.00 (1.00-1.00)
No clinical confounders (n=0)	0.90 (0.03-0.98)	1.00 (0.99-1.00)
CT-angiography (no intracranial flow) [N=150]	0.89 (0.55-0.98)	1.00 (0.99-1.00)
Clinical confounders (n=70)	0.90 (0.65-0.98)	1.00 (1.00-1.00)
No clinical confounders (n=80)	0.93 (0.40-1.00)	1.00 (0.99-1.00)