A.3

The Canadian registry for amyloidosis research: a national multi-disciplinary registry for real-world evidence

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Background: The Canadian Registry for Amyloidosis Research (CRAR) is a nationwide disease registry of transthyretin (ATTR) and light-chain (AL) amyloidosis. Recent advances in disease-modifying therapy have improved prognosis, however there is a critical need for real-world evidence to address knowledge gaps, particularly longer-term therapeutic outcomes and surveillance strategies. Methods: A multi-stakeholder process was undertaken to develop a consensus dataset for ATTR- and AL-amyloidosis. This process included surveys to rank the importance of potential data items, and a consensus meeting of the CRAR steering committee, (comprised of multidisciplinary clinical experts, and patient organization representatives). Patients and patient organizations supported the development and implementation of a patient-reported dataset. Results: Consensus data items include disease onset, progression, severity, treatments, and outcomes, as well as patient-reported outcomes. Both prospective and retrospective (including deceased) patient cohorts are included. Further baseline data will be presented on an initial cohort of patients. Conclusions: CRAR has been established to collect a longitudinal, multidisciplinary dataset that will evaluate amyloidosis care and outcomes. CRAR has launched at multiple specialty amyloidosis centers nationally and is continually expanding. The growth of this program will promote opportunities to assess real-world safety and efficacy and inform the cost-effectiveness of therapies while supporting patient recruitment for research.

A.4

Apomorphine effects on Parkinson's disease fluctuation related pain

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Background: Fluctuation-related pain (worse in OFF periods) is a frequent and disabling symptom in Parkinson's disease (PD). As evidence-based treatments to treat pain in PD are limited, exploring alternatives to treat it are imperative. Apomorphine is the only antiparkinsonian agent compatible with levodopa in improving PD motor symptoms and is usually well tolerated. We explored the effects of apomorphine in PD fluctuation-related pain. Methods: Small pilot double-blind, placebo controlled, randomized crossover study evaluating the safety and efficacy of subcutaneous apomorphine vs. placebo on fluctuation-related PD pain including participants experiencing pain during OFF periods. Primary outcomes: changes in a Visual Analogue Scale for pain and MDS-UPRDS III from baseline to 30 and 60 minutes after injections (two doses, separated by 60 min) and adverse events. Domperidone was used as premedication to avoid nausea/vomiting. Results: 16 patients were screened and 11 completed the study. All participants tolerated both treatments without significant side effects. Efficacy results remain blinded until the end of February 2023 and will be shown at the conference. Conclusions: Apomorphine, recently approved by Health Canada as an adjunctive therapy in PD patients and experiencing "off" periods, has shown to be safe when used to treat fluctuation-related PD pain. Efficacy outcomes will be soon available.

A.5

Neurovascular complications of veno-venous extracorporeal membrane oxygenation in critically ill COVID-19 patients

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Background: Veno-venous extracorporeal membrane oxygenation (VV-ECMO) is an invasive intervention for patients with respiratory failure associated with COVID-19. This meta-analysis aims to determine the incidence of neurovascular complications in COVID-19 patients requiring VV-ECMO. Methods: Systematic literature search of MEDLINE, Embase, PsycINFO, and Cochrane databases was performed to identify studies that reported neurovascular complications of adult COVID-19 patients on VV-ECMO for respiratory failure. Case series and reports were excluded. Studies with 95% or more of its patients on VV-ECMO were pooled for meta-analysis. Results: Eighteen studies (n=1968) were included for meta-analyses. In COVID-19 patients requiring VV-ECMO, the incidences of intracranial hemorrhage and ischemic stroke were 11% [95% CI, 8–15%] and 2% [95% CI, 1–3%], respectively. Intraparenchymal and subarachnoid hemorrhages accounted for 73% and 8% of all intracranial hemorrhages, respectively. The risk ratio of mortality in COVID-19 patients with neurovascular complications on VV-ECMO compared to patients without neurovascular complications was 2.24 [95% CI, 1.46–3.46]. Conclusions: COVID-19 patients requiring VV-ECMO have a higher incidence of intracranial hemorrhage compared to historical data in non-COVID-19 patients (11% vs. 8%), while the incidence of ischemic stroke is similar (2%) in both cohorts. COVID-19 patients with neurovascular complications on VV-ECMO are at an increased risk of death.

A.6

CSF1R-related adult-onset leukodystrophy with axonal spheroids and pigmented glia (ALSP) presenting as corticobasal syndrome (CBS): a case report and literature review

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Background: Colony stimulating factor 1 receptor (*CSF1R*) mutations have various clinical, often overlapping, phenotypes. Methods: Case report and literature review. Results: We present a case of a previously independent 49-year-old woman with a 3-

year history of early- and insidious-onset, rapidly progressive symptoms resembling CBS (parkinsonism, severe apraxia, global cognitive impairments, personality changes, depression, and functional decline). Brain MRI showed severe atrophy with frontoparietal predilection, asymmetric ex vacuo dilatation, atrophic corpus callosum, and patchy, asymmetric T2/FLAIR hyperintensities in the subcortical white matter. Spine MRI showed no cord signals. Brain MR spectroscopy revealed elevated choline with reduced N-acetyl-aspartate levels. The vasculitis screening, and leukodystrophy and CADASIL workups were all unremarkable. Finally, whole exome sequencing was done and a heterozygous variant of *CSF1R* (c.1735C>T, p.Arg579Trp) was found. Conclusions: Our patient's novel *CSF1R* variant was found to be associated with ALSP. This report supports the utility of a comprehensive genetic testing in adult patients clinically presenting as CBS but with white matter abnormalities on T2-weighted MRI. Given that ALSP has several other clinical and radiologic mimickers, whole exome sequencing proves fundamental and can improve the diagnostic rates and understanding of ALSP. A well-informed diagnosis can lead to appropriate preventive genetic counseling to affected families.

Canadian Stroke Consortium (CSC)

B.1

Imaging metabolic changes in white matter following ischemic and hemorrhagic stroke onset in an animal model

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Background: What matter (WM) is particularly sensitive to ischemia and WM changes are observed following onset of ischemic stroke as well as during expansion of the stroke lesion. To better correlate neurobehavioural and functional assessments in our models we have developed imaging methods to aid in the differentiation and quantification of WM injury. Methods: We employ 3 mouse models of stroke: photothrombotic, temporary middle cerebral artery occlusion, and intracerebral hemorrhage. Naïve controls and surgical shams (for each model) are also characterized. We use Fourier transform infrared (FTIR) imaging and synchrotron-based X-ray fluorescence microscopy (XFM) to visualize metabolites and elemental markers, respectively. These post-mortem imaging techniques are combined with conventional histology to confirm neuroanatomic features and cell types. Results: The metabolic profile of WM in naïve, sham, and stroke models has been characterized in C57BL/6 mice. The metabolic markers we identify are highly specific and enable the automated differentiation of WM from other tissues. Our methods have been re-tooled to identify degeneration and injury of WM regions. Conclusions: The combination of FTIR imaging and XFM afford the means to readily differentiate WM changes following stroke onset. Significant dysregulation can be observed before the core or penumbra of the stroke lesion reaches WM-containing regions.

B.2

Short-term outcome in simultaneous acute code stroke activations in the emergency department

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Background: We aim to assess the effect of simultaneous acute code stroke activation(ACSA) in patients undergoing reperfusion therapies in the emergency department on home time at 90 days. Methods: We assessed ACSA over 20 months from the QuICR(Quality Improvement and Clinical Research Alberta Stroke Program) Registry. We defined Simultaneous reperfusion therapy as, ACSA within 60 min of the arrival of any patient receiving intravenous thrombolysis or ACSA within 150 min of the arrival of any patient receiving endovascular thrombectomy (based on the Canadian Triage and Acuity Scale, average local door-to-needle and door-to-puncture times)Results: A total of 2607 ACSA occurred at a mean±SD of 130.8±17.1 per month during the study period. 545 (20.9%) underwent acute reperfusion therapy with a mean age of 70.6±14.2 years, 45.9%(n=254) were female and a median (IQR) NIHSS of 13(8-18). Simultaneous reperfusion therapies occurred in 189(34.6%). There was no difference in the median door-to-CT time between the simultaneous (16, 11-23 min) and non-simultaneous (15, 11-21 min, p=0.3) activations. There was no difference in the median home time at 90 days between the two groups. Conclusions: Simultaneous ACSA occurs in one-third of patients receiving acute reperfusion therapies. An optimal workflow may help mitigate the clinical and system burden associated with simultaneity.

B.3

Sex differences in thrombolysis and thrombectomy workflow: the INTERRSeCT study

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Background: Women are reported to have worse outcomes than men following ischemic stroke despite similar treatment effects for thrombolysis and endovascular treatment. Methods: We performed a post-hoc analysis of patients with acute ischemic stroke and intracranial occlusion enrolled in INTERRSeCT, an