

between 2013 and March 2021 admitted at Sainte-Justine University Center Hospital with acute symptomatic seizures. Associations were assessed using Student T-test and Fisher exact test. Results: We did not observe significant change in the number of ASMs prescribed for acute seizure control (33% required 33 ASMs before vs 22% after 2016) nor significant change in frequency of prescription of ASM at discharge over time. ASM continuation at discharge was not associated with seizure recurrence ($p=0.14$, OR 2.14, 95%CI 0.78-5.86) or epilepsy ($p=0.78$, OR 1.32, 95% CI 0.45-3.90). Epilepsy occurred in 15 (12%) of children between 15 days to 72 months of age. Conclusions: No association was found between ASM maintenance at discharge following acute symptomatic neonatal seizures and the occurrence of epilepsy. Discontinuation of ASMs should be considered prior to discharge.

OTHER MULTIDISCIPLINARY

P.091

Multi-modal analysis of outcomes in pediatric mild traumatic brain injury (mTBI)

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Background: mTBI is the most common type of head injury among children but diagnosing and managing symptoms are challenging due to heterogeneity. This study used multi-modal analysis to examine how acute mTBI symptoms transition to chronic deficits. Methods: Subjects included a cohort with mild TBI ($n=40$, 8-18 years old) and age/sex-matched controls ($n=27$). All participants received symptom assessment, neuropsychological evaluation, ERP assessment, neuroimaging, and serum cytokine analysis. Results were analyzed individually and in multi-modal models to identify important outcome predictors. Results: mTBI resulted in higher symptom burdens compared to controls. There were no group differences in measures of balance, ERP, FA, or MD. Female mTBI participants had lower CNSVS Neurocognition Index scores ($p=0.0401$) and faster reaction times ($p=0.0385$) than controls. Repetitive mTBI males had faster psychomotor speed than symptomatic mTBI males ($p=0.0260$). CTACK levels were higher in female mTBI groups ($p=0.0043$), SCGF- levels were lower in male mTBI groups ($p=0.0486$), and MDC levels were lower in female mTBI groups ($p=0.0377$) compared to controls. Multi-modal models revealed key predictors from all modalities, despite most measures producing non-statistically significant results in individual analyses. Conclusions: Multi-modal analysis may afford the opportunity to delineate complex mTBI pathology and provide better identification of biomarkers than unimodal analysis.

STROKE

P.092

Health inequity and time from stroke onset to arrival trends: a single-centre experience

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Background: Clinical outcomes following childhood arterial ischaemic stroke (AIS) depend on age at the time of stroke, infarct size and location. However, other important variables including health inequity and stroke onset to arrival times remain inadequately addressed. This study reported trends in health inequity and stroke onset to arrival times along with proximity to a stroke centre in Canada. Methods: Childhood AIS patients ($N=234$) with stroke onset between 2004-2019 at a Level 2 (comprehensive) stroke centre were included. Measures of material deprivation included household income, education, single-parent families, and housing quality. Patients were stratified into 3 cohorts (by date of stroke onset) and postal codes were categorized as minimal, moderate, or most deprived neighbourhoods. Results: Over the 16-year period, an increasing number of patients arrived from the most deprived neighbourhoods. Although, there was no significant association between material deprivation and stroke onset to arrival time, an increasing number of patients presented within 6 hours of stroke onset ($\chi^2 = 13.8$, $p = 0.008$). Furthermore, most patients arrived from urban neighbourhoods. Conclusions: The faster stroke onset to arrival trend is encouraging, however, material deprivation trends are concerning. Thus, future studies exploring post-stroke outcomes should consider material deprivation, stroke onset to arrival times, and geographical proximity.

CLINICAL NEUROPHYSIOLOGY (CSCN) DEMENTIA AND COGNITIVE DISORDERS

P.094

The three sisters of fate: Genetics, pathophysiology and outcomes of animal models of neurodegenerative diseases

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Background: Alzheimer's disease, Parkinson's disease, and Huntington's disease are neurodegenerative disorders characterized by progressive structural and functional loss of specific

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neuronal populations, protein aggregation, insidious adult onset, and chronic progression. Modeling these diseases in animal models is useful for studying the relationship between neuronal dysfunction and abnormal behaviours and for screening therapies. Methods: We conducted a comprehensive descriptive review of the numerous animal models currently available to study these three diseases with a focus on their utilities and limitations. Results: A vast range of genetic and toxin-induced models have been generated. Our review outlines how these models differ with regards to the genetic manipulation or toxin used and the brain regions lesioned, describes the extent to which they mimic the neuropathological and behavioral deficits seen in the human conditions, and discusses the advantages and drawbacks of each model. Conclusions: We recommend the adoption of a conservative approach when extrapolating findings based on a single animal model and the validation of findings using multiple models. Investing in additional preclinical studies before embarking on more expensive human trials will improve our understanding of the neuropathology underlying neuronal demise and enhance the chances of identifying effective therapies.

P.095

Smoking behaviour change is associated with altered functional brain connectivity in older adults

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Background: Smoking is the leading cause of preventable morbidity worldwide and therefore developing effective smoking cessation strategies is a public health priority. However, what brain networks support maintenance of smoking cessation in the long term remains unexplored. Methods: We analyzed the baseline resting-state fMRI data acquired in 23 smokers ($M_{age} = 61.52 \pm 3.7$) who were followed longitudinally in a cohort of cognitively normal older adults. Self-reported smoking status and amount were recorded at baseline and repeated after 4 years. We investigated the effect of smoking behaviour change on functional brain connectivity using seed-to-voxel approach. We examined a-priori regions of interest (ROIs) including the reward network (ventromedial prefrontal cortex (vmPFC) and ventral striatum) and the right insula. These ROIs are promising target mechanisms given prior behavioural research linking it to smoking cessation. Results: Our results revealed that reduced smoking was associated with reduced connectivity between ventral striatum and middle frontal gyrus and enhanced connectivity between right insula and middle temporal gyrus (voxel $p < 0.001$, cluster $p < 0.05$ FDR corrected). However, change in smoking did not reveal any significant effects in the vmPFC. Conclusions: Our findings suggest that successful smoking behaviour change is associated with altered reward network and insular functional connectivity in the long term.

P.096

Bi-insular responsive neurostimulation artifact on scalp electroencephalogram

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Background: Responsive Neurostimulation (RNS) has proven efficacy in the treatment of medically resistant epilepsy as an intracranial system that detects, records and treats seizures automatically. No information exists pertaining to artifact characteristics of RNS findings in scalp EEG. Methods: A 30 year-old female was diagnosed, using intracranial electroencephalography (iEEG), with refractory bi-insular epilepsy, of unknown cause. Due to her large number of focal unaware non-motor seizures and frequent seizures with progression to bilateral tonic-clonic, she was implanted with bi-insular Responsive Neurostimulation (RNS). Results: Results: During scalp EEG recordings, a prominent artifact was seen corresponding to an automatized discharge suspectedly evoked by the RNS trying to minimize the frequent epileptiform activity in her case. Figure 1 and 2 depict these findings. Conclusions: The artifact seen by the RNS in scalp EEG has not been previously described in scientific literature. These findings must be identified to better characterize the role of the RNS in EEG and treatment of seizure activity visible on scalp recordings.

P.097

After-discharges and presurgical cortical stimulation in stereo-encephalography in the study of drug-resistant epilepsy

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Background: Background: Cortical stimulation (CS) as a part of presurgical investigations in patients undergoing implantation of depth electrodes (SEEG) is a growing practice in some Comprehensive Epilepsy Centers. After-discharges (AD) are useful to determine epileptogenic tissue within or outside the epileptogenic network. Classification of afterdischarges was proposed by Blume using subdural recordings(1); its utility in SEEG is unknown. Methods: Methods: Single center, retrospective study that included patients with SEEG that underwent CS in the Epilepsy Monitoring Unit. Demographic characteristics were explored and Blume's proposed AD classification was used to determine whether or not the CS changed surgical outcomes. Results: Results: From January 2015 to June 2021, a total of 177 patients were implanted with SEEG and analyzed. 95 patients had CS and 91 had AD. Morphologies found were: Rhythmic waves