lipid intake group. **Conclusions:** In this cohort, higher energy intake is associated with increased brain maturation. Similarly, neonates with large WMI had higher full-scale IQ if they received greater lipid intake in the neonatal period, suggesting that greater early lipid intake may contribute to blunting the deleterious effects of WMI on neurodevelopmental outcomes.

Chair's Select Abstracts - Neurosurgery and Neuroimaging

C.1

Time Metrics and Clinical Outcomes of Thrombectomy in Acute Stroke Patients Before and After Implementation of COVID-19 Infection Protocols in Nine Canadian Stroke Centres

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Background: The coronavirus disease 2019 (COVID-19) pandemic has led an implementation of institutional infection control protocols. This study will determine the effects of these protocols on outcomes of acute ischemic stroke (AIS) patients treated with endovascular therapy (EVT). **Methods:** Uninterrupted time series analysis of the impact of COVID-19 safety protocols on AIS patients undergoing EVT. We analyze data from prospectively collected quality improvement databases at 9 centers from March 11, 2019 to March 10, 2021. The primary outcome is 90-day modified Rankin Score (mRS). The secondary outcomes are angiographic time metrics. **Results:** Preliminary analysis of one stroke center included 214 EVT patients (n=144 pre-pandemic). Baseline characteristics were comparable between the two periods. Time metrics "last seen normal to puncture" (305.7 vs 407.2 min; p=0.05) and "hospital arrival to puncture" (80.4 vs 121.2 min; p=0.04) were significantly longer during pandemic compared to pre-pandemic. We found no significant difference in 90-day mRS (2.0 vs 2.2; p=0.506) or successful EVT rate (89.6% vs 90%; p=0.93). **Conclusions:** Our results indicate an increase in key time metrics of EVT in AIS during the pandemic, likely related to infection control measures. Despite the delays, we found no difference in clinical outcomes between the two periods.

C.2

The use of magnetic resonance guided focused ultrasound for refractory psychiatric illness

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Background: Obsessive compulsive disorder (OCD) and major depressive disorder (MDD) are common, often refractory, neuropsychiatric conditions for which new treatment approaches are urgently needed. Magnetic resonance guided focused ultrasound (MRgFUS) is a novel surgical technique permitting incisionless ablative neurosurgery. **Methods:** We examined the safety profile, clinical response, and imaging correlates of MRgFUS anterior capsulotomy (MRgFUS-AC) in patients with refractory OCD (n=7) and MDD (n = 10). **Results:** There were no serious adverse clinical or radiographic events. 5/7 OCD patients and 3/10 MDD patients met pre-established clinical response criteria. Neurocognitive performance improved on several measures of executive function ($p<0.05$). By 6 months, there were significant reductions in cerebral glucose metabolism, and reductions in the bilateral tracts connecting the thalamus with the orbitofrontal cortices, anterior cingulate cortex ($p<0.05$). Preoperative functional connectivity between the right ventral striatum and hippocampus was predictive of eventual clinical response (p-FDR<0.05). **Conclusions:** MRgFUS-AC is safe and demonstrates important evidence of efficacy in treatment resistant psychiatric disease, particularly OCD. The procedure was associated with structural and metabolic changes in brain networks implicated in affective regulation, Resting-state fMRI offers the ability to predict response, and potentially select patients most likely to improve.

C.3

Activated Gene Pathways in Post-Infectious Hydrocephalus (PIH): Proteogenomics and the PIH Expressome

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Background: Proteogenomics, the integration of proteomics and RNASeq expands the discovery landscape for candidate expressed gene networks to obtain novel insights into host response in post-infectious hydrocephalus (PIH). We examined the cerebrospinal fluid (CSF) of infants with PIH, and case controlled against age-matched infants with non-postinfectious hydrocephalus (NPIH) to probe the molecular mechanisms of PIH, leveraging molecular identification of bacterial and viral pathogens. **Methods:** Ventricular CSF samples of 100 infants ≤ 3 months of age with PIH (n=64) and NPIH (n=36) were analyzed with proteomics and RNASeq. 16S rRNA/DNA sequencing and virome capture identified *Paenibacillus spp*. and cytomegalovirus as dominant pathogenetic bacteria implicated in our PIH cohort. Proteogenomics assessed differential expression, gene set enrichment and activated gene pathways. **Results:** Of 616 proteins and 11,114 genes, there was enrichment for the immune system, cell-cell junction signaling and response to oxidative stress. Proteogenomics yielded 33 functionally and genetically associated gene sets related to neutrophil activation, platelet activation, and cytokines (interleukins and interferon) signaling. **Conclusions:** We identified PIH patients with severe disease at time of hydrocephalus surgery, to have differential expression of proteins/genes involved in neuroinflammation, ependymal barrier