P.078

Clinical trials in children with Down Syndrome : now and future

C Cieuta-Walti (PARIS) C Mircher (PARIS) I Marey (PARIS) J Toulas (PARIS) E Prioux (PARIS) H Walti (PARIS) A Ravel (PARIS)*

doi: 10.1017/cjn.2019.176

Background: Down syndrome (DS) is the most common genetic cause of intellectual disability.Although progress in managing co-morbidities has improved life expectancy, no therapeutic options have showed to significantly improve intellectual deficiencies.The current focus of the pharmacological treatment of DS is on the improvement of the cognitive impairment that is probably due to neurodevelopmental alterations,neurotransmitter alterations and neurodegeneration,and is also targeted to the overexpression of selected genes on HSA21. **Methods:** We review the clinical trials of the last 5 years focusing on the cognitive improvement of children with DS. **Results:** We report the results of therapeutic trials concerning selective negative allosteric regulators of the GABAAa5 receptor, NMDA antagonists, Kinase inhibitors of DYRK1A, folinic acid and thyroid hormone supplementation, activators of serotonergic and cholinergic system. **Conclusions:** The incomplete understanding of individual phenotypic variability, natural history, lack of biomarkers ,no adapted neuropsychological tests, placebo effect, epigenetic effect have limited our capacity to succeed, even when promising drugs are tested.We need new tools and models will allow a better understanding of the pathophysiology. We also need to create more sensitive and realistic outcome mesures to quantify disease and therapeutic efficacy. The association of different therapeutic agents (epidrugs included) with cognitive stimulation could be a future strategy.

P.079

4H leukodystrophy: a case series of siblings with an unusually mild phenotype

SM DeGasperis (Ottawa) G Bernard (Ottawa) D Pohl (Ottawa)*

doi: 10.1017/cjn.2019.177

Background: 4H leukodystrophy is a genetic disorder typically characterized by hypomyelination, hypodontia and hypogonatotropic hypogonadism. Previously reported patients had considerable cognitive and motor deficits. We present a pair of siblings with a less severe phenotype. **Methods:** Patient data was obtained from medical records from the Children's Hospital of Eastern Ontario. **Results:** The first patient was diagnosed with 4H leukodystrophy at the age of 21 years after genetic testing revealed a POLR3B mutation with a homozygous V523E variant. She has hypomyelination on MRI and a history of optic neuritis, as well as intermittent sensory and motor symptoms in the context of a diagnosis of multiple sclerosis. She has no clinical manifestations of 4H leukodystrophy. The patient is now 26 years old and has only mild neurological deficits. Her younger brother was diagnosed with 4H leukodystrophy at the age of 18 years and found to have the same genetic mutation as his sister. He has a history of seizures and mild learning disabilities. He is now 23 years old with no typical symptoms of 4H leukodystrophy. **Conclusions:** 4H leukodystrophy is usually associated with a severe, disabling phenotype and a poor prognosis. Our patients illustrate that a much milder phenotype exists.

P.082

Cannabinoids in the treatment of behavioural symptoms of autism: a rapid review to guide practice

JL Urquhart (Edmonton) HR Goez (Edmonton)*

doi: 10.1017/cjn.2019.180

Background: Legalization of recreational cannabis in Canada has increased the presence of cannabis in the public mind. There are online parent advocacy groups which are already calling for the use of cannabinoids in pediatric developmental and behavioural conditions such as Autism Spectrum Disorder (ASD). We set out to perform a rapid review of existing literature regarding use of cannabinoid products in the treatment of the behavioural domains of ASD. **Methods:** Key search terms were identified in collaboration with a medical librarian and combined into standardized search filters. A total of 55 articles were identified, of which only two included primary data regarding the use of cannabinoids to control behavioural symptoms of ASD in pediatric populations. **Results:** Both studies found significant reductions in the behavioural measures examined - which included inappropriate speech, irritability, stereotyped behaviours and self injurious behaviours - after treatment with Cannabinoids. **Conclusions:** The minimal existing evidence indicates the use of cannabinoid products may be useful in improving behavioural difficulties in children with ASD. However, there is a complete lack of well powered, rigorous studies. Further studies with larger cohorts are needed before any recommendations can be confidently made for or against the use of cannabinoids in this population.

Clinical Neurophysiology (CSCN)
Epilepsy and EEG

P.080

Effects of REM sleep in anti-NMDA receptor encephalitis with extreme delta brush pattern

DK Jain (Winnipeg) M Ng (Winnipeg)*

doi: 10.1017/cjn.2019.178

Background: Seizures are rare in REM sleep. To our knowledge, the effects of different sleep stages in anti-NMDA encephalitis have not been studied. **Methods:** Case report. **Results:** 32 year-old healthy female presented with acute fluctuating level of consciousness with episodic impulsivity, disorientation, and emotional outbursts following 3 days of headache. Her temperature was 37.8^{o}C and she was started on ceftriaxone, vancomycin, and acyclovir. CSF only showed a total nuclear cell count of 182 and pleocytosis. MRI revealed increased T2 hyperintense right lateral temporal and parietal cortical thickening. EEG revealed right frontotemporal seizures with left sided rhythmic jerking, and an extreme delta brush pattern. Interestingly, seizures and extreme delta brush disappeared in REM sleep. After HSV PCR was negative, she was immunosuppressed with corticosteroids, IVIG, rituximab, and cyclophosphamide, given the extreme delta brush pattern. Repeat CSF analysis eventually yielded highly positive anti-NMDA antibodies. Ten weeks later, she became seizure free. **Conclusions:** For the first time, we report REM sleep