D.08

Diffusion imaging of cerebral diaschisis in neonatal arterial ischemic stroke

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Background: Neonatal arterial ischemic stroke (NAIS) is a leading cause of brain injury and cerebral palsy. Diffusion-weighted imaging (DWI) has revolutionized NAIS diagnosis and outcome prognostication. Diaschisis refers to changes in brain areas functionally connected but structurally remote from primary injury. We hypothesized that acute DWI can demonstrate cerebral diaschisis and evaluated associations with outcome. *Methods:* Subjects were identified from a prospective, population-based research cohort (Calgary Pediatric Stroke Program). Inclusion criteria were unilateral middle cerebral artery NAIS, DWI MRI within 10 days of birth, and >12-month follow-up (Pediatric Stroke Outcome Measure, PSOM). Diaschisis was quantified using a validated software method. Diaschisis-scores were corrected for infarct size and compared to outcomes (Mann-Whitney). *Results:* From 20 eligible NAIS, 2 were excluded for image quality. Of 18 remaining, 16 (89%) demonstrated diaschisis. Thalamus (88%) was most often involved. Age at imaging was not associated with diaschisis. Long-term outcomes available on 13 (81%) demonstrated no association between diaschisis score and PSOM categories. *Conclusion:* Cerebral diaschisis occurs in NAIS and can be quantified with DWI. Occurrence is common and should not be mistaken for additional infarction. Determining additional clinical significance will depend on larger samples with long-term outcomes.

D.09

Hereditary neuropathy with liability to pressure palsies in childhood: case series and update from the literature

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Introduction: HNPP presentation in childhood is rare and diverse and most of the published literature is based on case reports. *Materials and Methods:* we analyzed the data of 11 children with deletion in PMP22 gene, reviewed the published reports of HNPP in children and compared our data with the reports from the literature review. *Results:* Peroneal palsy was the most common presentation (50%) followed by the brachial plexus palsy in 30% of cases. The trigger of the demyelinating event was identified only in 27%. 72% of our cohort developed only one acute episode of nerve palsy. Nerve conduction studies were always suggestive of the diagnosis demonstrating 60% of cases a polyneuropathy, 50% of cases conduction block but 100% of bilateral or unilateral electrophysiologic entrapment of the median nerve at the carpal tunnel. *Conclusion:* The clinical presentation of HNPP in childhood is heterogeneous and EMG findings are abnormal. Any unexplained mononeuropathy or multifocal neuropathy should lead to PMP22 gene testing to look for the deletion. Early diagnosis is important for the genetic counselling but also for the appropriate care of these patients.

D.10

Pediatric anti-myelin oligodendrocyte glycoprotein syndrome: case series of a newly recognized central nervous system inflammatory disease

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Pediatric acquired demyelinating syndromes have overlapping clinical and imaging features, but management and prognosis vary. We describe four children between the ages of 3 and 10 presenting with inflammatory brain disease - one with polyfocal neurological symptoms, one with severe bilateral optic neuritis and two with transverse myelitis, all without encephalopathy. All brain MRIs had extensive involvement of both deep grey and subcortical white matter. Three patients had longitudinally extensive spinal cord lesions. Clinical and radiological findings did not meet criteria for multiple sclerosis, acute disseminated encephalomyelitis, or neuromyelitis optica (NMO). NMO IgG testing was negative. All patients had resolution of clinical and imaging findings after treatment with steroids and IVIg. We found, elevated levels of anti-myelin oligodendrocyte glycoprotein antibodies in all four patients. Three of the children receive monthly IVIg infusions. Two of the patients relapsed once within 18 months of their initial attack and have since remained relapse free for 32 months and 43 months, respectively. The third patient (transverse myelitis) has not had any relapses since her initial attack 15 months ago. It appears that children with this syndrome may have more favourable outcomes when compared to other CNS relapsing inflammatory conditions.

CNS / CSCN

Platform Presentations

E.01

The potential influence of abnormal blood platelet count on mortality, impairment and disability after acute ischemic stroke

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Background: We hypothesized that abnormal blood platelet count (BPC) is associated with poorer outcomes after acute ischemic stroke. *Methods:* We included data from the Registry of the Canadian Stroke Network on consecutive patients with acute ischemic stroke admitted between July/2003 and March/2008. Patients were divided into groups as follows: low BPC (<150,000/mm3), normal BPC (150,000 to 450,000/mm3) and high BPC (>450,000/mm3). Primary outcome measures were the frequency of moderate/severe strokes on admission (Canadian Neurological Scale: <8), greater degree of disability at discharge (modified Rankin score: 3-6), and 30-day and 90-day mortality. *Results:* We included 9,230 patients. Both low and high BPC were associated with higher 30-day mortality (p=0.0103) and 90-day mortality (p=0.0189) following acute ischemic stroke. The Kaplan-Meier curves indicate that abnormal BPC is associated