

PLATFORM PRESENTATIONS

GRAND PLENARY ABSTRACTS

GP.01

The relationship between carotid stenosis, cerebral cortex thickness and cognitive function in community dwelling older individuals

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Background: Carotid atherosclerosis is a significant risk factor for stroke and has been associated with cognitive decline and dementia. **Methods:** We assessed 554 community-dwelling subjects from the Lothian Birth Cohort of 1936 (LBC1936) who underwent brain MRI and carotid Doppler ultrasound studies at age 73 years. The relationship between carotid stenosis and cerebral cortical thickness was examined cross-sectionally, controlling for gender, extensive vascular risk factors (VRFs), and IQ at age 11 (IQ-11). The association between carotid stenosis and a composite measure of fluid intelligence was also investigated. **Results:** A widespread negative association was identified between carotid stenosis and cerebral cortical thickness at age 73 years, independent of the side of carotid stenosis, other carotid measures, VRFs, or IQ-11. This association increased in an almost dose-response relationship from mild to severe degrees of carotid stenosis. A negative association was also noted between carotid stenosis and fluid intelligence, which appeared partly mediated by carotid stenosis-related thinning of the cerebral cortex. **Conclusions:** Carotid stenosis is associated with thinner cerebral cortex and lower fluid cognitive abilities at age 73. The findings suggest that carotid stenosis represents a marker of vascular processes that accelerate cortical aging with a negative impact on cognition, independent of measurable VRFs.

GP.02

A population-based study of “no evident disease activity” (NEDA) in multiple sclerosis

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Background: NEDA is a composite measure that may ultimately influence clinical decisions concerning switches of disease modifying therapy (DMT) for relapsing remitting multiple sclerosis (RRMS) patients. Cohort studies from MS clinics suggest NEDA is not sustained over time in most patients despite DMT but may be limited by referral bias. We investigated NEDA in a population-based RRMS cohort. **Methods:** We identified all incident cases of RRMS in Olmsted County from 01/01/2000-12/31/2011. Retrospective chart review was conducted to determine persistence of NEDA following

RRMS diagnosis. NEDA failure was defined as new MRI activity, relapse, or expanded disability status scale (EDSS) worsening. **Results:** There were 93 incident cases of RRMS with 82 individuals having sufficient follow-up to determine persistence of NEDA. Prior to NEDA failure 44 were not on DMT, 37 were on first-tier, injectable DMT, and 1 received mitoxantrone. NEDA was maintained by 63% at 1 year, 38% at 2 years, 19% at 5 years, and 12% at 10 years. Disability measured by EDSS was no different at 10 years in patients maintaining NEDA versus those that failed NEDA at one year ($p=0.3$). **Conclusions:** Maintenance of NEDA beyond 2 years is infrequent among a population-based cohort of newly diagnosed RRMS patients and similar to prior clinic-based cohorts.

GP.03

Immune deficiencies/dysregulations underpinning childhood limbic encephalitis: a case series and literature review

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Background: Limbic encephalitis (LE) is a rare autoimmune syndrome affecting limbic system structures and causing variety of manifestations including memory changes, temporal epilepsies, and psychiatric symptoms. It is a rare disease in children but with a well-recognizable combination of clinical, neuroimaging and/or histological signature. Beyond the association with anti-neuronal auto-antibodies, no clear immune system phenotype has been associated with limbic encephalitis. Our aim is to characterize the clinical and paraclinical features of non-paraneoplastic limbic encephalitis and to correlate them with potential underlying immune deficiencies. **Methods:** Retrospective case series of seven patients with limbic encephalitis recruited at the Montreal Children’s Hospital (MCH) with a focus on the immune- and neuro-phenotypes, including anti-neuronal antibodies, lymphocyte sub-typing, key markers of immunoglobulin and complement systems. Literature review showed 77 cases of non-paraneoplastic non-NMDA limbic encephalitis. **Results:** Symptoms included temporal epilepsy ($n=5$), psychiatric symptoms such as ADHD or autistic symptoms ($n=2$), and memory changes ($n=3$). One patient was positive for both voltage gated potassium channel antibodies (VGKC) and anti-thyroid peroxidase antibodies (TPO) and two were positive only for anti TPO antibodies. One patient showed low CD19, and immunoglobulins. Three patients showed chronic low CD56 cell count. **Conclusions:** The study is still ongoing, but at least 3 patients already display some traits of immune dysregulation.