Current and Future Clinical Applications in the Auditory and Language Domains

Chair: Tim Roberts, Children's Hospital of Philadelphia, USA

Room: # 103

Date and Time: Tuesday, October4 / 17:00-18:30

Presurgical identification of brain areas responsible for language represents one of the more challenging objectives of the pre-surgical work-up. MEG methods are still being developed to reliably identify language areas non-invasively. In addition to the identification of the so called "language dominant" hemisphere and classical Broca / Wernicke language areas, new protocols are also needed to better characterize associated language networks and to review the validity of the lateralization assumption in young and/or developmentally delayed children. Such protocols may not only be important to optimize post-surgical outcomes, but may provide new targets for therapy in clinical populations and may provide biomarkers for future clinical prognosis. This symposium begins with an overview of current methods for reliable mapping of language areas with MEG and a reassessment of our assumptions regarding brain substrates of language execution. Next, we consider an example where multi-sensory integration of language and visual information can be used to model a higher-order language processing network known to be impaired in patients with Schizophrenia. An applied therapeutic clinical application follows in a population of patients with "writer's cramp" of the larynx addressing impairment of articulation and speech production as an element of language functioning. Finally, we explore how interpretation of MEG can be augmented with advanced MRI and MRS measures to lead to plausible mechanistic interpretations with subsequent roles as "biological" markers for not only diagnosis, but also prognosis and stratification, targeting substrates and systems for intervention and monitoring the efficacy of such therapies.

Speakers:

Elizabeth Pang (Hospital for Sick Children, Canada)

"The primary sensory cortex and early language processing"

Julia Stephen (MRN Albuquerque, USA)

"How do unisensory deficits impact response within a multisensory world? "

John Houde (UCSF, USA)

"MEG correlates of Spasmodic Dysphonia? (Writer's cramp of the larynx)"

Tim Roberts (CHOP, Philadelphia, USA)

"Multimodal and Developmental Studies of Auditory Processing in ASD and Related Genetic Disorders"