

COMMISSION ON DIAGNOSTIC METHODS



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Aims

Our commission covers all major diagnostic modalities to clinically characterize a patient's epilepsy, namely electro-/neurophysiology, neuropsychology, imaging and neuropathology measures. Our objective is to provide standardized protocols, terminology use and guidelines for a cost-effective diagnosis of epilepsy and their related comorbidities as well as use of consensus classification systems for underlying etiologies. We have set up 4 Task Forces to achieve this goal, with particular emphasis to bridge any validation gap when using advanced as well as standardized technologies for the diagnosis of epilepsy. Our work very much depends on interaction with other ILAE commissions, dissemination and training. All Commission and Task Force members are actively engaged in setting up training facilities, such as the annual International Summer School for Neuropathology and Epilepsy Surgery or the annual European and North-American SEEG training courses. We are also looking forward to establishing a new Neuropsychology Summer School as well as a new long-distance e-learning facility for reading MRIs of the epileptic brain.

Task Force for Neuroimaging

This Task Force will focus on building new evidence-based consensus criteria for the non-invasive diagnosis of hippocampal sclerosis and focal cortical dysplasia on MRI. This objective will be achieved through a multicenter approach, giving access to a large

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spectrum of patients and provide quantitative measures of cross-site diagnostic reliability and variance. The systematic description of these frequent epileptogenic lesions will allow formulating a much-needed standardized definition of “MRI-negative” epilepsy, currently a moving target. This initiative will also set the basis for subsequent MRI-histology validation using the ILAE classification systems and serve educative purposes through virtual distant-learning platforms. A strategic plan has been prepared and will be finalized in the months to come.

Task Force for Neuropathology

This term’s challenge for the Neuropathology Task Force addresses tumor-related epilepsies. Neuropathology agreement has shown dramatic inter-rater variability in the classification of brain tumors associated with long-term epilepsies (LEAT). LEATs mostly encompass glio-neuronal tumors, i.e. gangliogliomas and DNT (approx. 60-80%). Despite their histopathologic WHO definition, the frequency of DNT and GG vary largely between individual case series. We have built a collaborative virtual microscopy platform, which allows us to review large series of LEAT variants by a panel of international neuropathologists and to encourage discussion between WHO, Intl. Society of Neuropathology, and ILAE chapters and commissions to achieve consensus on terminology use and acceptance of a revised tumor classification system. The work is disseminated by our collaborative Summer School initiative, which was held for the second time in Erlangen in 2014. The next course will be organized 26 – 30 of July 2015 in Campinas, Brazil.

Task Force for Neurophysiology

Consensus terminology use, protocols and guidelines for minimum requirements to apply neurophysiology measures are the major concern of this Task Force. Increased interest for invasive EEG (iEEG) methodologies around the world will require, however, also standardized practice parameters or criteria that determine clinical indications for intracranial EEG monitoring. Comprehensive reviews summarizing indications, types and placement of intracranial electrodes (ECoG, SEEG, Strips, Grids) are in progress

and will be shared with the ILAE community. Additional guidelines and recommendations for intracerebral EEG recording and stimulation methodologies, as well as data interpretation are also envisaged. A survey aiming at establishing to what degree the experience varies among centers, regions and countries was launched in 2013 and received feedback from many epilepsy surgery centers worldwide.

Task Force for Neuropsychology

Another important aspect of our commission’s work has addressed neuropsychological assessment in the routine care of people with epilepsy in a way that is understandable to epileptologists and other epilepsy clinicians when interpreting results across different domains. Particular topics include the assessment of focal cognitive impairments, neurodevelopmental delay, behavioral or learning difficulties, and cognitive decline, as well as the assessment of antiepileptic drug treatment or EEG pathology (electrophysiological epileptic activity). Consensus protocols for the assessment of hemispheric dominance (IAT, fMRI) and more specialized presurgical assessment, as well as measures of everyday functioning are also being developed. An official report defining minimum standards for neuropsychology assessment in routine epilepsy care has been finalized during this year’s Task Force meeting at the ECE in Stockholm, and already submitted to the ILAE management and executive committees for review and approval. Plans are also currently underway to establish a Neuropsychology Summer School, to commence in 2016.