

Barcelona, Spain

Joint Symposium 9

Neuroimaging Committee / International League Against Epilepsy (ILAE)

Monday, October 14, 08:00-09:30

Session Title

Clinical Use of Brain Imaging for Patients with Epilepsy

Chairpersons

Franck Semah (Lille, France)

Paolo Federico (Calgary, Canada / ILAE)

Programme

08:00 - 08:30 Paolo Federico (Calgary, Canada / ILAE): The Use of MRI for Patients with Epilepsy and the Need of Multimodal Imaging for the Clinician

08:30 - 09:00 Francine Chassoux (Paris, France): FDG-PET for Partial Epilepsy Revisited

09:00 - 09:30 Wim Van Paesschen (Leuven, Belgium): The Role of Ictal SPECT in the Presurgical Evaluation of Patients with Drug-Resistant Epilepsy

Educational Objectives

1. How to select patients in which ictal SPECT is needed
2. To understand the role of FDG-PET in patients with medically refractory epilepsy
3. To summarize the MRI/SPECT/PET data in epileptic patients candidates for surgery

Summary

Brain imaging is very helpful in the pre-surgical evaluation of temporal lobe epilepsy and of extra-temporal lobe epilepsy. Almost 25% of epileptic patients develop refractory seizures, i.e., not responding to multiple anti-epileptic drugs. In these patients, partial epilepsy is the most common type of epilepsy and is one of the major prognostic factors for difficult-to-control seizures. MRI demonstrated focal lesions in a high percentage of adult patients with partial epilepsy, but MRI could also be normal or non-contributory in approximately 30% of patients with refractory epilepsy. One of the reasons could be the high percentage of cortical malformations seen, such as cortical dysplasia, which may be subtle and undetected by MRI. In these patients with medically refractory epilepsy, surgical removal of the epileptogenic area is a treatment of choice and needs a precise localization of the epileptogenic area that has to be removed.

Imaging techniques such as ictal SPECT, interictal PET, and high resolution MRI are very useful tools in localizing areas of focal brain abnormalities that are related to the epileptogenic area. Among various neuroimaging techniques used for the evaluation and management of epilepsy and various epileptic syndromes, particularly those with intractable epilepsy and being evaluated for epilepsy surgery, positron emission tomography can play a very important role in adults and children. The most commonly used PET tracer in epilepsy is FDG, but other PET tracers have been used and will be discussed in this session.

Key Words

SPECT, PET, epilepsy, surgery