

*Vienna, Austria*

Annual Congress of the  
European Association of Nuclear Medicine

October 21 –25, 2017  
Vienna, Austria

## **CME 10 (Neuroimaging)**

**Tuesday, October 24, 11:30-13:00**

### **Session Title**

**Brain PET and SPECT in Dementia - Beyond Alzheimer's Disease**

### **Chairs**

Silvia Morbelli (Genova)

Javier Arbizu (Pamplona)

### **Programme**

08:00 - 08:30 Karl Herholz (Manchester): Brain PET and SPECT in Patients with Fronto-Temporal Dementia

08:30 - 09:00 Nicola Pavese (London): Brain PET and SPECT Imaging in Lewy Body Diseases

09:00 - 09:30 Javier Arbizu (Pamplona): Brain SPECT and PET in Tau-Related Parkinsonism

### **Educational Objectives**

- To understand clinical indications of brain PET and SPECT in neurodegenerative dementia other than Alzheimer's disease
- To learn about the role of brain PET and SPECT in Fronto-temporal dementia, Parkinson Dementia and Dementia related to different types of atypical Parkinsonism
- to understand and compare the added value of the available PET and SPECT tracers in neurodegenerative dementia other than Alzheimer's disease

### **Summary**

Dementia is a general term as it describes the cognitive symptoms and loss of patient's daily functioning that occur when the brain is affected by several degenerative and non-neurodegenerative diseases. Alzheimer's disease is the most common cause of dementia. However other types of dementia are increasingly recognized and their clinical diagnosis (and differential diagnosis with respect to AD) might be challenging. Dementia with Lewy Bodies (DLB) is a degenerative dementia of unknown etiology. It is the second commonest form of neurodegenerative dementia. Deficits in attention and executive function are central features. Fluctuating cognition, visual hallucination and spontaneous features of parkinsonism are typical. Finally, REM sleep behaviour disorder, severe sensitivity to neuroleptics and low dopamine transporter uptake in the brain's basal ganglia as seen on SPECT/PET imaging scans are suggestive features. Parkinson Disease (PD) is an idiopathic degenerative disease which

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result from the death of dopamine-generating cells in the substantia nigra. PD usually affects people over the age of 50. Symptoms of PD are resting tremor, rigidity, bradykinesia and postural instability. Subtle cognitive deficit (more often involving the executive function) is frequent in PD patients and a relevant number of patients can show more prominent and generalized cognitive impairment or dementia during the course of the disease.

Frontotemporal degeneration (FTD) refers to a group of diseases involving temporal and/or frontal lobes. FTD is also commonly referred to as frontotemporal dementia and occurs most frequently in persons under the age of 65. FTD has a heterogeneous spectrum that result in behavioural, cognitive, or language changes. Two tau-related atypical parkinsonism (Progressive Supranuclear Palsy and Corticobasal degeneration belong to the spectrum of FTD). Despite the lack of drugs able to act as disease modifying in patients with neurodegenerative dementia, an accurate diagnosis of the cause underlying cognitive impairment and dementia helps direct therapy and leads to a care plan that improves patient safety and minimizes the risk of preventable complications. Several tracers for brain PET and SPECT imaging can be of use to support the clinical suspicion of the different types of neurodegenerative dementia. The knowledge of typical and atypical presentation of different types of neurodegenerative dementia is relevant for the Nuclear Medicine (NM) physician as it is crucial for the discussion with the clinician and for the identification of a cost-effective flow-charts including NM tool with impact on the following decision making.

### **Key Words**

Brain PET and SPECT, Fronto-temporal dementia, Lewy Body diseases, Parkinson Dementia, Atypical Parkinsonism, Progressive Supranuclear Palsy, Corticobasal Syndrome, Tau-related Parkinsonisms