

Düsseldorf, Germany

CME 13 (Neuroimaging / Cardiovascular)

Wednesday, October 17, 08:00-09:30

Session Title

Myocardial ^{123}I -mIBG Imaging in Neurology: Is it Ready for Prime Time?

Chairpersons

Hein Verberne (Amsterdam)

Silvia Morbelli (Genoa)

Programme

- 08:00 - 08:30 Hein Verberne (Amsterdam): Introduction on the Essentials of Myocardial ^{123}I -mIBG Imaging
- 08:30 - 09:00 Giorgio Treglia (Bellinzona): Myocardial ^{123}I -mIBG Imaging for the Differential Diagnosis of Parkinsonian Syndrome: The Nuclear Neurologist's Perspective
- 09:00 - 09:30 Cristina Muscio (Milan) / Pietro Tiraboschi (Milan): Myocardial ^{123}I -mIBG Imaging in Dementia with Lewy bodies (DLB) and Prodromal DLB: The Neurologist's Perspective

Educational Objectives

1. To learn about the essentials of myocardial ^{123}I -mIBG imaging and about the importance of standardization of mIBG imaging outcome parameters
2. To understand the role of myocardial ^{123}I -mIBG imaging to support the differential diagnosis of parkinsonism
3. to understand the added value of myocardial ^{123}I -mIBG imaging for the differential diagnosis between Alzheimer's Disease and Dementia with Lewy Bodies (and to compare its value with the other available imaging tools).

Summary

By radiolabeling mIBG with iodine-123 (^{123}I), the uptake and storage of mIBG can be imaged with a gamma camera. Because ^{123}I -mIBG is not metabolized, its accumulation over several hours is a measure of neuronal integrity. Semiquantitative parameters -such as tracer washout rate and heart-to-mediastinum (H/M) ratio- can be derived allowing inter-patient comparison of global myocardial sympathetic nerve function. Postganglionic sympathetic failure has been reported in the vast majority of patients with PD and DLB regardless of presence of orthostatic hypotension.

This marker of sympathetic innervation impairment is suitable for the differential diagnosis between PD and other neurodegenerative movement disorders as well as between AD and DLB. In fact, while DLB patients have a significantly reduced uptake at MIBG, in AD patients autonomic dysfunction is present only in late stages of disease and MIBG scan is normal. While increasing evidence is supporting the clinical use of MIBG in this setting some technical issues have for long prevented a wider utilization of this tool especially in countries where DAT SPECT imaging is available. In fact published studies lack standardization in terms of acquisition procedure (time-points and types of acquisition) and analyses of the images (region of interest definition, tracer wash out computation). Moreover MIBG signal may be reduced in diabetic patients (due to diabetes-related autonomic neuropathy), in heart failure (whose evaluation is an indication for MIBG) and after large myocardial infarct. New evidence about the potential use and accuracy of MIBG even in the prodromal stages of LBDs has emerged in the last few years and might increase the use of this tool in LBDs patients. These new data will be also discussed in the CME.

Key Words

- Myocardial ^{123}I -mIBG imaging
- Parkinsonian Syndromes
- Dementia with Lewy Bodies