

Barcelona, Spain

Pitfalls & Artefacts 5

Neuroimaging + Technologist Committee
Tuesday, October 15, 08:00-09:30

Session Title

Brain PET and SPECT - Patients' Preparation and Acquisition

Chairpersons

Valentina Garibotto (Geneva, Switzerland)
Marius Mada (Cambridge, United Kingdom)

Programme

- 08:00 - 08:25 Marius Mada (Cambridge, United Kingdom): Challenges Related to Acquisition of Brain PET and SPECT in Patients with Neurological Diseases - A Technical Overview
- 08:25 - 08:45 Matteo Bauckneht (Genoa, Italy): Pitfalls and Artefacts Related to Preparation and Acquisition of Brain FDG PET
- 08:45 - 09:05 Elsmarieke van de Giessen (Amsterdam, Netherlands): Pitfalls and Artefacts Related to Preparation and Acquisition of Dopaminergic Imaging
- 09:05 - 09:30 Ian Law (Copenhagen, Denmark): Pitfalls and Artefacts Related to Preparation and Acquisition of PET AA-Imaging in Brain Tumours

Educational Objectives

1. To learn about challenges related to acquisition of brain PET and SPECT in patients with neurological diseases
2. To understand how to avoid artifacts related to preparation and acquisition of brain PET with FDG and Labeled Amino Acid Tracers
3. To understand how to avoid artifacts related to preparation and acquisition of Dopaminergic Imaging

Summary

Although the evaluation of glucose metabolism using FDG remains the most frequent exam in the field of nuclear neurology, in recent years, alternative radiotracers have been developed, including Dopaminergic Imaging with SPECT and PET and fluorinated amino acid analogues for primary brain tumor imaging. Similarly, PET in neurology has greatly benefited from the advent of hybrid imaging. Attenuation correction is now much faster and accurate thanks to the availability of the online coregistered CT. The accurate coregistration with the CT data, which is now systematically performed, also provides its own set of valuable information, for instance regarding cerebral atrophy. However, hybrid imaging in neurology comes with pitfalls and limitations, in addition to those that are well known (i.e. blood glucose levels that greatly affect the physiological FDG or drugs that might affect FDG and other tracers' uptake). Movements of the patient's head, either during the PET acquisition or between the PET and the CT acquisitions will generate artifacts that may be very subtle yet lead to erroneous interpretation of the study. This Pitfalls and artifacts sessions will deal with the possible sources of challenges related to preparation and acquisition of brain PET with FDG and Labeled Amino Acid Tracers as well as of DAT SPECT.

Key Words

PET acquisition, FDG PET, Dopaminergic Imaging, PET with Labeled Amino Acid Tracers