

Parkinson's diseases and other movement disorders

Neuroimaging diagnostic workup in parkinsonian syndromes: always DAT SPET first: a joint debate with European Association of Nuclear Medicine (EANM).

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In recent years different neuroimaging biomarkers have been included in the clinical diagnostic criteria of neurodegenerative diseases. One of the possible explanations could be related to the remarkable progress and advances undergone by imaging techniques in the last decade. Specifically, nuclear medicine molecular imaging, such as positron emission tomography (PET) or single photon emission computed tomography (SPECT). However, these techniques have largely contributed to our knowledge regarding the physiopathology of different neurodegenerative diseases, but also to diagnosis in the early phases of disease, when structural changes are not yet evident. The diagnosis of neurodegenerative diseases presenting as a parkinsonian syndrome may be complex in the early phases due to the initial overlapping of symptoms between different diseases. Diagnostic accuracy improves with disease progression, when some atypical signs, incompatible with the diagnosis of idiopathic Parkinson's disease (PD), become evident. In this scenario, the possibility of in vivo noninvasive imaging of the integrity of the dopaminergic nigrostriatal pathway, neuronal activity of the basal ganglia and cortex, as well as myocardial sympathetic innervation may be useful to complement the clinical diagnosis, thereby improving the specificity and facilitating decision making. This variety of molecular neuroimaging techniques with common objectives has resulted in some degree of controversy regarding the role of each technique. Consequently, it is necessary to define their use in the clinical diagnosis of patients with parkinsonian syndromes of uncertain origin.