

Evidence Discussion (HD-15)

Movement Disorders

- The majority of movements disorders are diagnosed based on history and clinical examination findings and do not require imaging.^{1,2,3,7} For cases of diagnostic uncertainty, incomplete response to medication, for atypical Parkinsonism or drug-induced parkinsonism, and for suspected Huntington disease, MRI brain is the preferred imaging modality.^{1,3,7}
- Structural imaging with MRI Brain is usually normal in patients with Parkinson's disease but is useful to diagnose causes of secondary parkinsonism, such as stroke, iron deposition, normal pressure hydrocephalus, and neoplasm.^{1,2,3}
- CT head is not preferred due to its limited soft-tissue characterization when compared to MRI.¹
- Functional imaging studies assessing dopaminergic function in Parkinson's disease include single-photon emission computed tomography (SPECT) and positron emission tomography (PET) imaging.^{1,2,3} These studies are used as an adjunct diagnostic test.^{1,2,3}
- Both Dopamine Transporter single-photon emission computed tomography (DAT-SPECT) and [¹⁸F]-fluorodopa (F-DOPA) PET brain are useful to differentiate suspected Parkinsonian syndromes from non-neurodegenerative disorders such as Essential Tremor, drug-induced tremors, vascular parkinsonism, and/or psychogenic tremors.^{1,2,3,4,5}
- DAT-SPECT has a sensitivity of 91% with a specificity of 100% for Essential Tremor, a sensitivity of 86.2% with a specificity of 93.8% for drug-induced parkinsonism, and a sensitivity of 86.2% with a specificity of 82.9% for vascular parkinsonism.^{5,8,9}
- F-DOPA PET brain has a sensitivity of 73% with a specificity of 91% for evaluation of parkinsonian syndrome vs non-neurodegenerative parkinsonian syndrome.⁴
- Neither DAT-SPECT scans nor F-DOPA PET brain scans are useful for the differentiation between subtypes of Parkinsonian syndromes, to monitor progression of disease nor to predict the risk of development of disease.^{1,2,3}
- There is insufficient evidence for the routine use of FDG-PET brain in the diagnosis of Parkinsonian syndromes.¹

References

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