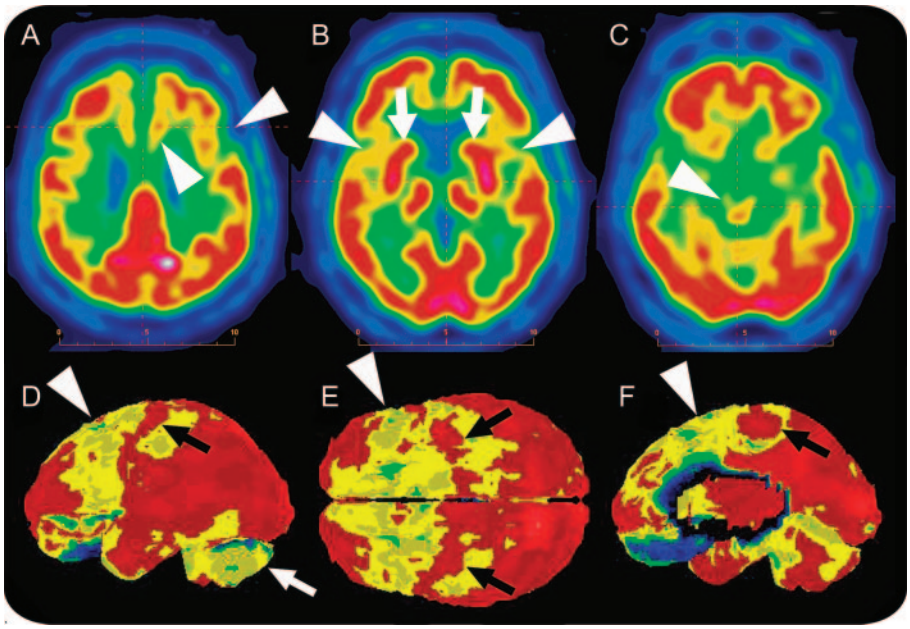
Teaching Neuro*Images*: FDG-PET in progressive supranuclear palsy

Dimitri Renard, MD
Laurent Collombier, MD
Giovanni Castelnovo, MD
Pierre Labauge, MD, PhD

Address correspondence and reprint requests to Dr. Dimitri Renard, Department of Neurology, CHU Nîmes, Hôpital Caremeau, Place du Pr Debré, 30029 Nîmes Cedex 4, France
dimitrirenard@hotmail.com

Figure PET



Axial FDG-PET images show marked bilateral hypometabolism in frontal cortex (A, arrowheads), especially paramedian, insular cortex (B, arrowheads), the head of the caudate nucleus (B, arrows), and the brainstem (C, arrowheads). Three-dimensional FDG-PET reconstruction images (D, lateral view; F, superior view; E, medial view) confirm hypometabolism in the lateral and paramedian frontal cortex (arrowheads) respecting the primary motor area (black arrows), and show decreased metabolism in the cerebellum as well (white arrow).

A 74-year-old man presented with falls, dysphagia, and personality change.

Examination showed axial parkinsonism (without response to levodopa), low pitched dysarthria, supranuclear vertical gaze palsy, decreased blinking, square-wave jerks, primitive reflexes, apathy, and decreased verbal fluency. Brain MRI showed dorsal midbrain and frontal paramedian atrophy. Probable progressive supranuclear palsy (PSP) was diagnosed.

^{18}Fluorodeoxyglucose (FDG)-PET showed bilateral hypometabolism in the lateral and midline frontal cortex, insular cortex, head of caudate nucleus, brainstem, and cerebellum (figure), consistent with described FDG-PET findings in PSP.[1,2] Although not required for diagnosis of probable PSP, FDG-PET may help differentiate parkinsonian syndromes. In Parkinson disease, FDG-PET most frequently shows hypermetabolism of the dorsolateral putamen. Cerebellar hypometabolism has been reported in patients with PSP but is not specific. Predominant cerebellar together with bilateral putamen hypometabolism favors multiple system atrophy.[2]

REFERENCES

1. Juh R, Kim J, Moon D, Choe B, Suh T. Different metabolic patterns analysis of parkinsonism on the 18F-FDG PET. Eur J Radiol 2004;51:223–233.
2. Eckert T, Barnes A, Dhawan V, et al. FDG PET in the differential diagnosis of parkinsonian disorders. Neuroimage 2005;26:912–921.

From the Departments of Neurology (D.R., G.C., P.L.) and Nuclear Medicine (L.C.), CHU Nîmes, Hôpital Caremeau, Nîmes, France.
Disclosure: The authors report no disclosures.