AMYLOID IMAGING WITH AV-45 IN PARKINSON’S DISEASE

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Background: Imaging biomarkers are needed to improve diagnosis of cognitive impairment in Parkinson's disease (PD). Imaging with AV-45 accurately identifies amyloid pathology and may be a useful biomarker in patients with PD and dementia (PDD).

Objective: To compare AV-45 retention in PD patients with a range of cognitive performance.

Methods: Cognition was measured using the Mattis Dementia Rating Scale (DRS-2). Three groups of PD patients were identified:

1) cognitively normal: DRS-2 normed scores of 9 and higher;
2) mildly impaired: DRS-2 score 6-8 and
3) severely impaired: DRS-2 score < 6. AV-45 imaging with PET was performed, and images were analyzed quantitatively and read by three independent, blinded raters. A sub-set of participants (n = 14) also had spinal fluid samples analyzed for abeta and tau levels.

Results: 9 subjects were in both the normal and mildly impaired groups and 7 were severely impaired (25 total). Among the severely impaired group 2 scans were read as positive for amyloid and one subject each in the mildly impaired and normal groups had scans that were read as positive. There was a modest correlation (spearman ρ (r) = -0.26; p = 0.19) between cognitive performance and quantification of amyloid (standard uptake value ratio; SUVr). There was a stronger correlation between CSF abeta and AV-45 binding (r = -0.50; p=0.067).

Conclusions: Some PD patients demonstrate abnormal amyloid binding as imaged by AV-45 PET. Amyloid binding is modestly correlated with clinical status and more strongly correlated with biochemical markers of amyloid pathology.