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66 Association of Executive Functions and Instrumental Activities of Daily Living in Parkinson's Disease

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Objective: Executive function (EF) abilities tend to decline with age, and disproportionately so for people with neurodegenerative disorders such as Parkinson's Disease (PD), where EF deficits are commonly seen in the early stages of the disease. Due to their nature, EF are essential for performing tasks of daily life, particularly for the more complex instrumental activities of daily living (IADL), and deficits can impair the ability to execute IADL in PD participants. The aim of this study was to examine how EF impairments relate to IADL deficits in both healthy elderly controls and PD participants.
Participants and Methods: Seventy-four participants with idiopathic PD and 66 elderly controls were recruited. All participants were non-demented. A comprehensive neuropsychological assessment was administered including the following measures of EF: Hayling Sentence Completion, Brixton Spatial Anticipation, Trail Making Test A and B, Stroop Color-Word Test, Symbol Span (Wechsler Memory Scale-III), Digit Span (Wechsler Adult Intelligence Scale-III), F-A-S test, and Semantic Fluency (Animals and Actions). Z scores were calculated from respective test manuals. Independence was measured using the 8-item Lawton IADL Scale where items are coded from 0 (dependent) to 1 (independent) and the total score ranges from 0 to 8. Motor impairments were assessed using Part III of the Movement Disorder Society Unified Parkinson's Disease Rating Scale. Regression models were run with each cognitive measure as the dependent variable, with group (control vs. PD), age, sex, education, and motor severity as predictors, to examine the effect of group on each cognitive variable. Correlations were then run between the total IADL score, demographic variables, and cognitive variables for each participant group separately to identify the relationship between IADL and EF measures.
Results: PD participants were predominantly males (n=51, 68.9%), with an average age of 70.64±6.03 and 15.22±2.78 education years. Controls were predominantly female (n=34, 51.5%) and had an average age of 71.19±7.75 and 15.85±2.82 education years. Regarding IADL function, all participants were relatively independent in their IADLs (PD: 7.72±0.69, range 4-8, Controls: 7.98±0.13, range 7-8). The most difficult IADL items for PD participants were shopping (8.2% dependent) and food preparation (12.2% dependent). When correcting for age, education, sex, and motor severity, only the Stroop Interference z-score was significant for participant group (b=0.44, t=2.14, p=0.034), where controls had slightly lower scores (-0.33±0.77) than PD participants (-0.31±0.91). Correlations in controls were significant between IADL total score and Hayling trials 1 (r=0.35, p=0.005) and 2 (r=0.33, p=0.008), and semantic fluency actions trial (r=0.34, p=0.006). In PD participants, IADL total score was only correlated with semantic fluency (animals trial, r=0.26, p=0.028).
Conclusions: There were only weak associations between EF abilities and IADL in both healthy controls and PD participants, suggesting that impairments in EF do not necessarily translate into worse ability to execute IADL in PD. More correlations were found in the control group, which may be confounded by the inclusion (in both groups) of participants who already had cognitive impairment. This highlights a further need to examine whether EF impairments in people with PD influence IADL functioning above and beyond normal aging and whether specific deficits have more real-life consequences not attainable through IADL questionnaires.

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67 Three Cases of Clinically Diagnosed Semantic Dementia with Lewy Body Pathology.

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Objective: Semantic variant primary progressive aphasia (svPPA) is a progressive neurodegenerative syndrome characterized by prominent impairments in naming, conceptual knowledge, and comprehension, in the setting of preserved fluency, memory, and visuospatial perception. Generally, svPPA is caused by underlying TDP-43 neuropathology. In contrast, the clinical syndrome of Lewy Body Disease (LBD) is characterized by the presence of parkinsonism and prominent attentional and visuo-spatial deficits, with relative preservation of language skills and visual hallucinations. The underlying neuropathology is Lewy bodies. Here, we describe three unique cases from the UT Health San Antonio Brain Bank of patients with clinical diagnoses of svPPA, but primary neuropathological diagnoses of LBD.
Participants and Methods: We present three cases who had clinical presentations of svPPA but were found to have LB pathology as opposed to the expected TDP-43 or FTLD pathology. We studied demographic variables in these three patients, along with neuroimaging, clinical symptoms, and patterns of neuropathology, in order to demonstrate and further understand the similarities and connections between LBD and semantic deficits.
Results: In Case 1, the patient exhibited fluent but empty speech with profound anomia. Symptoms started in his late 50s and progressed until he lost all purposeful capacity for language before his death at age 66. DaT scan was normal and brain MRI was unremarkable. Underlying neuropathology revealed diffuse LBD throughout the neocortex with intermediate Alzheimer's disease neuropathic change (ADNC), and moderate cerebrovascular disease. In Case 2, the patient exhibited language comprehension difficulties with symptom onset in his early 70s before passing away at age 76. The patient also developed changes in judgment and trouble with activities of daily living. MRI revealed left more than right mesial temporal atrophy, left more than right mild to moderate frontal and insular atrophy, and moderate small vessel disease. FDG-PET was significant for hypometabolism in the left mid-frontal region and in the bilateral anterior cingulate and medial prefrontal cortices. Neuropathology revealed diffuse LBD throughout the neocortex with a high level of ADNC, along with limbic-predominant age-related TDP-43 encephalopathy (LATE) stage 1 and moderate cerebrovascular disease. In Case 3, the patient displayed dysgraphia and anomia, starting in his mid-50s, as well as REM behavior sleep disorder. The patient's neuropathology revealed a high level of ADNC with diffuse LBD throughout the neocortex, and moderate, non-occlusive cerebrovascular disease. None of the patients exhibited the typical Parkinsonism symptoms associated with LBD, but all had prominent visual hallucinations.
Conclusions: This small case series illustrates that a small portion of subjects with underlying LBD pathology may exhibit profound language disturbance suggestive of svPPA. Additional study is warranted, and future endeavors will explore larger pathologically-confirmed samples of subjects with clinical svPPA and high degree of underlying LBD pathology.

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68 Interactive Effects of Sleep Apnea and Depression Symptoms on Cognition in Older Adults

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