

## Investigating the Impact of Cognition on Functional Ability in PSP

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### Overview:

In total, 26 subjects (13 patients and 13 caregivers) were enrolled in the study. All study Aims and the manner in which they were addressed are presented below. Other important findings are detailed after the study Aims. In progress papers are then detailed.

### Study Aims:

Specific Aim #1: To investigate the cognitive and clinical correlates (including motoric symptoms) of the Activities of Daily Living subscale of the Unified Parkinson's Disease Rating Scale<sup>1</sup> (UPDRS-ADL) and its individual items and items contained in the Progressive Supranuclear Palsy Rating Scale<sup>2</sup> (PSP-RS) that relate to functional ability in a sample of patients with progressive supranuclear palsy (PSP).

The PSP-RS was administered to all 13 patients enrolled in the study. As expected, items related to ADLs or IADLs were not significantly correlated with a measure of general cognitive functioning (i.e., DRS-2), demonstrating that

Specific Aim #2: To investigate the cognitive and clinical correlates of alternative scales that better evaluate higher-order instrumental activities of daily living (IADLs) in patients with PSP.

Multiple performance-based IADL measures were administered to all study patients. As expected, a number of subtests on performance-based measures of IADL functioning exhibited significant correlations with neuropsychological measures (FAB and FCI-SF Mental Calculation  $r = .654$ ; DRS-2 and FCI-SF Mental Calculation  $r = .693$ ; DRS-2 and FCI-SF Conceptualization  $r = .605$ ; FAB and FCI-SF Single Checkbook  $r = .797$ ; FAB and FCI-SF Comprehension  $r = .703$ ; DRS-2 and FCI-Q5 Time  $r = -.810$ ; FAB and CCTI Vignette B Total  $r = .732$ ; DRS-2 and CCTI Vignette B Total  $r = .629$ ; DRS-2 and CCTI Understanding  $r = .662$ ; FAB and CCTI Understanding  $r = .756$ ). These results provide a strong base for the construction of a measure of daily functioning that is driven primarily by cognitive deficits.

Specific Aim #3: To compare the strength of the relationships of informant-based and performance-based scales of functional ability to cognition in PSP.

In contrast to the findings presented for Aim #2, no informant-based measure of IADL performance was significantly correlated with either general cognitive function (i.e., DRS-2 Total) or general executive function (i.e., FAB). In addition, no IADL caregiver-report measure achieved a significant correlation with a performance-based IADL measure. These results indicate that caregiver-report of cognition and daily functioning is likely not reliable in PSP.

### Other important findings:

Almost all subjects displayed some level of impairment in medical decision-making capacity. This demonstrates that people with PSP are likely not able to adequately make medical

decisions. Of interest, caregivers consistently overestimated the ability of subjects to make sound treatment decisions.

Almost all subjects also displayed some level of financial decision-making impairment. Of particular concern was the finding that PSP subjects are likely highly susceptible to fraud and scams.

### **Papers and Presentations:**

The final subject for this project was recruited just days prior to the end of the study period. At present, three papers are in progress, with the possibility for a fourth.

The first paper details the relative abilities of informant-based versus performance-based IADL measures to extrapolate cognitive and motor contributions to daily functioning. Items that best discriminate between motor and cognitive contributions to daily functioning are currently discussed in this paper but may be detailed in a separate paper.

The second paper details the level of medical decision-making impairment in the patient group. The extremely poor performance of patients on the measure of treatment capacity was surprising and not fully appreciated by patient caregivers.

The third paper details the level of financial decision-making impairment in the patient group.

Study findings will also be presented at the 2017 CurePSP International Research Symposium. I have also agreed to present these findings and to field questions at the Brain Support Network PSP/CBD family conference.