**Supplementary table 1:** Comparison of key PD parameters and the neuropsychological tests among patients with MH, VH, and NP

**Parameters PD+MH PD+VH PD-NP Significance**

**(n=25) (n=12) (n=51)**

**Disease characteristics**

Age 58.6±7.2 59.7±8.9 57.9±7.0 NS

Duration 6.9±3.6 5.7±2.2 5.9±2.5 NS

UPDRS OFF 32.6±6.5 36.7±10.0 34.9±8.4 NS

H&Y 2.3±0.2 2.4±0.3 2.2±0.3 NS

HAM-A 8.3±5.2 8.4±4.4 6.4±4.1 NS

HAM-D 7.4±5.9 9.5±4.0 6.9±4.7 NS

LEDD 749.1±350.4 600.3±185.4 577.3±218.0 NS

**Comparison of cognitive characteristics**

MoCA 26.7±1.8 24.6±3.1 25.8±2.2 NS

\*CT-A 76.6±13.9 105.3±25.8 79.0±31.3 PD-VH>PD-MH (p=0.006)

PD-VH>PD-NP (p=0.002)

\*CT-B 213.7±61.5 233.1±54.4 177.5±51.1 PD-MH> PD-NP (p=0.01)

PD-VH>PD-NP (p=0.001)

DS-F 4.7±1.1 4.9±0.9 5.1±0.9 NS

DS-B 3.8±0.7 3.6±0.8 3.9±0.7 NS

Stroop (word) 129.4±32.2 154.2±48.3 136.5±34.1 NS

Stroop (color) 321.4±69.8 344.9±55.43 326.0±118.7 NS

Stroop effect 187.1±72.6 190±60.8 187.3±101.1 NS

\*RAVLT-TL 46.0±9.0 40.7±8.4 48.9±10.8 PD-NP>PD-VH (p=0.03)

\*RAVLT-IR 10.3±2.2 9.0±2.0 10.8±2.3PD-NP>PD-VH (p=0.04)

RAVLT-DR 7.3±2.1 6.7±1.6 8.4±2.6 NS

LTPR 63.3±16.7 66.5±10.0 68.2±15.5 NS

\*CFT-copy 31.6±2.3 29.3±8.4 33.7±2.0 PD-MH<PD-NP (p=0.0008)

PD-VH<PD-NP (p=0.012)

\*CFT-IR 21.2±5.7 19.8±6.5 24.7±5.6PD-MH<PD-NP (p=0.01)

PD-VH<PD-NP (p=0.007)

\*CFT-DR 17.3±5.8 16.4±6.4 21.3±5.6 PD-MH<PD-NP (p=0.008)

PD-VH<PD-NP (p=0.03)

Corsi-forward 4.3±0.8 4.3±0.9 4.7±0.7 NS

\*Corsi-backward 3.7±0.6 3.7±0.6 5.1±0.9PD-MH< PD-NP (p<0.001)

PD-VH< PD-NP (p<0.001)

Phonemic fluency 23.9±6.8 19.2±10.2 23.6±6.1 NS

Semantic fluency 9.6±2.2 9.2±2.7 10.3±2.3 NS

CFT: complex figure test, CT- Color trails, DR- delayed recall, IR- immediate recall, LTPR: long-term percent recall, MoCA: Montreal cognitive assessment, PD: Parkinson’s disease, PD-MH: PD patients with minor hallucination, PD-VH: PD patients with visual hallucination, PD-NP: PD patients with no psychosis, RAVLT: Rey auditory verbal learning test, TL: total learning, UPDRS: Unified Parkinson disease rating scale, H&Y: Hoehn and Yahr stage, HAM-A: Hamilton anxiety rating scale, HAM-D: Hamilton depression rating scale, LEDD: Levodopa equivalent dose/day.