

## Supplementary materials

**Supplementary Table 1**

| Variable                                                   | DLB<br>(16)     | PDD<br>(12)     |
|------------------------------------------------------------|-----------------|-----------------|
| Age (mean $\pm$ sd)                                        | 74,8 $\pm$ 6,09 | 74,5 $\pm$ 5,5  |
| Gender (male, number)                                      | 7               | 11              |
| Education (mean $\pm$ sd)                                  | 8,07 $\pm$ 3,8  | 11,5 $\pm$ 3,5  |
| MMSE (mean $\pm$ sd)                                       | 19,3 $\pm$ 6,1  | 23,1 $\pm$ 5,3  |
| RBD (number)                                               | 13              | 9               |
| Fluctuations (number)                                      | 10              | 3               |
| UPDRS (mean $\pm$ sd)                                      | 20,3 $\pm$ 10,7 | 24,9 $\pm$ 14,1 |
| CVH severity (mean $\pm$ sd)                               | 7,1 $\pm$ 5,3   | 6,5 $\pm$ 4,2   |
| CVH duration (mean $\pm$ sd)                               | 1,7 $\pm$ 0,9   | 1,6 $\pm$ 1,07  |
| CVH frequency (mean $\pm$ sd)                              | 3,5 $\pm$ 2     | 3,6 $\pm$ 1,4   |
| MVH severity (mean $\pm$ sd)                               | 6,3 $\pm$ 11,4  | 4,1 $\pm$ 3,7   |
| MVH duration (mean $\pm$ sd)                               | 1,7 $\pm$ 2,5   | 1,3 $\pm$ 1,07  |
| MVH frequency (mean $\pm$ sd)                              | 3 $\pm$ 3,6     | 2,8 $\pm$ 2,03  |
| NEVHI total                                                | 13,5 $\pm$ 14,8 | 10,7 $\pm$ 4,8  |
| NPI (mean $\pm$ sd)                                        | 28,4 $\pm$ 18   | 30,6 $\pm$ 15,7 |
| Months between PD onset and dementia onset (mean $\pm$ sd) | n.a.            | 61,8 $\pm$ 17,5 |
| Time from dementia onset (mean $\pm$ sd)                   | 3,8 $\pm$ 1,7   | 5,5 $\pm$ 4,1   |
| Antipsychotics chlopromazine equivalent dose               | 37,5 $\pm$ 54   | 25 $\pm$ 58,3   |
| Antipsychotics (number)                                    | 9               | 3               |
| AcheI dose                                                 | 5,2 $\pm$ 4,5   | 1,7 $\pm$ 3,8   |
| AcheI (number)                                             | 10              | 3               |
| Levodopa equivalent dose                                   | 94,6 $\pm$ 171  | 673,6 $\pm$ 320 |
| Levodopa (number)                                          | 6               | 10              |

## Supplementary analyses

Since CVH and MMSE were correlated, we investigated whether there is a difference in MMSE score in patients with severe CVH compared to with mild CVH. We divided the patients on basis of CVH severity median score (6) and we compared the two groups (low severity hallucinators vs high severity hallucinators) to test differences in MMSE scores.

The Mann Whitney test did not reveal any significant difference between the groups (U=51.5, p=0.147).

|      | Mild CVH (n=12) | Severe CVH (n=13) | U- Mann Whitney | p-value |
|------|-----------------|-------------------|-----------------|---------|
| MMSE | 21.8 ± 5.7      | 18.6 ± 5.8        | 51.5            | 0.147   |

We performed a Mann Whitney test to verify whether PDD and DLB differed in MVH and CVH severity, but no significant differences emerged either for MVH ( U=88, p=0.703) or CVH severity (U=94.5, p= 0,94).

|              | PDD (n=12) | DLB (n=16) | U- Mann Whitney | p-value |
|--------------|------------|------------|-----------------|---------|
| MVH severity | 4.1± 3.7   | 6.3±11.4   | 88              | 0.703   |
| CVH severity | 7.1 ±5.3   | 6.5 ± 4.2  | 94.5            | 0.94    |