**Suppl 8.** Comparison of demographic and clinical characteristics of the two clusters from the Discovery Cohort after repeated cluster analysis using only the traits that drove clustering in the PPMI Cohort.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Cluster 1 (n=98)** | **Cluster 2 (n=81)** | **Uncorrected p value** | **Bonferroni** |
| **Gender \*** count (percent) | M: 68 (69%)  F: 30 (31%) | M: 45 (56%)  F: 36 (44%) | 0.376 | 1 |
| **Age at Diagnosis (year)  t\*** (mean ± SD) | 59.0±9.7 | 61.0±8.9 | 0.1687 | 1 |
| **Disease Duration (year) W\*** (mean ± SD) | 8.4± 5.1 | 9.3± 5.2 | 0.158 | 1 |
| **+*GBA* Mutation** count (percent) | 17 (17%) | 11 (14%) | 0.479 | 1 |
| **TD \*** count (percent) | 39 (40%) | 21 (26%) | 0.724 | 1 |
| **PIGD** count (percent) | 31 (32%) | 25 (31%) | 0.660 | 1 |
| **Hoehn & Yahr Scale** (count) | Score  Count  1:      13  1.5:    18  2:       53  2.5:    6  3:       7  4:       1  5:       0 | Score  Count  1:    11  1.5:  8  2:     43  2.5:    8  3:     8  4:      2  5  :    1 | 0.775 | 1 |
| **Wearing Off** count (percent) | 33 (34%) | 36 (44%) | 0.53 | 1 |
| **Dyskinesias** count (percent) | 28 (29%) | 31 (38%) | 0.088 | 1 |
| **Freezing of Gait** count (percent) | 26 (27%) | 29 (36%) | 0.573 | 1 |
| **Depression \*** count (percent) | 22 (22%) | 61 (75%) | 0.001 | 0.022 |
| **Anxiety \*** count (percent) | 0 (0%) | 80 (99%) | 0 | <0.001 |
| **Hallucinations** count (percent) | 8 (8%) | 19 (23%) | 0.413 | 1 |
| **Cognitive Impairment\*** count (percent) | 3 (3%) | 3 (4%) | 0.562 | 1 |
| **Orthostatic Hypotension \*** count (percent) | 28 (29%) | 37 (46%) | 0.281 | 1 |
| **Constipation \*** count (percent) | 57 (58%) | 60 (74%) | 0.569 | 1 |
| **Urinary Symptoms \*** count (percent) | 44 (45%) | 32 (40%) | 0.24 | 1 |
| **RBD \*** count (percent) | 41 (42%) | 37 (46%) | 0.687 | 1 |
| **Aspirin** count (percent) | 20 (20%) | 19 (23%) | 0.542 | 1 |
| **Dopaminergic Agent** count (percent) | 78 (80%) | 70 (86%) | 0.574 | 1 |
| **MAOi** count (percent) | 22 (22%) | 10 (12%) | 0.553 | 1 |

#### Uncorrected and Bonferoni corrected p-values are also shown (traits with P < 0.05 were considered to be significantly different between the two clusters) from chi-square analysis, unless otherwise specified (t: unpaired t-test, W: Wilcoxon test). (\*) indicate variables that were collected in both the PPMI and Discovery Cohorts. The other traits were determined by chart review (MSMD subset) or by interview (NYU subset). Tremor Dominant (TD) and Postural Instability and Gait Disorder (PGID) phenotypes were defined based on Movement Disorder Society-Unified Parkinson’s disease rating scale (MD-UPDRS) score [13]. F: female; M: male; MAOi: monoamine oxidase inhibitor; RBD: REM sleep Behavior Disorder.