Supplementary information

Table 1. Spearman correlation coefficients between cognitive test results and YECO, YECO2, years of education, and age, for mutation carriers and non-carriers. Only significant results are presented.

Mutation carriers Non-carriers

Test YECO YECO2 educ age YECO YECO2 educ age

Current IQ **-0.64\*\*\* +0.50\*\* +0.72\*\*\* -0.48\*\* - - +0.62\*\*\* -0.48\*\***

Information -0.38\* - **+0.76\*\*\*** - - - +0.34\* -

Similarities **-0.60\*\*\* +0.44\*\* +.52\*\*\* -0.43\*\*** - - - -

Block Design **-0.74\*\*\* +0.52\*\*\* +0.64\*\*\* -0.55\*\*\*** - - **+0.55\*\*\*** -

Rey-O copy **-0.49\*\*** - - - - - - -

Digit Span - - +0.41\* - - - **+0.44\*\*** -

Corsi Span **-0.59\*\*\*** +0.45\* - **-0.62\*\*\*** - - - -0.31\*

RAVL learning **-0.69\*\*\* +0.51\*\* +0.58\*\*\* -0.61\*\*\*** - - - -

RAVL retention **-0.68\*\* +0.67\*\*** - -0.61\* - - - -0.49\*

Rey-O retention **-0.76\*\*\* +0.73\*\*\* - -0.65\*\*\*** - - - -

Digit Symbol **-0.68\*\*\* +0.51\*\* +0.62\*\*\* -0.65\*\*\*** - - **+0.48\*\* -0.45\*\***

Trailmaking A **-0.45\*\*** +0.38\* **+0.51\*\*\* -0.53\*\*\*** - - **+0.49\*\*\*** -

Trailmaking B -0.38\* +0.37\* **+0.57\*\*\* -0.45\*\*** - - +0.35\* -

Educ = education; RAVL = Rey Auditory Verbal Learning; RO = Rey-Osterrieth; YECO = subject’s present age minus the family-specific age for expected clinical onset of AD. “-“ denotes non-significant data.

\* = p<0.05; \*\* = p< 0.01, \*\*\* = p<0.001

Bolded values indicate correlations that survived Bonferroni correction.

Supplementary information

Table 2. Comparison of linear regression models: Model 3 included three independent predictors (YECO, education, age) and Model 4 included four independent predictors (YECO, YECO2, education, age). Models were compared based on their value of Akaike Information Criterion (AIC; the lower the better). Models (3 vs. 4) were compared for each cognitive test and both for mutation carriers and non-carriers. Preferable models are denoted by bolded AIC values.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Mutation carriers | Mutation carriers | Mutation non-carriers | Mutation non-carriers |
| Test | AIC  Model 3:  YECO + education + age | AIC  Model 4:  YECO + YECO2 + education + age | AIC  Model 3:  YECO + education + age | AIC  Model 4:  YECO + YECO2 + education + age |
| Current IQ | **-1.9** | -1.2 | -12.0 | -12.0 |
| Information | 2.9 | **1.6** | **1.3** | 3.2 |
| Similarities | **26.5** | 27.3 | **1.8** | 3.8 |
| Block Design | **20.4** | 20.6 | 20.4 | **19.8** |
| RO copy | 47.1 | **31.0** | **-34.9** | -32.9 |
| Digit Span | **-3.3** | -2.7 | -4.3 | **-6.6** |
| Corsi Span | 34.9 | **22.9** | **18.0** | 18.8 |
| RAVL learn | -0.5 | **-3.4** | **-2.6** | -1.6 |
| RAVL ret | 4.9 | **4.6** | **-14.3** | -12.3 |
| RO ret | **5.1** | 7.1 | **-4.2** | -2.5 |
| Digit Symbol | 8.7 | **8.3** | -13.3 | **-17.2** |
| TMTA | **3.2** | 5.1 | -31.5 | **-32.4** |
| TMTB | **28.3** | 30.2 | -4.0 | **-8.7** |
|  | 7 tests with lower AIC | 6 tests with lower AIC | 7 tests with lower AIC | 5 tests with lower AIC |