Composite UHDRS shows extensive spatial correlation with grey matter and white matter volume in Huntington’s disease gene carriers

Background
Huntington’s disease (HD) is an autosomal dominant neurodegenerative disorder characterized by motor, neuropsychiatric and cognitive symptoms. Symbol digit modalities test (SDMT), Stroop word-reading test and Total Motor Score (TMS) have shown to track disease progression in Huntington’s disease (HD). Recently a composite measure of motor, cognitive and functional outcome (cUHDRS) has been proposed as a sensitive clinical tool in early HD.

Objective
This work sought to determine the structural correlates of variability in cUHDRS in HD gene expansion carriers (HDGC).

Sample
234 unselected Huntington’s disease gene carriers (118 presymptomatic and 116 early HD) from the TrackHD cohort. We grouped together both presymptomatic and early HD since from the imaging perspective the disease is a continuum.

Methods
Voxel-based morphometry (VBM)

Covariates
Age
Gender
Site
Disease Burden Score
Total Intracranial Volume

Conclusion
In Huntington’s disease gene carriers the composite UHDRS shows significant and extensive correlation with GM and WM volumes using VBM.

These correlations involve areas known to be affected early in Huntington’s disease.

This study shows the structural correlates of cUHDRS and supports its use as an outcome measure in clinical trials.