right, and bilateral precuneus specifically (ρ=-.43, p=.017; ρ=-.48, p=.008; ρ=-.46, p=.010, respectively). No significant associations were found in non-carriers.
Conclusions: These findings suggest that learning curves on an associative memory test may be sensitive to preclinical pathological changes in AD, specifically within the precuneus, a brain region known to be involved in cue reactivity, episodic memory retrieval, and mental imagery strategies. Future studies with larger samples are warranted to further examine associations between the FCSRT learning curves and regional tau accumulation in individuals with ADAD.

Categories: Neurodegenerative Disorders
Keyword 1: dementia - Alzheimer's disease
Keyword 2: test reliability
Keyword 3: cognitive screening
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53 REM Sleep Behavior Disorder in Parkinson's Disease : Longitudinal Effects on Brain Lateralization

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Objective: Laterality of motor symptom onset in Parkinson’s disease (PD) is well-known and under-appreciated. It is still unclear though if this laterality might have an influence on other symptoms. Specifically, REM sleep behavior disorder has been shown to be a factor that has a high probability to be lined to PD. In this study we analyzed the longitudinal effect of REM symptomatology on brain lateralization in PD.
Participants and Methods: We used the baseline and 3-year visit data of 116 participants (67 without REM (PD-non-REM), 49 with REM (PD-REM)) aged 37-81 years from the Parkinson’s Progression Markers Initiative (PPMI) dataset. Statistical 3T MRI data (cortical thicknesses, areas, foldings of cortical Desikan atlas and volumes of subcortical regions) were obtained via FreeSurfer 7.1.1. Lateralization was computed using the formula: (left-right) / (lef +right). Mixed ANOVAs were performed on each region of interest.
Results: Our findings showed an increased right asymmetry of the paracentral lobule area and of the pars orbitalis area and volume in PD-REM. There was a reduced right asymmetry of the parietal inferior volume at baseline in PD-REM, whereas REM symptomatology had a stable effect at the 3 years visit. At baseline, there was an increased left asymmetry of the thickness of the caudal anterior cingulate, pars orbitalis and pars triangularis regions in PD-REM. After 3 years, there was an increased right asymmetry in those regions. The precentral, frontal superior and transversal temporal gyri showed inverse results: an increased right asymmetry of the thickness at baseline and an increased left asymmetry after 3 years. Finally, REM symptomatology is associated with more significant increases of the left asymmetry of the frontal superior gyrus volume and of the right asymmetry of the supramarginal gyrus volume after 3 years than at baseline.
Conclusions: These results provide evidence of the modulating effect of the disease progression on the relationship between REM symptoms and brain lateralization in PD.

Categories: Neurodegenerative Disorders
Keyword 1: Parkinson's disease
Keyword 2: laterality
Keyword 3: sleep disorders
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54 Sleep and Circadian Rhythms in Premanifest Huntington’s disease: Relationship with Cognition

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Objective: Huntington's disease (HD) is a neurodegenerative disease characterised by motor, psychiatric and cognitive decline. Currently, no treatments have been identified in HD for slowing down cognitive decline or improving cognitive function. We are interested in identifying potentially modifiable factors in HD that can be targeted to improve or maintain

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cognitive function. Sleep and circadian disruption stand out as possible modifiable targets because sleep and circadian symptoms are common in HD, and such disruptions are known to impact cognition in the general population. Despite some emerging evidence that sleep quality correlates with cognition in manifest HD, whether these same relationships exist in the premanifest period is unknown. Further, whether circadian rhythms relate to cognition in premanifest HD remains open. Therefore, we aimed to determine whether sleep and circadian parameters relate to cognitive performance in premanifest HD.
Participants and Methods: To date, we have recruited 27 premanifest HD participants to a two-week remote sleep study. During the study, participants wore an Actiwatch-2 and completed a sleep diary for 14 consecutive days to assess their sleep and rest-activity patterns. Participants also completed online sleep and mood questionnaires and a cognitive assessment using videoconference. We calculated Pearson correlations to examine whether cognitive performance relates to subjective sleep quality, objective sleep parameters and circadian rest-activity rhythms. Thus far, we have analysed data from 15 female participants with premanifest HD (Mage = 43.20, SD = 11.58).
Results: Preliminary results indicate that measures of subjective sleep quality, insomnia severity, daytime sleepiness, and fatigue severity in premanifest HD do not correlate with cognitive performance. Increases in objectively measured sleep efficiency, however, strongly correlated with better performance on the Hopkins-Verbal Learning Test-Revised (HVLT-R) immediate ($r = 0.562$, $p < 0.05$) and delayed recall trials ($r = 0.597$, $p < 0.05$) and the Trail Making Test Part B (TMT-B; $r = 0.550$, $p < 0.05$). More time spent awake (i.e., wake after sleep onset) was strongly linked to reduced performance on the TMT-B ($r = -0.542$, $p < 0.05$) and Symbol Digit Modalities Test ($r = -0.556$, $p < 0.05$). Further, increases in total sleep time were associated with better performance on the HVLT-R immediate ($r = 0.682$, $p < 0.05$) and delayed recall trial ($r = 0.616$, $p < 0.05$). For our circadian parameters, less fragmented day-to-day rest-activity rhythms (i.e., higher intra-daily variability) strongly correlated with higher scores on the HVLT-R immediate ($r = 0.768$, $p < 0.001$) delayed recall trials ($r = 0.7276$, $p < 0.05$) and TMT-B ($r = 0.516$, $p < 0.05$), whereas consistent and stable day-to-day rest-activity rhythms (i.e., higher inter-daily stability) was associated with poorer performance on ERT ($r = -0.587$, $p < 0.05$).
Conclusions: Preliminary results suggest that fragmented sleep, sleep inefficiency, reduced total sleep time, rest-activity rhythm stability and fragmentation relate to poorer cognitive performance in people with premanifest HD. Should analysis of our whole sample confirm these preliminary findings, targeting sleep in HD (e.g., through sleep hygiene and/or psychoeducation) may be a useful strategy to improve or maintain cognition.

Categories: Neurodegenerative Disorders
Keyword 1: sleep
Keyword 2: cognitive functioning
Keyword 3: dementia - subcortical
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55 Tracking Cognitive Change in Huntington's Disease with the Mini Mental State Exam and the Montreal Cognitive Assessment

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Objective: To assess the utility of the Mini Mental State Exam (MMSE) and Montreal Cognitive Assessment (MoCA) for tracking cognitive changes Huntington's Disease.
Participants and Methods: Currently, the most frequently used brief assessment of global cognitive functioning is the MMSE. Although the MMSE is helpful for distinguishing individuals without significant cognitive impairment from those with dementia, it is not particularly sensitive to more subtle cognitive deficits. The MoCA is another brief cognitive screening tool that has been shown to be more sensitive to mild impairment and may have greater usefulness in subcortical dementias because of its more extensive assessment of executive function. Although the MoCA appears to have

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