impairment (MCI). **Methods:** 19 patients with MCI and 18 age-matched controls underwent magnetic resonance imaging and cognitive assessment. Diffusion tensor imaging-based tractography was used to construct whole-brain tractograms, which were represented as network graphs weighted by fractional anisotropy of the edge between any two nodes. Whole-brain graph theoretical measures and local measures for the hippocampi and thalami were compared between groups and correlated with cognitive scores. Linear regression models were constructed to investigate how local and whole-brain measures predict episodic memory. **Results:** MCI patients showed reduced global efficiency (t=2.6, p=.019) and mean clustering coefficient (t=3.1, p=.005). In MCI, global efficiency was associated with episodic memory performance (r=.50, p=.042). Local efficiency of the left hippocampus was decreased in MCI (t=2.1, p=.045), while there were no group differences in clustering and efficiency for the right hippocampus and the thalami. Episodic memory correlated with local measures of the left hippocampus (local efficiency: r=.68, p=.003; clustering coefficient: r=.59, p=.012) and the left thalamus (local efficiency: r=.51, p=.038; clustering coefficient: r=.48, p=.049). Measures of network topology did not correlate with cognition in controls. When global efficiency was added to the regression models for episodic memory performance in MCI, the relationships with local efficiency and the clustering coefficient for the left thalamus were no longer significant. In contrast, measures of the left hippocampus retained independent relationship in combined regression models. **Conclusions:** Both local and whole-brain measures of network topology correlate with episodic memory in MCI. The influence of hippocampal connections is independent of global network structure. In contrast, alterations in global efficiency mediate the effect of thalamic connectivity on memory performance. Our results challenge the hippocampal-centred view by suggesting that episodic memory impairment might also be dependent on a distributed mnemonic system.

IC-P-026 FUNCTIONAL CONNECTIVITY WITHIN NEUROANATOMICAL SUBSTRATES OF ALZHEIMER'S DISEASE

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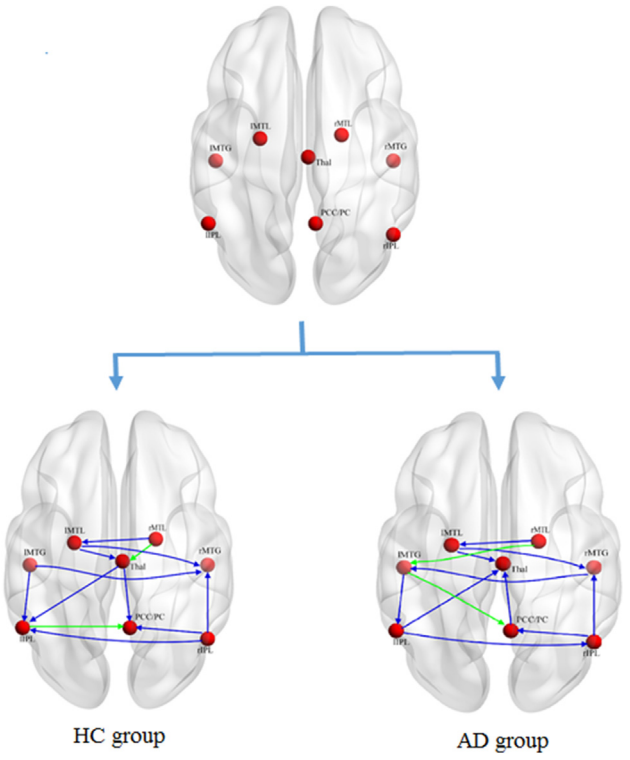
Background: Moving beyond the canonical functional networks and descriptive brain network modeling methods, we attempted to construct a node-and-edge network of Alzheimer's disease (AD) constrained by disease-specific grey-matter volume perturbations. **Methods:** The resting-state functional network structure was estimated by computing edges between voxel-based morphometry (VBM) data-derived 8 nodes with Bayesian estimation methods suitable for time-series data. **Results:** Independently computed group-wise network models were comparable; 10 out 12 paths were common to both AD and control groups (fig). Major difference in the networks of two groups were in terms of connectivity strengths reflected by edge coefficients. In AD group, connectivity strength measures could significantly predict AD disease severity measured by CDR-SB (r^2=0.77, p=0.015). **Conclusions:** This novel and data driven network modeling can quantify resting state connectivity strengths and provide a reliable marker of disease identification, progression and treatment response.



IC-P-027 LANGUAGE FLUENCY PREDICTS RESTING STATE NETWORK CONNECTIVITY PATTERN

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Background: Alzheimer's disease (AD) is often recognized as a disconnection disorder in which pathophysiological changes lead to reduced communication and coordination among regions important for cognition. Therefore, brain connectomic studies designed to examine disruptions of connectivity in AD have become increasingly common. We used resting-state fMRI (rsfMRI) in conjunction with connectomics to assess the relationship of cognitive variables associated with AD with brain network connectivity. Data from two separate cohorts were analyzed. **Methods:** Cohort1 included 74 older adult participants from the Indiana Alzheimer's disease Center, classified as cognitively normal (CN, 29), subjective cognitive