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Neuroanatomical predictors of progression to dementia in Primary Progressive Aphasia

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Patients with Primary Progressive Aphasia (PPA) have progressive language deficits during the initial phase of the illness and largely independent functional abilities outside of those dependent on language. As the disease progresses, PPA patients begin to lose independent functioning due to the development of cognitive symptoms beyond language and, in some cases, behavioral symptoms. The timeline of this progression from the mild cognitive impairment (MCI) stage of PPA to the dementia stage of PPA is variable across patients and the field currently lacks robust methods for prognostication. To address this issue, we investigated the utility of regional atrophy within cerebral cortical networks subserving different aspects of cognitive and affective functions in predicting progression from the MCI stage of PPA to dementia. Forty-nine PPA patients underwent an MRI scan at baseline which was analyzed to measure atrophy relative to controls. For each patient, we measured the time between the baseline visit and the subsequent visit at which progression to dementia was documented or last observation. Cox regression analysis showed that patients with relatively greater baseline cortical atrophy in not only the left language network but also networks outside the language network (frontoparietal, salience, and default mode networks) had a higher risk of progression to dementia. Our results suggest that baseline atrophy in cortical networks that subserve non-language cognitive and affective functions is an important predictor of progression to dementia in PPA patients. This measure should be included in precision medicine models of prognosis in PPA.

Conflicts of interest

N/A