Differences in Word Usage Patterns between "Well-Recovered" Aphasic Patients and Control Subjects on a Picture Description Task

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I developed an approach for analyzing word-use patterns that could be used to create a diagnostic tool for post-stroke aphasia patients with discourse difficulties, who are currently severely underserved. I used picture description transcripts and structural MRI scans from 18 post-stroke anomic aphasia patients (8 male) who scored above 88 on the Aphasia Quotient of the Western Aphasia Battery and 16 control subjects (7 male); the two groups did not differ significantly by age or years of education. Patients produced fewer words, fewer descriptive terms, and less non-repetitive content per word than controls. Voxel-based lesion-symptom mapping of the patterns revealed that these unusual word use patterns may be related to damage in brain regions associated with working memory, attention, and motor planning. Many post-stroke patients who lose linguistic abilities eventually reach the level of patients in this study. These “well-recovered” patients score at near-normal levels on standard aphasia tests that assess individual sounds, words, and sentences, but may experience lingering, underdiagnosed difficulties on the level of entire conversations. The lesion-symptom mapping results of this small study suggest that such discourse difficulties are associated more closely with cognitive deficits than most linguistic tasks. Continued work in this area may result in better testing to identify and understand a concern of high importance for a currently severely underdiagnosed and undertreated patient group.

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