Language in amnestic Mild Cognitive Impairment and Alzheimer's disease

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BACKGROUND

• Mild Cognitive Impairment (MCI) is a diagnostic entity that gained momentum after the Key Symposium in 2003. A clinical distinction was proposed between amnestic and non-amnestic variants and single domain versus multiple domain variants of MCI.

• Evaluation of cognitive function can differentiate between dementia of the Alzheimer's type (DAT) and four types of MCI (amnestic single-domain, amnestic-multiple domain, non-amnestic single-domain, non-amnestic-multiple domain). Thus far, analysis of language function has not been utilized in differential MCI diagnosis.

• Amnestic mild cognitive impairment (aMCI) is characterized by memory impairment that is out of proportion to other cognitive domains (Petersen et al., 2006).

• This study was carried out to characterize and compare language profiles of patients diagnosed with amnestic MCI multiple domain (aMCIm) and DAT. The overarching aim was to establish whether language assessment offers diagnostic value in the differential diagnosis of cognitive disorders of aging.

METHODS

Participants:
• A retrospective chart review of 28 Memory Clinic clients with consensus diagnosis of aMCIm (n=14) and DAT (n=14) was conducted.

• Results of language test administered during their diagnostic work up were compared between the two groups with single-factor ANOVA

Language Function Assessment:
Naming (BNT), Word Repetition (PALPA 8), Sentence Repetition (SRT), Story Comprehension (BDAE), Oral Reading (Grandfather passage), Reading (regular & irregular words, PALPA 35), Reading Comprehension (BDAE), Spelling (regular & irregular words, PALPA 41), Verbal semantics (PPVT), Non-verbal semantics (PPTT), grammar, (TROG), story retell (ABCD), semantic fluency, phonemic fluency, speech praxis (ABA), and orientation.

RESULTS

	Normal	aMCI	AD	p value MCI vs AD
MMSE	28	25.5	20.6	0.03*
Naming	50.7	37.3	22	0.02*
Sentence repetition	9.8	7.6	6.2	0.05*
Receptive syntax	18	13.9	10.9	0.15
Lexical semantics	50	47.7	40.4	0.04*
Nonverbal semantics	50	40.3	24.6	0.01*
Regular word reading	100	96.6	93.1	0.43
Irregular word reading	100	88.2	84.3	0.59
Regular word spelling	100	86.6	74	0.32
Irregular word spelling	100	69.1	48.2	0.04*
Passage-oral reading	60	76	81.9	0.64
Phonemic fluency	35	19.2	19.2	0.99
Semantic fluency	17	11.5	6.8	0.05*

The aMCI group performed better on naming, sentence repetition, lexical and nonverbal semantics, irregular word spelling, and semantic fluency.

The AD group was significantly older than the aMCIm group though both were comparable in years of education and duration of symptoms.

Expressive language was found to be relatively intact in both groups.

In contrast to DAT, aMCIm participants exhibited good orientation and relatively preserved semantic knowledge.

Both groups exhibited significant impairments on receptive language tests and in linguistically complex tasks involving other cognitive domains such as episodic memory and executive functions.

CONCLUSIONS

• Language impairments in DAT are more numerous and more prominent that those in aMCIm.

• Differences in test scores but not in disorder duration and years of education indicate that, at a similar point in the course of the disorder, individuals with aMCIm and DAT present with quantitatively different profiles.

•The profiles of DATand aMCIm are largely parallel, i.e., they are distinguishable by the severity, not a specific configuration of impairments.

• Evaluation of language function in aMCIm and DAT may provide important contribution to the diagnostic process.

• Understanding the nature of language decline is also critically important to the intervention process as this information would critically inform cognitive intervention approaches aimed at promoting quality of life in people living with MCI and dementia.

• The results of our study may support our ability to clinically differentiate between MCI subtypes by examining the language function.

References
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