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"Neurologopedic characteristics of narrative discourse and naming impairment in selected neurodegenerative diseases"

Summary

Speech and language disorders are a hallmark of several neurodegenerative diseases. The research conducted as a part of this doctoral thesis was aimed primarily at describing narrative discourse and naming impairment in selected neurodegenerative disorders from the spectrum of frontotemporal lobar degeneration (FTLD) and atypical parkinsonian syndromes as compared to Alzheimer's disease. The secondary aims consisted of delineating the progression profile in logopenic variant of primary progressive aphasia (lvPPA) and describing the profile of narrative discourse in the context of cerebral hypoperfusion in dementia with Lewy bodies (DLB).

100 Polish-speaking patients participated in the study: 23 patients with typical Alzheimer's disease (AD), 34 patients with primary progressive aphasia (PPA), 18 patients with Richardson variant of progressive supranuclear palsy (PSP-RS), 12 patients with Lewy body dementia (DLB), and 13 patients diagnosed with mild cognitive impairment (MCI). The linguistic analyses focused on lexical and syntactic aspects of performance on spoken and written picture description tasks as well as the profile of word-finding problems in confrontation naming.

The comparative analysis of oral and written picture descriptions revealed overlapping features between non-fluent variant of primary progressive aphasia (nfvPPA) and Richardson syndrome of progressive supranuclear palsy (PSP-RS). Those similarities in lexical aspects of the spoken output were not observed between PSP-RS and AD or lvPPA. Of note, individuals with PSP-RS had a faster speech rate and demonstrated greater syntactic complexity than individuals with nfvPPA. Also, micrographia was observed more frequently in PSP-RS than in nfvPPA.

Patients with lvPPA showed more severe deficits on naming, speech comprehension and repetition than those with nfvPPA. Also, confrontation naming and sentence comprehension differentiated the groups better than sentence repetition. In lvPPA phonemic cues were not effective and triggered phonemic paraphasias and neologisms that confirmed predominant phonological impairment. Patients with lvPPA not only demonstrated severe language deficits

at diagnosis, but those deficits were accompanied by significant cognitive impairment and showed rapid progression which was evidenced in a longitudinal analysis of 4 cases.

The comparison of written picture description in patients with lvPPA, AD and MCI revealed an overall similar profile, but the degree of word-finding problems was more severe in lvPPA as patients with lvPPA patients tended to use more verbs than those with AD. In addition, individuals with lvPPA committed specific letter errors, consisting of inserting additional letters, that were not present in AD and MCI.

The profile of discourse impairment observed in AD was consistent in several analyses, both those comparing picture description performance in nfvPPA and AD and those comparing AD and DLB, speech informativeness was substantially reduced in AD which was demonstrated by the increased use of pronouns and reduced use of nouns. The comparison of oral picture description in AD and DLB revealed more pronounced lexical and semantic deficits in AD. Patients with DLB produced shorter sentences which may be related to neuropsychological characteristics of this disorders, mainly working memory impairment. The analysis of the association of cerebral perfusion and lexical as well as syntactic parameters of oral picture description revealed the contribution of posterior hypoperfusion to the language impairment.

The obtained results add to the growing body of knowledge on the relationships between language and cognitive performance in neurodegenerative diseases and highlight the similarities between lvPPA and AD as well as nfvPPA and PSP-RS as a part of FTLD spectrum. Also, the studies conducted revealed specific error patterns on naming and writing which may be helpful in the differential diagnosis of PPA syndromes.

Key words: discourse, picture description, confrontational naming, word-finding, aphasia, anomia