

Quantitative connected speech analysis in a case of non-fluent/agrammatic Primary progressive Aphasia

Karpathiou N^{1,2}, Kambanaros M², Potamianou D¹, Papatriantafyllou J³, Sakka P¹

¹ Athens Alzheimer Association

² Department of Rehabilitation Sciences, Cyprus University of Technology, Limassol

³ 2nd Department of Neurology, Attikon University Hospital, Athens

Abstract

OBJECTIVE: Primary progressive aphasia (PPA) is a neurodegenerative syndrome characterized by a selective loss of language functions. In the nonfluent/agrammatic variant (nfvPPA), speech is slow and hesitant. Utterances are shorter, less complex and contain grammatical errors. Single word production deficits in PPA have been extensively examined. However, connected speech analysis has only recently begun to be systematically studied. The aim of the present study was to investigate connected speech deficits in a Greek-speaking person with nfvPPA.

MATERIAL - METHOD: Participant LJ is a 60-year-old right-handed man, with 6 years of formal education. At the time of the study, he had a FTLD-modified CDR score of 9 (MMSE=17/30). A narrative sample was collected using the "cookie theft" picture from BDAE and analyzed following the procedures described by Saffran et al. (1989) for quantitative production analysis (QPA). QPA summary measures, percentages of dysfluent variables and counts of errors were computed. LJ's scores were compared to a healthy control group included in a study by Varkanitsa (2012). T-values were calculated using the Crawford and Howell's method (Crawford and Garthwaite, 2012).

RESULTS: Speech rate was 40.37 words per minute. Dysfluencies included silent pauses, filled pauses, false starts, sound distortions and repetitions (23%, 20%, 3%, 2% and 1% of total words produced). LJ produced less nouns ($p < .05$) and adverbs ($p < .025$), but more pronouns ($p < .0005$) and verbs ($p < .05$) compared to controls. He used less narrative words ($p < .05$) and more single word utterances ($p < .0005$).

CONCLUSIONS: This case study reports differences between an individual with nfvPPA and healthy controls in lexical selection and discourse productivity measures. It serves as an example of how connected speech analysis may be used for the evaluation of multiple linguistic levels not captured by traditional aphasia tests.

REFERENCES:

Varkanitsa M. (2012). Quantitative and error analysis of connected speech: Evidence from Greek-speaking patients with aphasia and normal speakers. *Current Trends in Greek Linguistics*, 313-338.

Crawford JR & Garthwaite PH. (2012). Single-case research in neuropsychology: a comparison of five forms of t-test for comparing a case to controls. *Cortex*, 48(8), 1009-1016.