Task based profiles of language impairment in Parkinson's Disease

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Objective: This study aimed to add to our understanding of language impairment in people with Parkinson's Disease (PwPD).

Background: Language difficulties are increasingly reported in PD. However, there are contradictory reports on how they relate to motor and cognitive impairment. In addition, the link between various language deficits or the same deficits across task modalities is not well understood. This lack of understanding impacts on clinicians' ability to assess and effectively treat language impairment in PD. Our study therefore aimed to investigate language performance across a number of task structures and correlate this performance with cognitive skills, as well as motor and speech performance.

Method: The study included 22 German speaking PwPD and 22 matched healthy control participants. 18 participants in each group were cognitively healthy and four had mild cognitive impairment (MCI). They performed a number of executive function and language tasks of different complexity and structure. The linguistic investigation focused on grammatical accuracy and complexity, linguistic content as well as articulatory features.

Results: There were few cognitive differences between the two groups, with only set-shifting as an executive function being significantly reduced in PwPD, but grammatical error rate was higher in PwPD than in their healthy controls across all language tasks. This was linked to set shifting skills but only for the complex grammar condition, not for more naturalistic language tasks. Furthermore, there was no correlation of language performance across the task levels, i.e. error rates in the structured task did not predict naturalistic performance. Motor and dysarthria severity could not predict language impairment either.

Conclusion: This study confirms the presence of language problems in PwPD in the absence of global cognitive impairment or only MCI, and at the same time establishes a task based relationship between the two skills. From a clinical perspective the data indicate that structured tests are unable to accurately predict naturalistic language performance, highlighting the need for functional assessments rather than relying on fast scoring structured tests, at least at early disease stages. In addition, the impact of the individual language difficulties needs to be explored to establish appropriate and effective treatment pathways.