

Prospective memory in Parkinson's Disease: a longitudinal study

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Introduction: Prospective Memory (PM) is defined as the memory for future intentions and it is typically divided into time-based and event-based PM. PM deficits, especially time-based ones [1], have been widely reported in patients with Parkinson's disease (PD) but, until now, no study has yet explored PM functioning over time.

Objectives: The present longitudinal study aimed at exploring the evolution of PM deficits, both time-based and event-based, in PD patients.

Methods: Thirteen non-demented PD patients were enrolled. They underwent the first assessment between January 2017 and December 2018 (T0). Then, between January and December 2022 (T1), they were contacted again and asked to complete the second assessment. All patients underwent a neuropsychological battery to assess PM functioning, verbal memory, executive functions, the frequency of prospective and retrospective memory failures, the subjective memory complaints, the occurrence of apathetic symptoms and the functional impact of cognitive impairment.

Results: Results of the Wilcoxon signed-rank test showed that PM scores changed between T0 and T1. At T1, PD patients performed worse on both time-based ($Z=-2.365$; $p=0.018$) and event-based ($Z=-2.431$; $p=0.015$) PM tasks. Moreover, at T1 lower scores on tasks assessing executive functions and a worsening of functional autonomy and apathetic symptoms were also highlighted. Scores on tasks assessing memory functions did not change between T0 and T1.

Conclusion: In the present study no worsening of verbal memory abilities was found in PD patients. Contrariwise, a worsening of PM functions, functional autonomy and apathetic symptoms were reported. These evidences seem to suggest that executive dysfunctions and behavioral disturbances related to a frontal damage were significantly associated to a reduced performance on PM tasks as a consequence of the progressive neurodegeneration primarily involving prefronto-subcortical circuitries.

Bibliography:

[1] D'Iorio A, Maggi G, Vitale C, Amboni M, Di Meglio D, Trojano L, Santangelo G. Prospective memory in Parkinson's disease: the role of the motor subtypes. *J Neurol.* 2019;266(10):2505-251.