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Italian version of the Parkinson's disease - Cognitive Functional Rating Scale: a multicenter validation study

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Introduction: Significant functional decline resulting from cognitive impairment remains a primary feature in differentiating dementia from mild cognitive impairment (MCI) in Parkinson's disease (PD). The Parkinson's Disease-Cognitive Functional Rating Scale [1] (PD-CRFS) was designed to measure functional disability related to cognitive impairment in PD while reducing possible biases derived from motor alterations.

Objective: The aim of this multicenter study was twofold. First, to validate the Italian version of the PD-CFRS on a large cohort of PD patients. Second, to determine optimal cut-off scores for detecting MCI and dementia in PD.

Methods: 669 PD patients were enrolled from 4 Italian movement disorders centers (Venice, Milan, Gravedona, and Salerno). They were cognitively characterized based on Level-II cognitive evaluation, resulting in: 282 PD-NC, 310 PD-MCI, 77 PDD. Clinimetric properties, applicability, and responsiveness of the PD-CFRS were analyzed.

Results: PD-CFRS was free from floor and have only a 5% ceiling effects. It showed strong internal consistency (Cronbach's $\alpha = 0.738$) and higher coefficient of variation to detect dysfunction in PD-MCI patients (PD-CFRS 96% vs IADL 22.5%). Test-retest reliability reached 0.854. Convergent validity with the IADL was $r= -0.638$ and -0.527 ($p< 0.0001$) in male and female, respectively. PD-CFRS total score negatively correlated with global cognition (moca corrected score $r = -0.61$; $p <0.001$). PD-CFRS optimal cut-off score for detecting functional impairment in PD-MCI was > 0 (Sensitivity = 80%; Specificity = 39%) and the screening cut-off was >1 (Sensitivity=68%; Specificity=69%) (AUC=0.695). A cut-off score of > 6.5 (Sensitivity= 90%; Specificity =88%) was the optimal for detecting PDD (AUC = 0.959).
Conclusions: The Italian version of the PD-CFRS demonstrated to be a valid and reliable tool for capture functional impairment due to cognitive decline in PD and would be a useful instrument that can aid for the diagnosis of MCI and dementia in PD.

References:

[1] Kulisevsky, J., Fernández de Bobadilla, R., Pagonabarraga, J., Martínez-Horta, S., Campolongo, A., García-Sánchez, C., Pascual-Sedano, B., Ribosa-Nogué, R., & Villa-Bonomo, C. (2013). Measuring functional impact of cognitive impairment: validation of the Parkinson's disease cognitive functional rating scale. Parkinsonism & related disorders, 19(9), 812–817. Https://doi.org/10.1016/j.parkreldis.2013.05.007.