

Performance Validity Tests in patients with functional motor disorders

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Background: Performance Validity Test (PVTs) are commonly used in the attempt to detect poor effort or symptoms exaggeration in neuropsychological testing [1,2]. Normative data in non in seeking-compensations clinical populations are essential to validate these measures in standard evaluations [1]. PVTs could be of value in Functional motor disorders (FMDs) patients who are, by nature exposed to prejudice of symptoms fabrication and exaggeration [2].

Objectives: The aim of this study was to examine performance of FMD patients at PVTs, compared to healthy controls asked to simulate malingering (healthy simulators, HS) and healthy controls (HC) who did not receive specific instructions. We also assessed diagnostic accuracy to detect deliberate simulation.

Methods: We enrolled 29 patients with a clinical diagnosis of FMDs, 29 HS and 29 HC. Three PVTs, the Coin in the Hand Test (CIH) [3], the Rey 15-item Test (FIT) [4] and the Finger Tapping Test (FTT) were employed [5].

Results: FMD performance resulted statistically different from that of HS and but not from HC ($p < 0.001$). Diagnostic accuracy to detect deliberate simulation were high in each test alone (sensitivity in all $>90\%$ and specificity was 100%, 75.9%, 69% for CIH, FIT and FTT, respectively) and excellent in all tests combined (specificity 100% and sensitivity 89.7%).

Conclusions: Patients with FMDs did not show abnormal performance at PVTs. The ability of these tests to detect deliberate simulation is high and greater when tests are used in combination representing a reliable bedside algorithm that should be employed routinely in FMD patients' evaluations.

References:

- [1] McWhirter L, Ritchie CW, Stone J, Carson A. Performance validity test failure in clinical populations-a systematic review. *J Neurol Neurosurg Psychiatry*. 2020 Sep;91(9):945-952. doi: 10.1136/jnnp-2020-323776. Epub 2020 Jul 10. PMID: 32651247.
- [2] Kemp S, Coughlan AK, Rowbottom C, Wilkinson K, Teggart V, Baker G. The base rate of effort test failure in patients with medically unexplained symptoms. *J Psychosom Res*. 2008 Oct;65(4):319-25.
- [3] Kapur N. The coin-in-the-hand test: a new "bed-side" test for the detection of malingering in patients with suspected memory disorder. *J Neurol Neurosurg Psychiatry*. 1994 Mar;57(3):385-6.
- [4] Boone KB, Salazar X, Lu P, Warner-Chacon K, Razani J. The Rey 15-item recognition trial: a technique to enhance sensitivity of the Rey 15-item memorization test. *J Clin Exp Neuropsychol*. 2002 Aug;24(5):561-73.
- [5] Axelrod BN, Meyers JE, Davis JJ. Finger Tapping Test performance as a measure of performance validity. *Clin Neuropsychol*. 2014;28(5):876-88.