

Comparison of Mattis and MOCA testing for neuropsychological assessment in the preoperative evaluation of subthalamic nucleus stimulation in Parkinson's disease

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Meeting: 2018 International Congress

Abstract Number: 519

Keywords: Cognitive dysfunction, Deep brain stimulation (DBS), Subthalamic nucleus(SIN)

Session Information

Date: Saturday, October 6, 2018

Session Time: 1:45pm-3:15pm

Session Title: Surgical Therapy: Parkinson's Disease

Location: Hall 3FG

Objective: The aim of the current study is to evaluate, whether 1. MOCA (Montreal Cognitive Assessment) and Mattis tests are equivalent in the detection of cognitive deficits in preoperative evaluation of Parkinson's disease (PD) patients for deep brain stimulation in the subthalamic nucleus (STN-DBS) and whether 2. Cut-off values in the MOCA test exist for the prediction of postoperative improvement of quality of life.

Background: The preoperative evaluation of PD patients for STN-DBS includes the assessment of motor symptoms, motor complications and the medical and neuropsychological status of the patient. Cognitive disturbances represent a major contraindication, since slight preoperative, cognitive constraints correlate with absent postoperative improvement of quality of life (1). A widely used preoperative test represents the Mattis test. Recently, the MOCA test has been proven to be a sensitive, time-sparing tool with high diagnostic validity in PD.

Methods: Retrospective analyses of 48 PD patients undergoing DBS surgery with pre- and postoperative assessment (3-6 months) of Mattis, MOCA scores and PDQ39 by paired t-tests and univariate ANOVA have been performed.

Results: PD patients demonstrated a slight, but significant decline in both neuropsychological measures (Mattis pre OP 140.7, post OP 136.4, $p=0.023$; MOCA pre OP 26.9, post OP 25.2, $p=0.004$). In the whole operated cohort, quality of life as measured by PDQ 39 was significantly improved (pre OP 29.8, post OP 24.8, $p=0.01$). Preoperative Mattis scores did not predict postoperative improvement of quality of life ($F=0.01$, $p=0.91$), however MOCA scores did ($F=4.96$, $p=0.033$). In the MOCA test, a cut-off score above 25 predicted improvement of quality of life.

Conclusions: Beneath the Mattis test, MOCA is a useful tool for preoperative evaluation of PD patients for detection of neuropsychological deficits and prediction of postoperative improvement of quality of life.

References: (1) Witt K, Daniels C, Krack P, Volkmann J, Pinski MO, Kloss M, et al. 2011. Negative impact of borderline global cognitive scores on quality of life after subthalamic nucleus stimulation in parkinson's disease. Journal of the neurological sciences.310:261-266.

To cite this abstract in AMA style:

L. Prilop, M. Alsalem, A. Gulberti, C. Gerloff, C. Buhmann, W. Hamel, C. Moll, J. Köppen, M. Pötter-Nerger. Comparison of Mattis and MOCA testing for neuropsychological assessment in the preoperative evaluation of subthalamic nucleus stimulation in Parkinson´s disease [abstract]. *Mov Disord*. 2018; 33 (suppl 2). <http://www.mdsabstracts.org/abstract/comparison-of-mattis-and-moca-testing-for-neuropsychological-assessment-in-the-preoperative-evaluation-of-subthalamic-nucleus-stimulation-in-parkinsons-disease/>. Accessed February 26, 2019.

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