EIGHT-HOURS ADAPTIVE DEEP BRAIN STIMULATION (ADBS) IN PARKINSON'S DISEASE DOES NOT IMPAIR COGNITIVE PERFORMANCES

R. Ferrucci[1,2,3], F. Ruggiero[2], F. Cortese[2], T. Bocci[2], M. Rosa[2], M. Arlotti[2], S. Marceglia[4], F. Mameli[2], S. Barbieri[2], F. Cogiamanian[2], G. Ardolino[2], M. Locatelli[2], P. Rampini[2], A. Priori[1,2,3]

[1] Center for Neurotechnology and Experimental Brain Therapeutics, DISS University of Milan;
[2] Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy;
[3] III Clinica Neurologica ASST Santi Paolo e Carlo, Milan, Italy; 4University of Trieste, Trieste, Italy

Objective:

To assess the effects of eight-hours Adaptive Deep Brain Stimulation (aDBS) on neuropsychological functions in patients with Parkinson's disease (PD).

Material:

We assessed language (Semantic and Phonemic Verbal Fluency, Naming, Repetition), memory (Word Recognition Task) and attention (Simple Reaction Times, RTs).

Methods:

7 patients with PD [(mean±SD) age 61±6.4; UPDRS 32.14±13.22; 1 Female] and implanted with electrodes in the bilateral STN underwent cognitive evaluation at baseline T0 (aDBS off, MED off) and after eight-hours T1 (aDBS on, MED off). The assessment was conducted 6 days after surgery and patients were stimulated with an external aDBS device.

Results:

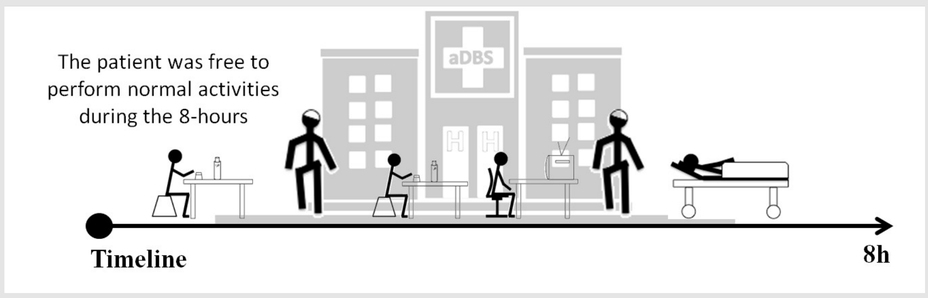
There was no significant cognitive change after aDBS [(mean±SD; T0 vs T1) Semantic Verbal Fluency 12.3 ± 3.3 vs 15 ± 3.4; p=0.12; Phonemic Verbal Fluency 10.4 ± 3.7 vs 9.7 ± 1.8; p=0.56; Naming 19.7 ± 0.7 vs 10.6 ± 0.8; p=0.36; Word Recognition Task 19.7 ± 1.6 vs 19.1 ± 1.6; p=0.28; RTs 447.6 ± 78 vs 426.1 ± 50; p=0.36]. No errors occurred during words and sentences repetition task. UPDRS total score (Med OFF) improved by about 35% after eight-hours aDBS.

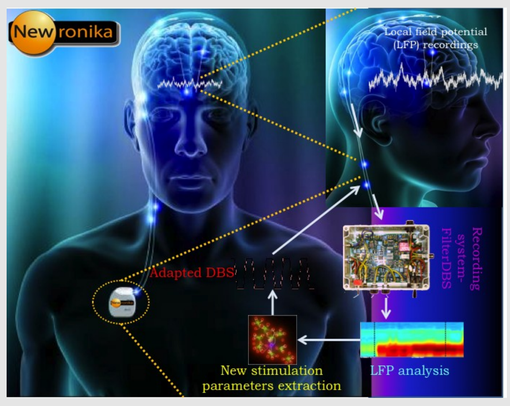
Discussion:

aDBS promises better clinical motor outcomes than conventional DBS in PD patients. An important issue before aDBS comes into practice is to prove its feasibility and safety.

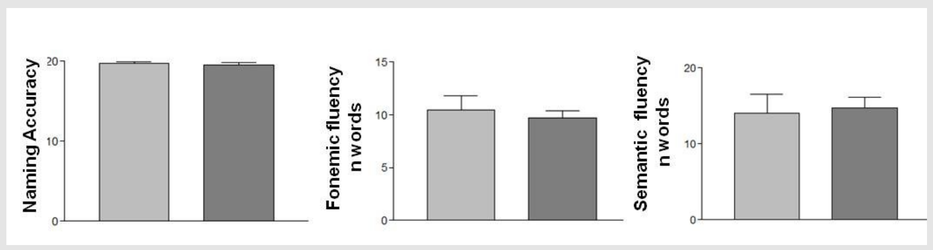
Conclusions:

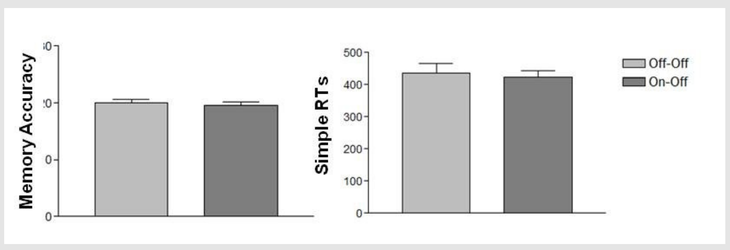
Our data show that eight-hours aDBS in PD patients does not impair their cognitive performances. These findings can help the discussion about the safety of aDBS.





Priori et al, 2005
European Pat EP1940508, U.S. Pat. No. 8,078,281





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