

Cognitive training in Parkinson's Disease: a pilot randomized controlled trial



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Background and Aims

Patients with Parkinson's disease (PD) are at high risk for cognitive dysfunction. Non-pharmacological interventions have attracted increasing interest in trying to enhance PD patients' cognitive functions. Existing data are controversial.

We evaluate the impact of structured cognitive training on the quality of life (QoL) of patients with Parkinson's Disease (PD). Secondly, we investigate the impact of training on cognitive performances, mood and autonomy in daily activities. Finally we evaluate the impact on the caregiver burden.

Materials and Methods

Inclusion criteria:

- ✓ age between 50 and 80 years;
- ✓ diagnosis of PD (UK Parkinson's Disease Society Brain Bank, Gibb & Lees, 1988) with a score between I-III on the modified HY scale (Hoehn & Yahr, 1967);
- ✓ executive dysfunctions;
- ✓ Mini Mental State Examination (MMSE) > 24;
- ✓ non-institutionalized patients looked after by a caregiver.

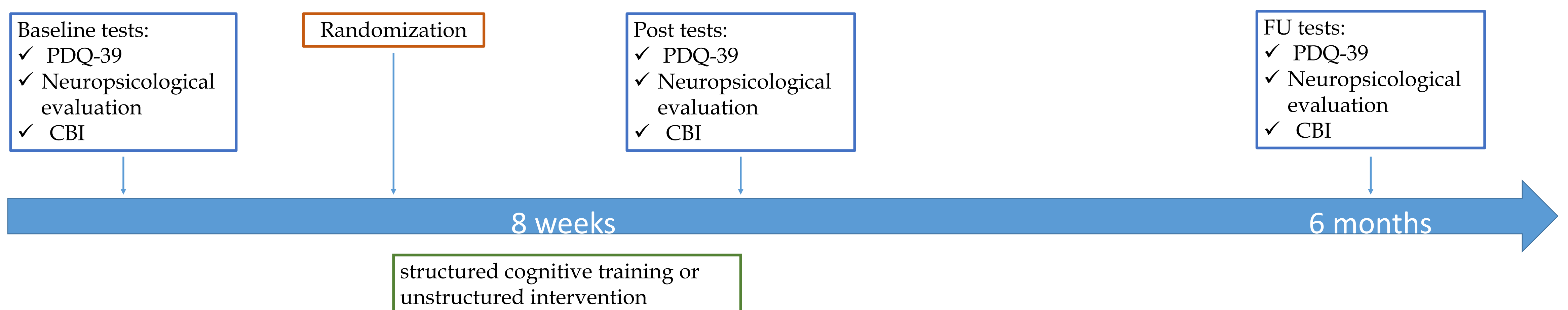
Exclusion criteria:

- ✓ diagnosis of dementia
- ✓ other conditions that are responsible for cognitive impairment or PD
- ✓ major psychiatric disorders
- ✓ severe sensory defects
- ✓ cholinesterase inhibitors or memantine therapy in the two weeks prior to randomization

Patients evaluation. Baseline tests were performed before training and explored cognitive functions (Mental Deterioration Battery - Carlesimo et. al.), mood (Geriatric Depression Scale G.D.S.), QoL (Parkinson's Disease Questionnaire, PDQ-39) and the care-giver burden (Caregiver Burden Inventory - CBI).

Study intervention. Patients were randomized to receive (1) a structured cognitive training or (2) an unstructured/supportive intervention. Structured cognitive training was focused to improve executive and visuo-spatial functions. Unstructured intervention was focused on others cognitive functions. Both interventions involved 8 weeks of at-hospital psychologist training.

Post tests were performed immediately after training and at 6 months of follow-up both for patients and their caregivers. Pre and post treatments evaluations were performed by a psychologist blind about the treatments. A different psychologist was in charge of the 8-week interventions.



Results

Patients (N = 14) with a diagnosis of PD, aged 71.71 [± 5.5] years, were consecutively included in the study.

The two groups were matched for age, sex and education level.

Both groups show a tendency to improvement in the QoL at the end of the treatment, but no significant differences between groups were found, suggesting that both types of training had a similar effect on QoL. No significant change in caregiver burden occurred in both study arms.

Discussion and conclusions

Despite the limits resulting from the small sample size, our data suggest that specific training or unstructured/supportive intervention may have the same efficacy in patients with PD and also that the effects remained stable over time. We hypothesize that it is likely that specific or aspecific stimulation will act on positive reinforcement mechanisms by improving the patient's QoL.