Cognitive Rehabilitaton in Patients with Mild Cognitive Impairment

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Introduction

Several evidences indicate that people with amnesic Mild Cognitive Impairment (a-MCI) tend to evolve in Alzheimer's disease (dementia Ad type) in a relevant percentage (1) .It was recently point up the preventive role that cognitive stimulation and social interaction can play in slowing and preventing the evolution in dementia (2,3,4).The mechanisms involved in the rehabilitation process are the reinforcement of the most sensitive components to cognitive aging and compensation of residues cognitive processes (5).To evaluate the effectiveness of rehabilitation in a-MCI subjects, was made a training strategy, through the use of RehaCom software, applied to implementation of cognitive function . Performances were then subjected to statistical reprocessing.

Methods

34 patients among our database were randomized in the study. Selected subjects belonged to both sexes , were aged between 65 and 80 years old, schooling more then 5 years, and met the diagnosis criteria for a-MCI established by Petersen (20). (Fig.1).The diagnosis was made using a battery of neuropsychological assessment, clinical and instrumental. (Fig.2 – Fig.3).

Among the 34 patients, 18 of them were subjected to a cognitive training structured into 20 individual meetings, 45 minutes each, twice in a week, for a total of 10 weeks. The control group (the other 16 people) has not received any intervention. All participants (experimental and control groups) underwent neuropsychological and functional assessment (Fig. 2) before the intervention and nine months after the first evaluation.

Inclusion criteria for a-MCI

MMSE ≥ 26
CDR = 0,5
AMMSE ≥ 26
CDR = 0.5
Pathological score in at least one episodic memory test
Normal score in all others battery tests
GDS < 10
Negativity of paraclinical examinations
No dementia familiarity

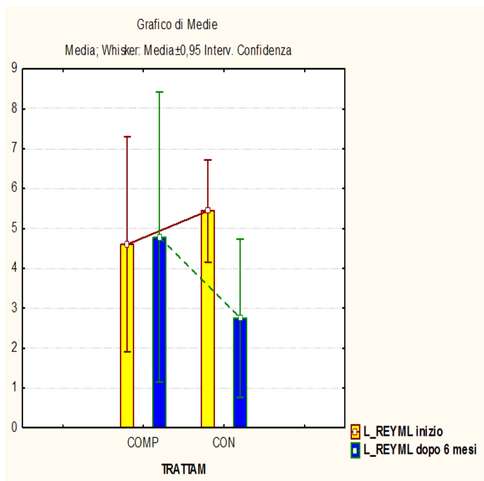
Neuropsychological battery

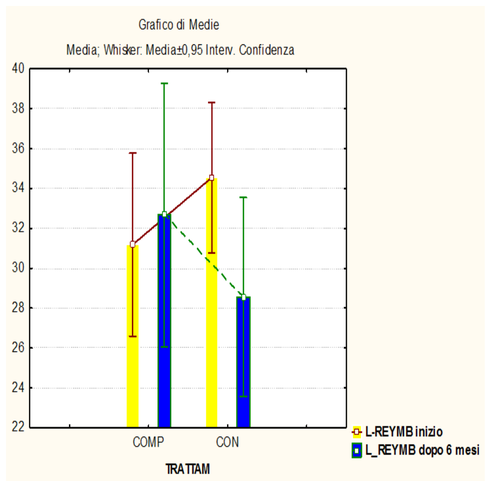
Babcock story recall test;
Rey auditory verbal learning test;
Digit Span;
Verbal fluency test for semantic and phonemic category;
Spatial Span;
Token test;
Trail Making Test A – B;
Raven's progressive matrices; Attention selective test;
Arrigoni's test;
Figure Rey copy and recall
GDS, IADL, CDR

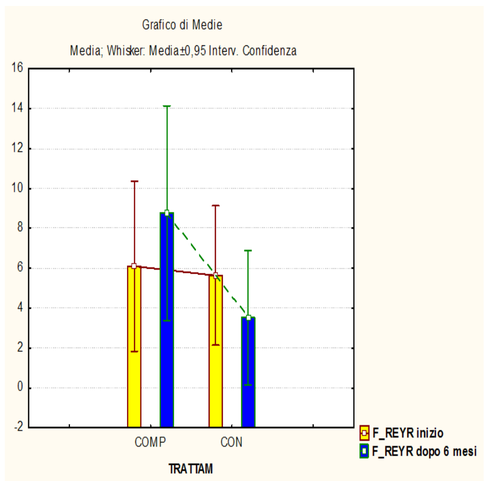
General clinical evaluation

History
Physical and neurological examination
Psychiatric evaluation included GDS
Blood tests
Chest RX
ECG
CT or MRI Brain

COMPARISION BETWEEN TREATED PATIENTS AND CONTROL GROUP			
NEUROPSYCHOLOGICAL TEST	TREATMENT	BEFORE - AFTER 9 MONTHS	TREATMENT BEFORE - AFTER 9 MONTHS
MMSE	0,839976	0,021829	0,165208
L-REY MST	0,968524	0,310392	0,023022
L-REY MLT	0,770259	0,094272	0,018537
BABCOCK STORY RECALL TEST	0,535387	0,680893	0,645167
VERBAL FLUENCY SEMANTIC CAT.	0,492956	0,120792	0,431738
VERBAL FLUENCY PHONEMIC CAT.	0,205163	0,042759	0,075576
ATTENTION SELECTIVE TEST	0,414372	0,033331	0,366906
ARRIGONI'S TEST	0,311920	0,144352	0,226407
REY COMPLEX FIGURE COPY	0,644842	0,852289	0,296303
REY COMPLEX FIGURE RECALL	0,299093	0,594799	0,014253
MP 47	0,142073	0,059003	0,727699
TOKEN TEST	0,253862	0,103947	0,093238
GDS	0,702345	0,779431	0,066652







Results

In the whole group of a-MCI (18 cases) submitted to computerized cognitive rehabilitation training it was appreciated an episodic memory improvement, both verbal and non-verbal (there was a statistically significant difference in evaluations before and after intervention). In the control group (16 patients) no relevant improvements were detected.

Conclusions

The results suggest that a cognitive rehabilitation training , based on dedicated software use, can improve cognitive performance in patients with amnesic mild cognitive impairment. During follow-up period (9 months), there have been no cases of evolution in Ad among treated patients. In the control group, three patients evolved towards Alzheimer's disease.

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