

Effect of cognitive rehabilitation in a Brain Tumor-related Epilepsy patient with selective disorders in verbal memory

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OBJECTIVE

Most patients with Brain Tumor experience cognitive impairments that can be related to different causes: Histology and tumor site, disease progression, treatment-related neurotoxicity, neural reorganization, individual psychophysical conditions, and comorbidity. Presence of epilepsy can contribute to the type and severity of cognitive impairment in this patients population.

For this reason patients with brain tumor-related epilepsy (BTRE) could experience cognitive disturbances more frequently.

Litterature data on rehabilitation programs report two distinct approches in clinical practice, in patients with different brain illness: "Restorative" training focuses on improving a specific cognitive function, "Compensatory" training focuses on adapting to the presence of a cognitive deficit.

"Compensatory" training in clinical practice is most frequently used because patients usually experience deficits in multiple cognitive domains. We presente a case of a BTRE patient with selective disorders in verbal memory domains treated with a restorative training to recover and reinforce the impaired cognitive function.

CASE REPORT

GP, female, 55 years old:

Diagnosis of diffuse low-grade glioma in 2005 (WHO II left temporal)

Chemotherapy with temozolomide and radiotherapy in 2006

Simple partial seizures treated with topiramate (100 mg/day) with complete seizure freedom since 2006.

Actually neuroradiological data (brain RM) evidenced stability of the oncological disease.

She complained of memory disturbances

A neuropsychological assessment showed selective impairment in verbal long-term memory (encoding and retrieval mechanism), and good cognitive performances in the other domains (verbal and non verbal reasoning, executive functions, attention, visuo-spatial memory).

For these reasons the patients received a 8 week-specific cognitive training consisted of learning exercises of increasing quantity and complexity, using ecological material: figures, words, shopping lis , news paper articles, short stories, tales.

At two months of follow-up the patient showed an overall improvement in learning capacities: performances in both short and long term verbal memory tests become in the normal ranges.

DISCUSSION

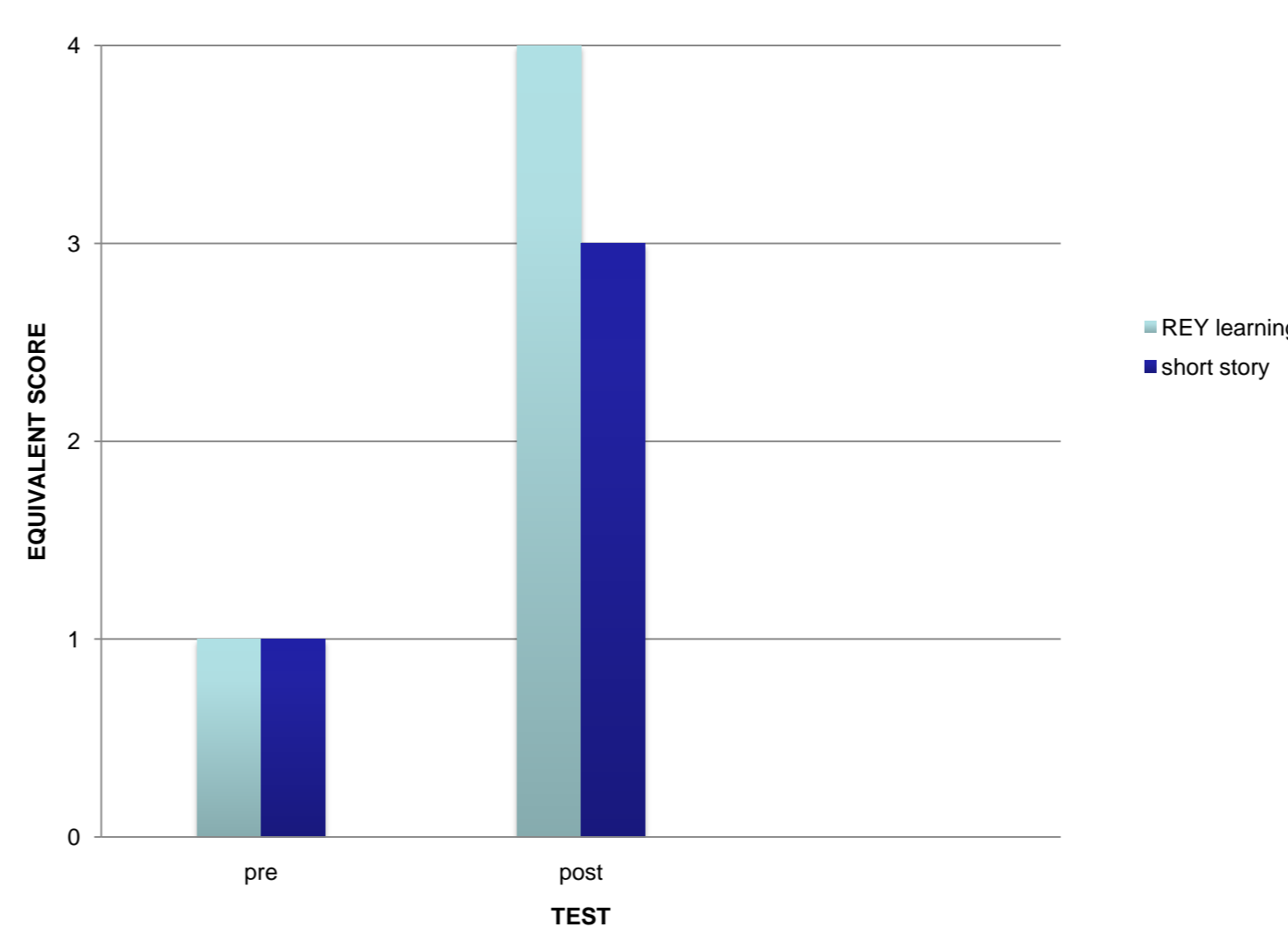
Our data from this case report indicates that a "restorative training", based on stimulation of encoding and storage processes of incoming information seemed to promote the recovery of learning capacities with positive effects on retrieval "long-term" mechanisms, in a patient with selective verbal memory disorders.

A 6 months follow-up has to be conducted to assess the efficacy and the long-term stability of these results.

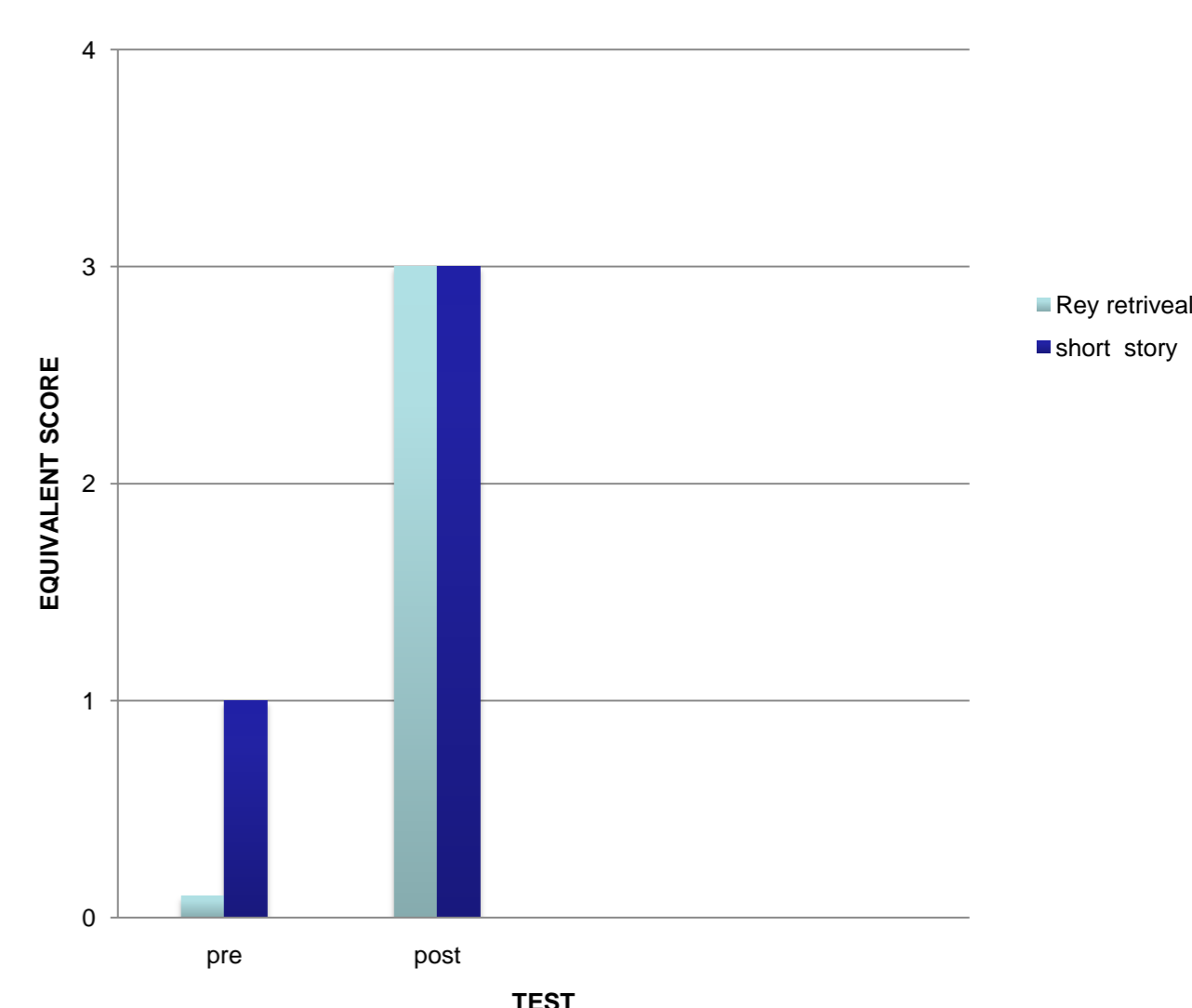
While there are numerous studies about the importance and impact of cognitive rehabilitation in individuals with brain tumor, very few studies have been published about "restorative" training in BTRE patients.

NEUROPSYCHOLOGICAL EVALUATION										
DOMAINS	REASONING		EXECUTIVE FUNCTIONS		ATTENTION			VISUO-SPATIAL MEMORY	Verbal Short-term MEMORY	
	RAVEN SPM	VERBAL JUDGEMENT	TOWER OF LONDON	WCST	TMT TEST (B)	VISUAL SEARCH	WAIS SYM-NUM	REY COMPLEX FIGURE RECALL	DIGIT SPAN F/B	
PRE	52/60	60/60	36/36	>16 ^o cent	50"	60/60	72/93	14/36	8/10; 4/9	
POST	52/60	60/60	36/36	>16 ^o cent	50"	60/60	75/93	14/36	8/10; 5/9	
	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	

AUDIORY VERBAL LEARNING (Encoding/storage)



AUDIORY VERBAL RETRIEVAL (long-term recall)



REFERENCES

Maschio M, Dinapoli Loredana . Cognitive rehabilitation in patients with BTRE. In: Newton HB and Maschio M. editors. Epilepsy and Brain Tumors 1st edn. UK: Elsevier, 2015; 243- 256

Sohlberg M, Mateer C. Introduction to cognitive rehabilitation: theory and practice. New York: Guilford Press; 1989

Nyberg L. Where Encoding and retrieval meet in the Brain. In Squire çR e Schacter DL. Neuropsychology of Memory (3rd ed). New York: The Guilford Press, 2002; 193-203