High frequency and intensive prevention program for cognitive stabilization and improving of quality of life in Parkinson’s disease patients

Ketevan Toloraia[1], Selina Beltrani[1], Ute Gschwandtner[1], Antonia Meyer[1], Peter Fuhr[1]
[1]Departement of Neurology and clinical Neurophysiology, University Hospital Basel, Switzerland

Introduction

Cognitive decline is an important and common complication of Parkinson's disease (PD) since it reduces quality of life of patients. Individualized training programs, such as "High-frequency and intensive prevention program for cognitive stabilization and improvement of quality of life in Parkinson's disease patients" can further improve quality of life and prevent cognitive decline.

Objectives

To evaluate the effects of specific training in patients with PD and compare the training outcomes with PD patients from the control group.

Methods

24 patients diagnosed with idiopathic PD (according to the UK Parkinson’s disease brain bank) underwent a comprehensive neuropsychological (Attention and Working memory; Verbal fluency and Language; Memory; Executive functions; Visuospatial functions) and neurological examination. The patients in the intervention group underwent weekly training sessions of 1 h duration for 4 weeks. The intervention group training included Tai Chi therapy (1) twice per week; speech therapy 1-4 times per week; and cognitive therapy 3-5 times per week; A preliminary analysis was done in a group of 10 patients (five patients from the intervention group and five patients from the control group).

	Intervention Group N=12 Median (Min-Max)	Control Group N=12 Median (Min-Max)	Significance Wilcoxon_test
Age (years)	60.50 (36-77)	68.50 (46-78)	n.s
Education (years)	18.00 (13-20)	15.00 (9-21)	n.s
Gender (female:male)	2 / 10	2 / 8	n.s
Disease Duration (years)	11.00 (5-24)	6.00 (1-29)	n.s
MoCA[1]	26.00 (23-30)	26.00 (22-29)	n.s
UPDRS_III [2]	8.00 (2-35)	20.00 (1-32)	n.s
LEDD [3] Mg/day	232.500 (0-932.25)	551.365 (0-798.00)	n.s

Table 1: Characteristics of study participants

[1] = The Montreal Cognitive Assessment (Nasreddine; 1996)
[2] = Unified Parkinson’s Disease Rating Scale; Motor Subscale
[3]= Levodopa-equivalent doses

Statistics

- Wilcoxon -Test
- Mixed-design ANOVA

Preliminary Results

Preliminary results showed improvements in the training sample of the Executive function (Wisconsin Card Sorting Test: WCST cat: $\eta^2 = 0{,}08$, medium effect size; WCST Nperr: $\eta^2 = 0{,}52$, large effect size; Semantic fluency: Sem_Flu_cor: $\eta^2 = 0{,}19$, large effect size; Eta squared effect size); in the Visuospatial function (Rey-Osterrieth Complex Figure Test: Rey_sav_DR_copy: $\eta^2 = 0{,}51$, large effect size; Rey_sav_IR_copy : $\eta^2 = 0{,}06$, medium effect size; Corsi_BW: η^2=0,10, medium effect size; Eta squared effect size) and in the Memory (BVLT1_5: η^2=0,015, large effect size) as well as between training and control group in the same areas.

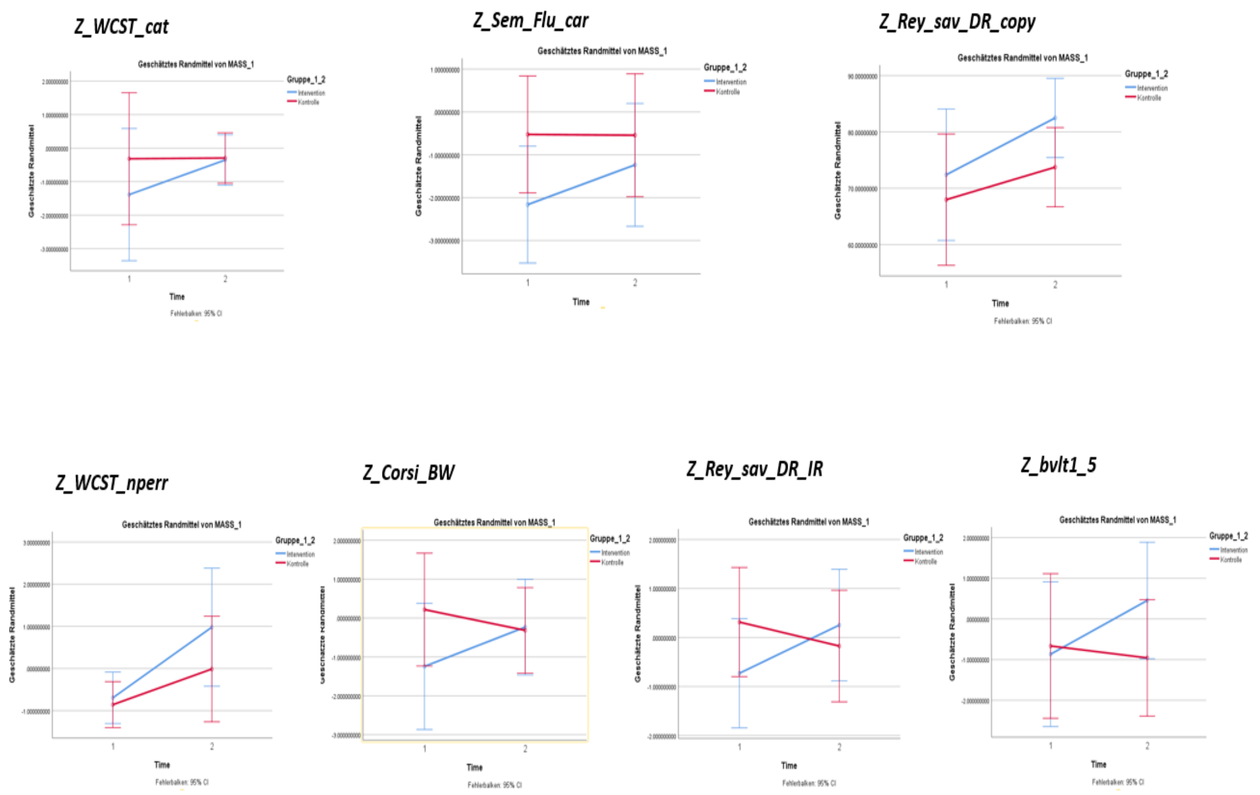

Table 2. Difference between intervention and control group

Conclusion

High-frequency and intensive prevention program shows good acceptance and feasibility in patients with PD with a relatively low dropout rate. Such programs might be effective to stabilize cognitive functions in patients with Parkinson’s disease.

References:

1. Fuzhong, Li et al., 2012; Tai Chi and Postural Stability in Patients with Parkinson’s Disease