EXECUTIVE DYSFUNCTIONS AND LEVODOPA INDUCED DYSKINESIA. A LONGITUDINAL STUDY FROM THE PACOS COHORT

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INTRODUCTION

Long-term replacement therapy with levodopa could lead to levodopa-induced dyskinesia (LID).
This study is part of The PACOS, an observational study aimed to assess epidemiologic, clinic and instrumental biomarkers associated with Mild Cognitive Impairment in PD patients. Aim of the present study was to evaluate possible associations between cognitive dysfunction and LID.

METHODS

PD patients from the PACOS cohort who underwent a baseline and follow-up neuropsychological evaluations were enrolled. PD-MCI and PDD were diagnosed according to MDS criteria. Five cognitive domains were evaluated: episodic memory, attention, executive function, visuo-spatial function and language. A domain was considered as "impaired" when patient scored 2 standard deviation below normality cut-off values in at least one test in the specific domain. Levodopa equivalent dose (LED), UPDRS-ME and LID were recorded at baseline and follow-up. Cox proportional-hazards regression model was used for both the univariate and multivariate analyses.

RESULTS

One-hundred thirty-nine PD patients were enrolled in the study. Eighteen (12.9%) patients were LID+ at baseline. Out of the 121 patients LID- at baseline, 22 (18.1%) developed LID at follow-up. The impairment in the executive domain was a strong predictors of LID development (HR adj for UPDRS-ME, age, sex and LED 3.46; 95%CI 1.26-9.48; p-value 0.029).

Table 2 General characteristics and LID at baseline

			Univariate analysis			*Multivariate analysis*		
	LID-	**LID+**	**OR**	**95%CI**	***p-value***	**OR**	**95%CI**	***p-value***
	N=121	**N=18**						
Female, n (%)	44 (36.4)	8 (44.4)	1.4	0.51-3.81	0.5	1.75	0.48-6.33	0.4
Age, y	66.3±9.1	61.9±10.9	0.95	0.90-1.00	0.07	/	/	/
Age at onset, y	63.7±9.4	56.3±11.8	0.93	0.88-0.97	**0.005**	0.91	0.85-0.98	**0.02**
Disease duration, y	2.6±2.5	5.7±3.2	1.39	1.17-1.64	**<0.0001**	1.20	0.95-1.52	0.2
UPDRS-ME score	24.7±12.5	36.0±14.8	1.05	1.02-1.09	**0.002**	/	/	/
LED mg/day	266.5±285.9	935.6±443.5	1.004	1.002-1.006	**<0.0001**	/	/	/
Impaired domains								
Memory	34 (28.1%)	7 (38.9%)	1.62	0.58-4.54	0.3	/	/	/
Executive function	30 (24.8%)	10 (55.6%)	3.79	1.37-10.48	**0.01**	5.15	1.19-22.2	**0.03**
Attention	36 (29.7%)	4 (22.2%)	0.67	0.20-2.19	0.5	/	/	/
Visuo-spatial	21 (17.4%)	2 (11.1%)	0.59	0.12-2.78	0.5	/	/	/
Language	1 (0.8%)	1 (5.6%)	7.00	0.41-117.20	0.2	/	/	/

Table 1 General characteristics

Female, n (%)	52 (37.4)
Age, y	65.7± 9.4
Age at onset, y	62.8± 10.0
Education, y	8.9 ± 4.6
UPDRS-ME score	26.2 ± 13.5
HY stage	2.0 ± 0.7
Disease duration, y	3.0 ± 2.8
Depression, n (%)	51 (36.7)
LED mg/day	421.8 ± 442.0
Phenotype (%)	
TD	43 (30.9)
PIGD	86 (61.9)
Mixed	10 (7.2)

CONCLUSIONS

Cortical structures involved in motor program and inhibition such as the supplementary motor area and the inferior frontal cortex have been found to be impaired in PD patients with LID.

The role of executive dysfunction in the occurrence of dyskinesia could lie in the alteration of common cortical network.

REFERENCES

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