Non-motor symptoms in Essential Tremor-Parkinson's Disease (ET-PD) Syndrome

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OBJECTIVE

The relationship between essential tremor (ET) and Parkinson's disease (PD) has been controversially debated in recent years [1]. There are evidences that ET patients have increased risk of developing PD [2]. Some authors have suggested that co-occurrence of ET and PD might be coincidental whereas others proposed that a "ET-PD syndrome" may represent a distinct clinical entity. Non-motor symptoms of ET-PD patients have been poorly investigated until now [1,3]. The aim of this study was to investigate a wide spectrum of non-motor symptoms of ET-PD patients in comparison with patients affected by ET and tremor-dominant PD (t-PD).

METHODS

A total of 106 patients were included in this study. Twenty patients were affected by ET-PD syndrome, 48 patients by ET, and 38 patients by t-PD. All patients were classified according to standardized clinical criteria. Patients were investigated for the presence/absence of some early non-motor features, such as the REM sleep behavior disorder, hyposmia/anosmia, and stipsy/constipation. Patients were considered to have RBD whether they fulfilled the following criteria: positive response in question 1 of the Mayo questionnaire and/or a positive video-polisomnographic study for RBD. Presence of anosmia/hyposmia was defined by a "Sniffin Stick" Smell Test score < 8. Constipation was defined as a blockage of the bowel. A neuropsychological evaluation was also performed including the presence of depressive and anxiety symptoms using the Beck Depression Inventory and Hamilton Rating Scale Anxiety, respectively.

RESULTS

No statistical differences for age, sex, years of education and duration of disease were found among groups [Table 1]. Among the non-motor symptoms, only the frequency of olfactory disfunction was significantly different between ET-PD and ET patients [Table 1]. The neuropsychological evaluation showed that ET-PD patients had significantly lower values of Digit Span Forward scores, indicating lower performance of working memory in comparison to the other groups. They had significantly lower levels of anxiety in comparison to ET and t-PD patients [Table 2].

Table 1. Demographic and Clinical Data of patients with ET-PD, ET, and PD

Variables	ET-PD group	ET group	t-PD group	P-value
Partecipants	20	48	38	
Sex: No. Men/women	9/11	23/25	22/16	P = 0.55
Age to examination	70.05 7.10	65.64 9.35	64.97 8.67	P = 0.06
Education (years)	9.80 4.90	9.17 4.69	10.84 4.90	P = 0.30
Age at onset of ET (years)	51.95 19.68	52.07 16.81	--	P = 0.72
Duration of ET (years)	18.04 18.60	14.00 15.43	--	P = 0.30
Age at onset of PD (years)	68.00 7.34	--	62.03 9.13	P = 0.01
Duration of PD (years)	2.04 2.37	--	2.23 1.13	P = 0.06
Hposmia/Anosmia	**12/20**	**3/48**	**31/38**	**P < 0.0001**
RBD	4/20	3/48	16/38	P = 0.0006
Constipation	8/20	10/48	24/38	P = 0.0013

Table 2. Neuropsychological features of patients with ET-PD, ET, and PD

Neuropsychological Tests	ET-PD group	ET group	t-PD group	p-value
MMSE (mean SD)	26.53 2.40	25.59 3.89	26.68 2.43	P= 0.60
Digit Span Forward (mean SD)	4.98 1.03	5.32 3.27	5.47 0.97	**P= 0.03**
BDI-II (mean SD)	12.14 6.24	11.26 5.81	11.69 8.80	P= 0.77
HAMA (mean SD)	8.00 3.87	10.44 4.50	14.80 9.13	**P= 0.05**

CONCLUSION

In our study, ET-PD patients showed significantly different frequencies of non-motor symptoms in comparison to ET and t-PD patients. More in details, they exhibited a lower performance of working memory, lower levels of anxiety, and lower frequency of olfactory dysfunction in comparison to t-PD group. Our findings support the hypothesis that ET-PD might be considered a distinct clinical entity.

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