

Research Article

Idiopathic parkinson's disease and fatigue

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Abstract

Introduction: Fatigue is a common non-motor symptom of Idiopathic Parkinson's Disease (IPD). The aim is to research the relationship between fatigue of IPD patients and the clinical findings, of mood disorders.

Material and methods: A total of 39 patients with IPD were included in the study. The relationship between fatigue severity and demographic characteristics and the treatment was evaluated in IPD. The severity of fatigue was evaluated by Fatigue Severity Scale (FSS). Motor impairment was scored by the modified Hoehn and Yahr scale. The patients were assessed for the presence of depression and anxiety with the Hospital Anxiety and Depression Scale (HADS).

Results: The mean age of the patients was 70.62 ± 8.35 years. 23 were men and 16 were women. The mean disease duration was 6.18 ± 3.35 years. The patients were assigned into two groups according to the presence of fatigue measured by FSS with less than 5 (Group I) and 5 or more (Group II). There were no statistically significant differences between the two groups with respect to mean age, mean age of onset, and mean disease duration of the patients ($p > 0.05$). There were no significant differences between the two groups for HADS depression, anxiety values, and terms of antiparkinsonian therapies ($p > 0.05$). The severity of fatigue was correlated with the HADS anxiety levels ($p < 0.05$).

Discussion: Fatigue is an important non-motor symptom that is underestimated in clinical follow-up. We didn't find any correlation between fatigue and age, duration of disease onset, or drug use. There was no significant correlation between the fatigue score and depression, and pain. However, the fatigue scores were higher in patients with high anxiety scores and females.

Introduction

Idiopathic Parkinson's Disease (IPD) is the second most common neurodegenerative disorder causing disability [1]. The main motor clinical manifestations of IPD are resting tremor, bradykinesia, rigidity, and postural instability. Mostly underestimated non-motor symptoms may cause severe disability [2,3]. Fatigue which is defined as a lack of energy and exhaustion is the most common non-motor manifestation of IPD.

Many different scales are used for objective measurement and evaluation of fatigue. The relationship between fatigue and demographic data, clinical characteristics, and the treatment is important for individual rehabilitation strategies to be applied to patients and also can be a guide for new rehabilitation strategies. The aim of our study is to

determine the relationship between fatigue and demographic characteristics, disease severity, depression, anxiety, pain, and drug therapy.

Material and methods

A total of 39 patients with Parkinson's Disease who were followed up at our Movement Disorders Outpatient Clinics were included in the study. The severity of fatigue was evaluated by the fatigue severity scale (FSS). The Hoehn-Yahr scale was used to evaluate the severity of the disease and the Hospital Anxiety and Depression Scale (HADS) for the presence of anxiety or depression. Fatigue was evaluated according to the FSS. If $FSS > 5$, that means 'fatigue positive'. If $FSS < 5$, then it means 'fatigue negative'. Anxiety and depression were classified as mild (0-7), moderate (8-10), and severe (11-21) according to the HADS. Neuropathic pains of the

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patients were evaluated with Douleur Neuropathique en 4 Questions (DN4). Patients with severe hearing problems, moderate to severe cognitive impairment, and systemic diseases which can prevent cooperation were excluded.

Statistical analysis

For the statistical analysis, NCSS (Number Cruncher Statistical System) 2007 (Kaysville, Utah, USA) program was used. In the evaluation of the data, descriptive statistical methods (Mean, Standard Deviation, Minimum, Maximum) as well as the independent sample T-Test for parametric samples and Mann Whitney U test for nonparametric samples. In the comparison of qualitative data, Fisher's exact test and Yates' Continuity Correction test were used. Spearman's Correlation Analysis was used to evaluate the relationships between the samples. Significance was evaluated at $p < 0.05$ levels.

Results

A total of 39 patients (23 male and 16 female) aged between 50-82 years (mean: 70.62 ± 8.35 years) were included in the study, 59% (23) of the cases were male and 41% (16) were female.

There were no statistically significant differences between the mean age of the patients with fatigue, the age of onset of the disease, and the duration of the disease with fatigue.

Fatigue in female patients was significantly higher than that of males ($p = 0.007$; $p < 0.01$).

No statistically significant differences were found between the use of anti-parkinsonian drugs (MAO-B inhibitor, Dopa agonist, L-Dopa), antidepressant, and antipsychotic medication with the presence of fatigue ($p > 0.05$) (Table 1).

There was no statistically significant correlation between fatigue and Hoehn-Yahr scale, neuropathic pain, and depression (Table 2).

There was no significant correlation between fatigue and age, duration of disease onset, drug use, depression, and pain. As a positive finding, the fatigue scores were higher in patients with high anxiety scores and females.

There was a statistically significant correlation between anxiety scores and fatigue scores ($r: 0.377$; $p: 0.018$) (Figure 1).

Discussion

IPD is a progressive neurodegenerative disorder characterized by prominent motor and non-motor symptoms. Non-motor symptoms such as autonomic symptoms, sleep,

Table 2: Relation between fatigue score and neuropathic pain, Hoehn-Yahr, anxiety and depression scores.

	Fatigue score	
	<i>r</i>	<i>p</i>
Hoehn-Yahr	0.112	0.497
Neuropathic pain	0.245	0.132
Anxiety	0.377	0.018*
Depression	0.134	0.417

r, Spearman's Correlation Coefficient * $p < 0.05$

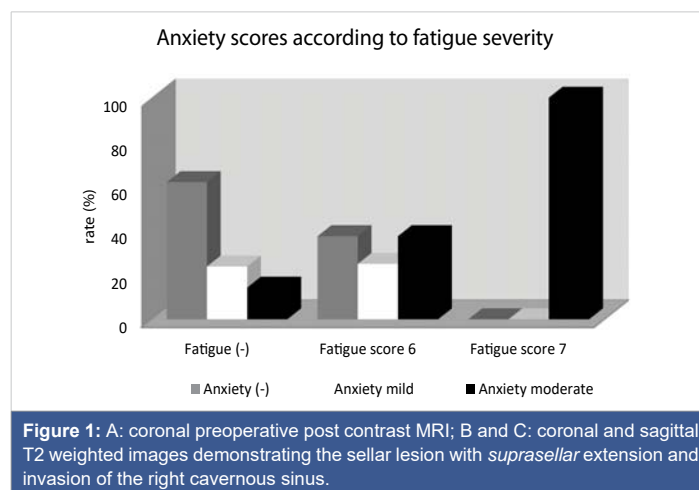


Table 1: Evaluation of descriptive properties according to fatigue presence.

		Fatigue(-) (n = 21)	Fatigue(+) (n = 18)	<i>p</i>
		Mean \pm SD	Mean \pm SD	
Age (years)		70.57 \pm 7.02	70.67 \pm 9.89	^a 0.972
Age at onset of disease (years)		64.38 \pm 7.59	64.50 \pm 9.70	^a 0.966
Disease duration (years); (Median)		6.19 \pm 3.68 (5)	6.17 \pm 3.03 (6)	^b 0.744
		<i>n</i> (%)	<i>n</i> (%)	
Gender	Female	4 (19.0)	12 (66.7)	^c 0.007**
	Male	17 (81.0)	6 (33.3)	
MAO-B inhibitor	None	8 (38.1)	2 (11.1)	^d 0.074
	Yes	13 (61.9)	16 (88.9)	
Dopa agonist	None	5 (23.8)	5 (27.8)	^d 1.000
	Yes	16 (76.2)	13 (72.2)	
L-DOPA	None	5 (23.8)	2 (11.1)	^d 0.418
	Yes	16 (76.2)	16 (88.9)	
Antidepressant	None	20 (95.2)	14 (77.8)	^d 0.162
	Yes	1 (4.8)	4 (22.2)	
Antipsychotic	None	20 (95.2)	15 (83.3)	^d 0.318
	Yes	1 (4.8)	3 (16.7)	

^aStudent t Test, ^bMann Whitney U Test, ^cYates's Continuity Correction Test, ^dFisher's Exact Test, ** $p < 0.01$.

neuropsychiatric disorders, and fatigue are as important as motor symptoms [4]. In the last two decades, non-motor findings have gained more importance in IPD. These non-motor findings, which are mostly overlooked in routine patient controls, play important role in disability [5]. Fatigue rates were reported at 33% - 58% in different IPD patient populations and it was accepted as the most important non-motor symptom [6,7]. In a study by Friedman et al. one-third of IPD patients reported fatigue as the most important cause of disability, with more than half showing fatigue among the three leading causes of disability [8]. In our study, fatigue was found in 18 (46%) of 39 patients who underwent FSS.

Fatigue complaints were generally not associated with the severity of motor symptoms [9]. Therefore, it does not respond to dopaminergic and surgical treatment [10-12]. Many studies reported that fatigue severity increases in patients with advanced Hoehn-Yahr scores [13,14]. As in the study of Abe et al, we found no significant relationship between the Hoehn-Yahr score and fatigue [15]. In many studies, there was no association between demographic characteristics and fatigue, whereas in some studies fatigue was more common in female patients. In our patients, there was a statistically significant correlation between the female gender and the presence of fatigue. As in the literature, we didn't find any correlation between age, duration of disease onset, drug use, and the presence of fatigue [16-20]. The relationship between neuropsychiatric symptoms and fatigue has not been clarified. In some studies, a positive correlation was found between depression and fatigue while in other studies weren't found any correlation [8,15].

In our study, we found, that there was no significant correlation between the fatigue score and depression and pain. However, the fatigue scores were higher in patients with high anxiety scores.

The small number of patients (n : 39) and the lack of a control group were important factors limiting our study. Therefore, studies with more patients are needed.

Conclusion

Non-motor symptoms in IPD patients are a major cause of disability and have a significant negative effect on activities of daily living. Fatigue is an important non-motor symptom that is overlooked in clinical follow-up and requires a multidisciplinary approach. With the early recognition and management of fatigue, IPD patients' adaptation to rehabilitation becomes easier. It also allows the development of individual rehabilitation strategies. Our study will contribute to awareness of non-motor symptoms such as fatigue, which is difficult to treat and manage.

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