**Journal of Movement Disorders** 2009;2:18-21 **ORIGINAL ARTICLE**
ISSN 2005-940X

# The Occurrence of Fatigue in Independent and Clinically Stable Filipino Patients with Idiopathic Parkinson's Disease

**Carter S. Rabo**
**Raymond L. Rosales**
**Ma. Lourdes P. Corrales**

Departments of Neurology and Psychiatry, University of Santo Tomas Hospital, Manila, Philippines

**Background:** Fatigue is a multidimensional problem affecting patients suffering from Parkinson's disease (PD). It is ranked as one of the most bothersome symptom of patients with Parkinson's disease. The study primarily aims to determine the presence of fatigue among clinically stable and independent Filipino patients suffering from idiopathic PD. **Methods:** This study is a prospective cross-sectional study. Recruited patients and control group were all Filipinos. Only independent patients with idiopathic, stable and non-fluctuating PD were included in the study. Those eligible underwent a multitude of screening tests to rule out presence of dementia (Mini Mental Status Examination, MMSE), depression (Montgomery-Åsberg Depression Rating Scale, MADRS), anxiety (Hamilton Anxiety Scale, HAM-A) and sleep disturbance. Disease severity was assessed using the Unified Parkinson's Disease Rating Scale (UPDRS) and fatigue severity using both the Multicomponent Fatigue Index (MFI) and Fatigue Severity Inventory (FSI). **Results:** Twenty-eight patients underwent the study. The mean Hoehn and Yahr staging was 1.79. Patients with PD scored higher on both FSI and MFI (individual dimension scores and total score) as compared to the normal controls. **Conclusions:** The outcome of the study confirmed the presence of fatigue (general, physical, mental), even in clinically stable and independent patients suffering from idiopathic PD, when compared with age-matched healthy controls.

**Journal of Movement Disorders 2009;2:18-21**

**Key Words:** Parkinson's disease, Fatigue, Multicomponent Fatigue Index, Fatigue Severity Inventory.

## Introduction

Fatigue is proverbial term used in the symptomatology of a wide array of diseases. It is a recognized problem affecting approximately two thirds of patients suffering from Parkinson's disease (PD).[1] Defined as a feeling of overwhelming sense of tiredness, lack of energy and feeling of exhaustion, fatigue in PD has a multidimensional aspect-general, physical and mental.

With regard to the relationship between fatigue and PD, previous studies[2-4] revealed the following: 1) that fatigue appear to be unrelated to the severity of PD; 2) that fatigue is common even in patients who had no co-morbid depression, anxiety, and sleep disturbance, and 3) that fatigue is an independent symptom without relation to other motor or non-motor symptoms of the disease.

More recent studies on PD have focused on the effect of fatigue on the quality of life of patients. For instance, the studies conducted by groups of Herlofson, Martinez-Martin and Havlikova, all pointed to the negative impact of fatigue on the quality of life of PD patients.[5-7]

With the knowledge that a strong and negative association exists between PD and fatigue, early recognition and intervention seem to be the appropriate next step. However, there are limited studies involving a subset of idiopathic PD patients who may have fatigue and who may need early intervention. PD patients who are independent and clinically stable may constitute this subset of patients, in whom fatigue may not generally be expected.

Thus, the main objective of this study is to determine the presence of fatigue among PD

**Received** December 16, 2008
**Revised** March 9, 2009
**Accepted** February 12, 2009

**Corresponding author**
Raymond L. Rosales, MD, PhD
Department of Neurology and Psychiatry, University of Santo Tomas Hospital, España, Manila, Philippines, 1008
**Tel** +(보내주세요)
**Fax** +632-7126348
**E-mail** rrosales@info.com.ph

 

Fig. 1, 2 새로작업하였습니다. 확인바랍니다.
본문의 FSI의 풀이를 확인바랍니다.

who are independent and clinically stable.

## Subjects and Methods

### Study design

This is a prospective cross sectional study.

### Sample population

Filipino patients who were diagnosed to have idiopathic PD, and who fulfilled the disease specific and sensitive Parkinson's Data Bank Criteria, were recruited in the study. Men and women were selected without randomization from treatment-compliant eligible patients at our out-patient department from January 2005 to September 2005. All patients should have clinically stable and non-fluctuating disease as verified by the Unified Parkinson's Disease Rating Scale (UPDRS) motor scale[8-10] and a Modified Hoehn and Yahr stage of $\leq 3$. Healthy age-matched control group of Filipinos were likewise recruited for the study that correspondingly fulfilled our exclusion criteria.

### Exclusion criteria

Patients and control subjects underwent several screening tests to exclude the presence of depression, anxiety, sleep disturbances and dementia. A previous study done by one of us (relative risk, RR),[11] showed a high prevalence of depression and anxiety among Filipino PD patients. Just like the former study,[11] we employed the Montgomery-Åsberg Depression Rating Scale (MADRS) to evaluate for the presence of depression. MADRS is a 10-item depression scale for the evaluation of symptoms in depression and for assessment of changes in these symptoms. A cut off score of 14 has been validated among PD patients. A patient who scores more than 14 are excluded from our study.[12]

The Hamilton Anxiety Scale (HAM-A) was used to determine the presence of anxiety. HAM-A is a 14-item scale used to quantify the severity of anxiety. The validated cut off score indicating the presence of anxiety is 18.[13] In addition, the presence of sleep disturbances was determined during the course of the interview. The Mini Mental Status Examination (MMSE) was utilized to determine the presence of dementia. MMSE is a validated, brief screening test which assess several cognitive domains, namely, memory, orientation, language, praxis, and attention or concentration. The maximum score is 30, and a score of 23 or less is indicative of dementia.[12]

### Measurement of fatigue severity

Patients and control subjects who were able to qualify for the study were then asked to complete a self-report questionnaire to determine the presence and severity of fatigue.

The Multicomponent Fatigue Index (MFI) is a self-report scale that determines the multidimensional aspect of fatigue. It consists of a cognitive fatigue subscale and a physical fatigue subscale. The cognitive fatigue subscale consists of seven questions and the physical fatigue subscale consists of eight questions. Subjects rate their perceived level of fatigue using a Likert scale, where 1 indicates no problem at all and a scale of 5 indicates severe problem.[14]

The Fatigue Severity Inventory (FSI), on the other hand, is a self-report questionnaire that measures the severity of fatigue in general and its impact on their daily lives. Each item is a statement on fatigue that the subject rates from 1 (completely disagree) to 7 (completely agree). The FSI is a questionnaire modified from the 29 item Fatigue Severity Scale (FSS) developed by Krupp and colleagues to determine the presence of fatigue in patients with multiple sclerosis.[15] This was subsequently validated by Lou to be used as a measure fatigue in patients with PD.[1]

### Statistical analysis

Independent two-sample *t*-test was utilized to determine whether the difference in the MFI and FSI scores of patients with PD versus the normal control reached statistical difference (alpha level of 0.05).

## Results

Thirty-three PD patients were recruited for the study. Only 28 patients (18 females) were found eligible for the study. Five patients were excluded due to the presence of depre-

**Table 1.** Mean values of FSI, total MFI, and its subscores of patients with PD and control ($\alpha_{0.05}$=1.684)

| | Normal patients | | Parkinson's patients | | Unpaired *t*-test |
|---|---|---|---|---|---|
| | MEAN | SE | MEAN | SE | |
| Fatigue severity scale | 86.88 | 4.1916 | 139.50 | 3.5007 | 9.812 |
| Multi-dimensional fatigue inventory | 38.62 | 2.1631 | 59.65 | 2.2478 | 6.865 |
| General fatigue | 7.77 | 0.6928 | 13.88 | 0.5658 | 6.956 |
| Physical fatigue | 7.12 | 0.7313 | 11.77 | 0.5504 | 5.174 |
| Reduced activity | 7.31 | 0.6004 | 13.19 | 0.5196 | 7.541 |
| Reduced motivation | 6.92 | 0.5158 | 10.92 | 0.4503 | 5.949 |
| Mental fatigue | 6.85 | 0.4330 | 9.50 | 0.3868 | 4.648 |

FSI: Fatigue Severity Index, MFI: Multicomponent Fatigue Index, PD: Parkinson's disease.

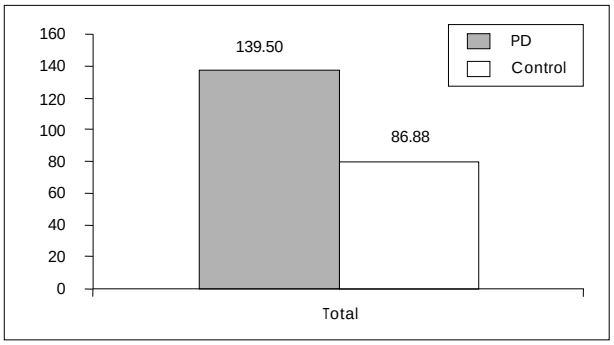


**Figure 1.** Mean value of Fatigue Severity Index in PD patients and control. PD: Parkinson's disease.

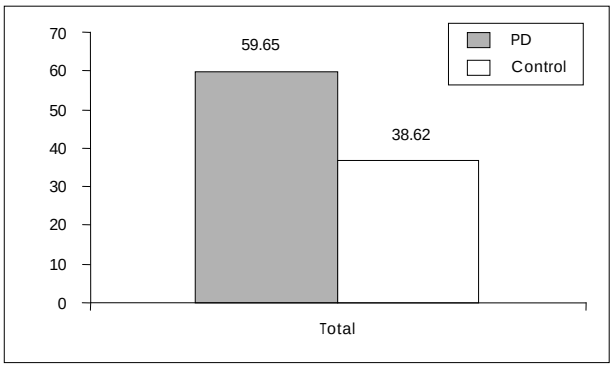


**Figure 2.** Mean value of Multicomponent Fatigue Index in PD patients and control. PD: Parkinson's disease.

ssion and anxiety.

Twenty-eight age-matched control subjects (19 females) were included in the study. The mean age of the PD patients was 64 years, while the mean age of the control group was 60 years. The mean Hoehn and Yahr staging was 1.79 (6 patients in stage 1.0, 8 patients in stage 1.5, 6 patients in stage 2.0 and 8 patients in stage 2.5).

The mean values of the FSI, MFI, and its subscores and the unpaired *t*-test value of PD patients compared to that of the normal controls were computed (Table 1). The scores between patients with PD and the normal control group for the MFI and FSI were then compared. It was evident that patients with PD scored higher on FSI (Figure 1) and the total score of MFI (Figure 2). Similarly, all of the five dimensions in the MFI showed a higher score in patients with PD as compared to the normal controls. All the scores of PD patients were statistically significant when compared with the normal control at confidence interval of 0.05 using the unpaired *t*-test.

## Discussion

Fatigue is a common symptom affecting patients with PD. Friedman and Friedman found fatigue as the presenting symptom in 2% of their patients with PD. Likewise, they reported that 15-33% of all PD patients considered fatigue as their most disabling symptom, and more than half ranked fatigue as among one of the three worst symptoms. The same authors emphasized that fatigue seemed to be more troubling than tremors, slowness, or gait disturbance in some of their patients.[2] In this present study, we noted that patients suffering from idiopathic PD who are independent and clinically stable, also experienced more fatigue as compared to the control group, and even in the absence of co-morbid conditions like depression, anxiety and sleep disturbances. These findings are congruent with an earlier observation that fatigue syndromes are not merely somatic symptoms of anxiety and depression but occur as a separate entity.[3]

Furthermore, in this present study, we noted that idiopathic PD patients who are independent and clinically stable also obtained significantly higher fatigue scores as compared to normal subjects, in all the subsets of the MFI. The data indicate that all dimensions of fatigue, namely, general, physical and emotional fatigue, are affected, even in independent and clinically stable PD patients. Characterizing fatigue is important for two reasons: 1) These various domains of fatigue selectively affect the different aspects of one's quality of life as explained by the study of Havlikova and colleagues.[7] They noted that the physical dimensions of fatigue were connected with mobility and activities of daily living; the mental dimensions with cognition, emotional well-being, communication and activities of daily living; and that general fatigue was related to bodily discomfort[7] and 2) Treatment varies depending on the character of the fatigue and its manifestation.[1]

Thus, physicians should be aware of the presence of fatigue even in clinically stable and independent patients suffering from idiopathic PD. Where there are opportunities, one should be able to properly identify and assess this subset of patients, and possible allow early intervention, leading to a better quality of life.

## REFERENCES

1. Lou J, Kearns G, Oken B, Sexton G, Nutt J. Exacerbated physical fatigue and mental fatigue in Parkinson's disease. Mov Disord 2001; 16:190-196.
2. Friedman J, Friedman H. Fatigue in Parkinson's disease. Neurology 1993;43:2016-2018.
3. Kirk KM, Hickie IB, Martin NG. Fatigue as related to anxiety and depression in a community-based sample of twins aged over 50. Soc Psychiatry Psychiatr Epidemiol 1999;34:85-90.
4. Herlofson K, Larsen JP. Measuring fatigue in patients with Parkinson's disease - the Fatigue Severity Scale. Eur J Neurol 2002;9:595-600.
5. Herlofson K, Larsen JP. The influence of fatigue on health-related quality of life in patients with Parkinson's disease. Acta Neurol Scand 2003; 107:1-6.
6. Martinez-Martin P, Catalan MJ, Benito-Leon J, Moreno AO, Zamarbide I, Cubo E, et al. Impact of fatigue in Parkinson's disease: the Fatigue Impact Scale for Daily Use (D-FIS). Qual Life Res 2006;15:597-606.
7. Havlikova E, Rosenberger J, Nagyova I, Middel B, Dubayova T, Gdo-

vinova Z, et al. Impact of fatigue on quality of life in patients with Parkinson's disease. Eur J Neurol 2008;15:475-480.
8. Stebbins GT, Goetz CG. Factor structure of the Unified Parkinson's Disease Rating Scale: Motor Examination section. Mov Disord 1998; 13:633-636.
9. Richards M, Marder K, Cote L, Mayeux R. Interrater reliability of the Unified Parkinson's Disease Rating Scale motor examination. Mov Disord 1994;9:89-91.
10. Martínez-Martín P, Gil-Nagel A, Gracia LM, Gómez JB, Martínez-Sarriés J, Bermejo F. Unified Parkinson's Disease Rating Scale characteristics and structure. The Cooperative Multicentric Group. Mov Disord 1994;9:76-83.
11. San Gabriel M, Rosales R, Conde B. The Impact on the quality of life of co-morbid anxiety and depression among patients with Parkinson's disease. Phil J Neurol 2002;6:68-71.
12. Leentjens AF, Verhey FR, Lousberg R, Spitsbergen H, Wilmink FW. The validity of the Hamilton and Montgomery-Åsberg depression rating scales as screening and diagnostic tools for depression in Parkinson's disease. Int J Geriatr Psychiatry 2000;15:644-649.
13. Sadock BA, Sadock VA. Synopsis of Psychiatry. 9th ed. Philadelphia: Lippincott Williams and Wilkins, 2003.
14. Smets EM, Garssen B, Bonke B, De Haes JC. The Multidimensional Fatigue Inventory (MFI) psychometric qualities of an instrument to assess fatigue. J Psychosom Res 1995;39:315-325.
15. Krupp LB, LaRocca NG, Muir-Nash J, Steinberg AD. The fatigue severity scale. Applications to patients with multiple sclerosis and systemic lupus erythematosus. Arch Neurol 1989;46:1121-1123.