

Non-motor symptoms of Parkinson's Disease patients attending at a tertiary care hospital of Bangladesh

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Article Info

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Abstract

Non-motor symptoms (NMS) are common in Parkinson's disease (PD), affecting almost all patients during their illness. They may appear in early pre-symptomatic stage as well as throughout the disease course. This observational cross sectional study was carried out in the Movement Disorder Clinic, Department of Neurology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka to see the presence of non-motor symptoms in Parkinson's disease. Seventy-six Parkinson's Disease patients were recruited during October 2019 to September 2020. Presence of non-motor symptoms (NMSs) was sought by the 30-item Parkinson's Disease Questionnaire (PDQ-30). All patients (100%) of this study were suffering from one or more non-motor symptoms. Most common non-motor symptoms of Parkinson's disease were anxiety (78%), fatigue (78%), difficulty in falling or staying sleep (75%), depression (72%), forgetfulness (72%), dizziness (68%), loss of interest in doing activities (66%), flat mood (62%), lack of pleasure (60%), restless leg (59%) & problem in sustaining concentration (50%). Other non-motor symptoms were present in less than 50% patients. Non-motor symptoms are common and often unrecognized in Parkinson's Disease. Addressing this issue will help to manage these symptoms and thereby improve quality of life of patients with Parkinson's Disease.

Introduction

Parkinson's disease (PD) is a chronic, progressive neurodegenerative disorder with increased prevalence in the aging population.¹ It is the second most common neurodegenerative disorder in the world after Alzheimer's disease with an estimated prevalence of 3% in the elderly and 0.3% of total population.²⁻⁴ Pathology of PD is due to degeneration of the dopaminergic neurons of the substantia nigra in the midbrain. Motor features of Parkinson's disease are bradykinesia, rest tremor, rigidity and postural instability. Most patients present with one or more of the cardinal motor features.⁵

Parkinson's disease is also manifested by various non motor symptoms (NMSs). These include neuropsychiatric features like anxiety, depression, apathy, hallucinosis or psychosis. Other NMSs are sleep disturbance, fatigue, pain, sphincter disturbance, constipation, sexual problems, drooling of saliva, weight loss.⁶⁻⁹ Majority of patients with PD reveal a variety of non-motor symptoms either as spontaneous

complaint or upon specific questioning.⁵⁻⁷ Drugs used to treat motor symptoms of PD also produce non-motor side effects such as orthostatic hypotension, hallucination, somnolence, insomnia or leg edema. These are adding to overall burden of the non-motor spectrum of parkinsonian morbidity.^{8,9}

Non-motor features may antedate the motor features of Parkinson's disease.¹⁰ Non-motor symptoms of PD may vary in different ethnicity. These symptoms constitute a burden on the caregiver and the public health system and have a deep impact on PD patient's quality of life.¹¹

To assess non-motor symptoms in PD, two instruments have been developed. One is Non Motor Symptoms Questionnaire (NMSQuest)¹² (Chaudhuri et al. 2007) and another is Non motor Symptoms Scale (NMSS) (Martinez-Martin et al. 2009)¹³.

NMS Quest comprises 30 common symptoms scored "yes" or "no," and is designed to provide a rapid screen for problematic NMS as an aid to clinical management. It is not a rating scale.¹⁴

The Non-Motor Symptoms Scale (NMSS) is a 30-item rater-based scale to assess a wide range of non-motor symptoms in patients with Parkinson's disease (PD). The NMSS measures the severity and frequency of non-motor symptoms across nine dimensions. The scale can be used for patients at all stages of PD.¹²

In Non-Motor Symptoms Scale (NMSS) 30 items of different NMSs are distributed in nine different domains: cardiovascular, depression/anxiety, memory, hallucinations, gastrointestinal, urinary, sexual function, sleep disorder, and miscellaneous. We used Non-Motor Symptoms Scale (NMSS) for assessment of non-motor symptoms in this study.

Methods

This observational cross sectional study which was conducted at Movement disorder clinic, Department of Neurology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh from October 2019 to September 2020. Parkinson's disease was diagnosed by a Neurologist according to "International Parkinson and Movement Disorder Society diagnostic criteria of Parkinson's disease".⁵ Patients with antipsychotic drug induced NMSs and other secondary causes of parkinsonism were excluded from the study. Total 76 patients were recruited by non-randomized purposive sampling technique.

After diagnosis of Parkinson's disease, data of non-motor symptoms were collected by a questionnaire containing "Non- Motor Symptom Assessment Scale" (developed by the International Parkinson's disease non-motor group) which is also known as thirty item Parkinson's Disease Questionnaire (PDQ-30).¹³

Approval from Institutional Review Board (IRB) of local authority was obtained prior to the commencement of study. An informed written consent was obtained from all participants.

Table - I		
Demographic profile		
Total number of patients: 76		
	Male	55
	Female	21
Mean age of patients: 55 ±13		
Residence:	Rural	75%
	Urban	25%
Literacy:	Literate	59%
	Illiterate	41%
Disease duration:	Upto 5 years	61%
	More than 5 years	9%
Hoehn and Yahr Stage:	Stage 1 & 2	81%
	Stage 3 & 4	19%
	Stage 5	none

Results

Total 76 Parkinson's disease patients were included in this study. Average age of patient was 55 ±13 years. Male was 55 and female was 21. Patients from rural area were 75% and from urban area were 25%. Regarding educational status, 59% patients were literate, others were illiterate. 61% patient's disease duration was up to 5 years and 39% patients were suffering for more than 5 years. According to Hoehn and Yahr stage⁵ 81% patients were in stage 1 & 2 whereas number of patients in stage 3 & 4 were 19%. (Table - I).

According to PDQ- 30 questionnaire NMSs were observed in nine different domains: cardiovascular, depression/anxiety,

Table - II		
Frequency of Non-motor symptoms		
Domain		Symptoms N= 76(%)
Cardiovascular		
	Dizziness due to change of position	52 (68%)
	Fall because of syncope	5(7%)
Sleep		
	Daytime sleepiness	20 (26%)
	Difficulties falling or staying asleep	57(75%)
	Restless leg	45(59%)
Neuropsychiatry		
	Anxiety	59 (78%)
	Depression	55 (72%)
	Lack of interest in doing activities	50 (60%)
	Flat mood	47 (60%)
	Lack of pleasure	45 (60%)
	Problem in sustaining concentration	38 (50%)
	Forgetfulness	55 (72%)
	Hallucination	7 (9%)
	Illusion	6 (8%)
Gastrointestinal		
	Dribbling of saliva	9 (12%)
	Difficulty in swallowing	15 (20%)
	Constipation	29 (38%)
Genito-urinary		
	Urgency of micturition	33 (43%)
	Frequency of micturition	34 (45%)
	Nocturia	26 (34%)
	Altered interest in sex (very much increased or decreased)	37 (49%)
	Problem having sex	21 (28%)
Miscellaneous Pain		
	Fatigue	59 (78%)
	Change in ability to taste or smell	34 (45%)
	Change of weight (increased or decreased)	12 (16%)
	Excess sweating	26 (34%)

memory, hallucinations, gastrointestinal, urinary, sexual function, sleep disorder, and miscellaneous. 100% patients of our study were suffering from one or more non motor symptoms. Most common non motor symptoms of Parkinson's disease in this study were anxiety (78%), fatigue (78%), difficulty in falling or staying sleep (75%), depression (72%), forgetfulness 72%, dizziness (68%), loss of interest in doing activities (66%), flat mood (62%), lack of pleasure (60%), restless leg (59%), and problem in sustaining concentration (50%). Other non-motor symptoms were present in less than 50% patients. The frequency of non-motor symptoms in Parkinson's disease patients in this study is shown in table -II.

Discussion

In this study, mean age of PD patients was 56 ±13.62 years. This finding was consistent with a previous study done in Bangladesh where mean (±SD) age of PD was 57±7.1 years.¹⁵

Among the study population 55(72%) were male and 21 (28%) were female. Male-female ratio was 2.6:1. This finding coincides with a previous Bangladeshi study where male-female ratio was 2.6:1.¹⁵ Although PD has slight male predominance (1.3:1)¹⁶, in our study the difference was more prominent. In context of our country, female patients might get less preference for seeking medical attention. Probably that's why female patients were less enrolled in this study.

30 different non-motor symptoms were observed in 9 domains. 100% patients of this study were suffering from one or more of the non motor symptoms. This result is similar to previous studies. Barone P et al showed 98.6% PD patents were sirring from one or more NMSs.¹⁷ Neal Hermanowicz et al showed that 97% PD patients were suffering from NMSs.¹⁸

Most common non motor symptoms of Parkinson's disease in this study were anxiety (78%), fatigue (78%), difficulty in falling or staying sleep (75%), depression (72%), dizziness (68%), loss of interest in doing activities (66%), flat mood (62%), lack of pleasure (60%), loss of memory (60%), restless leg (59%), problem in sustaining concentration (50%). Other non-motor symptoms were present in less than 50% patients.

Among the PD patients, 68% were suffering from dizziness. Similar result was found in previous study. Madhavi Karri et al showed 69% patients were suffering from dizziness.¹⁹

It was found in this study that, fatigue or lack of energy were limiting 78% patients' day time activities. Similar result was found in study of Madhavi et al¹⁹, where fatigue was 78%. Havlikova E et al showed that fatigue was a prominent problem in 50% PD patients. In this study sleep disturbance was found among 75% patients.²⁰ This is similar to other study where sleep disturbance was 88.3%.²¹ In another study 90% of people with PD had sleep disturbance.²²

Patients suffering from anxiety was 78%, depression 72% and apathy 66%. Aarsland D et al found 49%, 58% & 54% of the PD patients had anxiety, depression & apathy respectively.²³

Patients suffering from hallucination and illusion were 9% and 8% respectively. Similar result was found in the study by Samudra N et al where 13% and 7% patients of PD were suffering from hallucination and illusion respectively.²⁴

Patients suffering from forgetfulness were 58% and loss of concentration 50%. Another study found that participants forgetfulness and loss of concentration were 25% and 31% respectively.¹⁷

Among the PD patients, 38% had constipation, 20% had difficulty in swallowing and 12% had dribbling of saliva. One of the previous study showed that, 27%, 16% and 31% patients were suffering from constipation, swallowing difficulties and dribbling of saliva respectively.¹⁷ Chaudhuri KR et al stated that 46% and 25% PD patients were suffering from constipation and difficulty in swallowing respectively.²⁵

In the current study, 45% PD patients complained increased urinary frequency, 43% complained urgency and 34% complained nocturia. Almost similar results were found in previous studies where patients complained urgency was 50% and nocturia 53%.^{25,26} Barone P et al showed that patients having increased frequency of micturition was 26%, urgency 35% and Nocturia 35%.¹⁷

In this study, patients with altered interest in sex were 49% and problem having sex were 28%. Barone P et al showed that 20% PD patients had sexual dysfunction.¹⁷ Koller et al showed that 44% men and 62% of women of PD patients had decreased sexual desire.²⁷

Among the PD patients in this study, 57% were suffering from pain, 45% from smell disturbances, 34% from excessive sweating and 16% from change in weight. Previous study showed that pain could affect up to 74% of PD patients²⁸ & smell affected 67% PD patients.¹⁹ Barone P et al showed that taste and smell decreased in 35%, weight change in 10% and excessive sweating in 13% PD patients.¹⁷

Conclusion:

Non-motor symptoms are common and often unrecognized in Parkinson's Disease. Sometimes these are revealed on query. Addressing this issue will improve quality of life in Parkinson's Disease. A large scale study is needed to see non-motor symptoms of Parkinson's disease in Bengali ethnicity.

Conflict of interest: There is no conflict of interest and financial interest to report.

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