CHAPTER

2

Non-Motor Symptom Complex Parkinson's Disease

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Introduction

Non-motor symptoms of Parkinson's disease have been known even at the original description by the general practitioner James Parkinson's in his famous essay "The Shaking Palsy" in 1817. Little attention was paid until about 20 years ago when it began to emerge that the non-motor symptoms of Parkinson's disease are in fact sometimes more troublesome and difficult to treat impairing, the quality of the patient's life. These symptoms are often under-recognised, under-treated, misdiagnosed as more attention has been given towards the motor symptoms of Parkinson's disease in periodic assessment by the specialist or his team. One of the main reasons for that is of its association between worsening of Parkinson's disease, emergence of "on and off" phenomenon, including symptomatic complaints of non-motor symptoms during the "off periods." Attention was given towards improvement of motor symptoms so that non-motor symptoms may well improve. However, it is now very clear from the various studies performed in patients groups, that patient's quality of life remain independent of PD motor symptoms and some of these PD patients unfortunately do suffer severely from non-motor symptoms even when their motor symptoms of the disease are fairly reasonably controlled.

Non Motor Symptoms in PD

One can classify these non-motor symptoms in the following categories:

a. neurogenic
b. urogenital
c. gastrointestinal
d. cardiovascular
e. others

1. Among CNS-related problems anxiety and depression is the most common complaint, seen in more than 1/3rd of patients. Anxiety is seen in more than 2/3[rds] of the patients and so are the panic attacks, feeling of withdrawal etc. Dementia is normally associated with the late stage of Parkinson's disease, unless the disease per se is of Lewy Body dementia occurring in the younger age group and dementia is seen in that case at an early stage. In older age group patients with Parkinson's disease, dementia is commonly associated (PD-D) and has different characteristics than dementia associated with Lewy Body disease (LBD-D). In Lewy Body disease the dementia either coincides with the development of the motor symptoms which displays spontaneous features of Parkinsonism or precedes earlier classically with fluctuating cognition, recurrent visual hallucinations,

Table I : Criteria for the diagnosis of probable and possible PD-D

Probable PD-D

A. Core features: Both must be present

B. Associated clinical features:

- Typical profile of cognitive deficits including impairment in at least two of the four core cognitive domains (impaired attention which may fluctuate, impaired executive functions, impairment in visuo-spatial functions, and impaired free recall memory which usually improves with cueing).
- The presence of at least one behavioral symptom (apathy, depressed or anxious mood, hallucinations, delusions, excessive daytime sleepiness) supports the diagnosis of Probable PD-D, lack of behavioral symptoms, however, does not exclude the diagnosis.

C. None of the group III features present

D. None of the group IV features present.

Possible PD-D

A. Core features: Both must be present

B. Associated clinical features:

- Atypical profile of cognitive impairment in one or more domains, such prominent or receptive-type (fluent) aphasia, or pure storage-failure type amnesia (memory does not improve with the cueing or in recognition tasks) with preserved attention.
- Behavioral symptoms may or may not be present.

OR

C. One or more of the group III features present

D. None of the group IV features present.

(Adopted from Emre M. Aarsland D, Brown R, et al. Mov Disord 2007; 22:1689-1707)

which again are typically well-defined and well formed. The duration from onset of PD to development of dementia in PD-D group is reported to be 10 years, however it varies as some patients developed dementia within 2 years of the onset of PD when others may not be seen for 20-plus years.

Mood changes are often seen and other psychiatric problems, obsessive – compulsive behaviour need appropriate assessment, supportive therapy as well as symptomatic therapy intervention.

Sleep Disorders are again common and include difficulties in:

a. Initiation of sleep

b. Maintenance of sleep

c. Quality of sleep

and all of these are associated with hyposomnia, insomnia. Other features which some people may suffer are of vivid dreams, hallucinations and restlessness.

Restless Leg Syndrome

Also known as Whittmack Ekbom syndrome was first described in 1861 by Theodore Whittmack in his essay "Anxietas Tiviarum", however in 1943 the Swedish neurologist, Karl Ekbom, described a number of cases, followed them up and published details of this entity. Now the International Society of RLS state the definitive criteria, four features

1. Focal akathesia (i.e. unusual or unpleasant sensations)
2. Quiescejenesis (i.e. aggravation of symptoms at rest)
3. Relief of symptoms with activity.
4. Circadian pattern of rhythm (i.e. symptoms are normally worse in the evening and at night, particularly in between 6 p.m. and 4 a.m.)

Symptoms of RLS may occur in isolation with Parkinson's disease.

Urogenital Symptoms

Urogenital problems again are a fairly common occurrence in Parkinson's disease and has direct relationship to the diseases progression. As the disease progresses the symptoms get worse and bladder instability is a common feature. The bladder could be hyperactive or hypoactive depending upon the symptoms of urgency/dribbling, incontinence one may choose therapeutic agents either to reduce the cholinergic drive or to improve the Dopaminergic activities. Intravesicular injection of Botulinium toxin has been successfully tried in extreme cases.

Gastrointestinal

Constipation is a widely known problem, reduced gastro motility and slow transit outlet may or may not be related to the diseases progression. In one study 2/3^{rds} of the Parkinson's patients and 1/3rd of the population matched control were found to be suffering from constipation. One may say that it may well be taken as a pre-motor pre-clinical symptom of Parkinson's disease. Again treatment is symptomatic for constipation and Domperidone has been successfully tried in a substantial number of patients suffering from gastric motility problems. Swallowing problems, dysphasia are then normally associated with the disease progression and vomiting bowel incontinence, incomplete bowel emptying is also seen.

Sexual problems are rarely asked and rarely warranted by the patient. However on direct questioning in a recent multi-center international study, it was found to be more than 30% of patients who complained of hyper-sexuality or of sexual difficulties. Hyper-sexuality may well be related to drug treatment in some patients and it is important that both the patients and their partners are seen, interviewed and asked about it during their assessment.

Cardiovascular

Postural hypotension is seen in advanced Parkinson's disease, though classically it is a phenomenon of Shy dragger syndrome or more recently known as MSA-A variant of multi-system atrophy. Falls, dizziness is a common feature.

Other symptoms

Fatigue

Fatigue is most difficult to treat and is commonly quoted by the Parkinson's patients. One study has shown 40% of Parkinson's patients suffering from fatigue. Fatigue normally classified as a sensation of tiredness, lethargy and exhaustion. Some of the patients do describe that they have no problem with their motor activities but they are extremely troubled by fatigue which comes without any relationship to their motor problems or "On and Off" periods. Statements are often made at the clinic to the doctor that "we are out of steam" or "my battery has run down" and what can I do to improve my strength. In ELLDOPA clinical trials 1/3rd of patients with early Parkinson's disease, untreated without any psychiatric problems were reported to be suffering from fatigue.

Apathy

Apathy – this has no relationship to feeling blue, sad or depressed. It is a feeling which is difficult to describe but easy to understand e.g. where a normal person may enjoy a beautiful sunrise/sunset in Cape Town appreciating the surroundings, colors and atmosphere while the patients suffering from apathy do not get the same drive, excitement though behave like a normal person but are unable to appreciate the surrounding environment.

Lack of concentration, loss of interest, unusual pains, weight gain, sweating, swelling are some of the other non-motor symptoms in Parkinson's disease patients.

In a recently published study of international setting using non-motor symptoms questionnaire the urinary domain scored highest with most positive answers, while anxiety and depression were the second most common symptoms reported by the patients. Apathy, attention/memory scored the third most commonly reported symptom. Hallucinations/delusions were the least reported symptoms mostly seen in longstanding Parkinson's disease or in LBD. Sleep and sexual problems were seen in over 1/3rd of patients so were the dizziness and falls, autonomic problems.

There seems to be a robust correlation between the disease severity assessed by the Hoe-Yhan staging with increasing non-motor symptoms. It was confirmed in a study published by Hely et al and very lately in a mass quest validation study. It is therefore essential that assessment of NMS of Parkinson's disease should be considered a definite requirement in assessment and providing holistic

The International PD Non-Motor Group has set up a PD questionnaire

PD NMS Questionnaire

Name: …………………..……….. Date: ……………….................. Age: ………………

Center ID: Male ❑ Female ❑

Non-Movement Problems in Parkinson's

The movement symptoms of Parkinson's are well known. However, other problems can sometimes occur as part of the condition or its treatment. It is important that the doctor knows about these, particularly if they are troublesome for you.

A range of problems is listed below. Please tick the box "Yes" if you have experienced it **during the past month.** The doctor or nurse may ask you some questions to help decide. If you have **not** experienced the problem in the past month tick the "No" box. You should answer "No" even if you have had the problem in the past but not in the past month.

Have you experienced any of the following in the last month?

		Yes	No			Yes	No
1.	Dribbling of saliva during the daytime			16.	Feeling sad, "low" or "blue"		
2.	Loss or change in your ability to taste or smell			17.	Feeling anxious, frightened or panicky		
3.	Difficulty swallowing food or drink or problems with choking			18.	Feeling less interested in sex or more interested in sex		
4.	Vomiting or feelings of sickness (nausea)			19.	Finding it difficult to have sex when you try		
5.	Constipation (Less than 3 bowel movements a week) or having to strain to pass a stool (feces)			20.	Feeling lightheaded, dizzy or weak standing from sitting or lying		
6.	Bowel (fecal) incontinence			21.	Falling		
7.	Feeling that your bowel emptying is incomplete after having been to the toilet			22.	Finding it difficult to stay awake during activities such as working, driving or eating		
8.	A sense of urgency to pass urine makes you rush to the toilet			23.	Difficulty getting to sleep at night or staying asleep at night		
9.	Getting up regularly at night to pass urine			24.	Intense, vivid dreams or frightening dreams		
10.	Unexplained pains (not due to known conditions such as arthritis)			25.	Talking or moving about in your sleep as if you are "acting" out a dream		
11.	Unexplained change in weight (not due to change in diet)			26.	Unpleasant sensations in your legs at night or while resting, and a feeling that you need to know		
12.	Problems remembering things that have happened recently or forgetting to do things			27.	Swelling of your legs		
13.	Loss of interest in what is happening around you or doing things			28.	Excessive sweating		
14.	Seeing or hearing things that you know or are told are not there			29.	Double vision		
15.	Difficulty concentrating or staying focussed			30.	Believing things are happening to you that other people say are not true		

care of patients on a multi-disciplinary basis. The ideal approach of assessing advanced Parkinsonian patients should be on a multi-disciplinary basis involving medical, physio, occupational and social work input and if possibly neuro-psychologist. The treatment of the associated non-motor symptoms should be tailor made according to patient's needs on multi-disciplinary team approach basis. It not only improves the patients quality of life, their morale, but also lessens carer dependency.

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