

Non Motor Symptoms In Patients With parkinson's Disease In Baghdad Hospitals

Ahmed Tahseen Muslim*, Ahmed Hasan Ahmed**, Nael Husain Zaer***, Zaki Noah Hasan ****

ABSTRACT

Background: Parkinson's disease (PD) is a neurodegenerative disorder of the central nervous system characterized by resting tremor, bradykinesia, cogwheel rigidity, and impairment of postural reflexes; the frequency of PD increases with aging. Clinically Parkinson's disease is characterized by two groups of symptoms: motor and non-motor symptoms. Non-motor symptoms can be categorized as autonomic, cognitive/psychiatric (may include depression, dementia, anxiety, hallucinations), sensory and rapid eye movements (REM) sleep behavior disorder (RBD).
Objectives: The objectives of this study are to find out the frequency of the non-motor symptoms of idiopathic Parkinson disease in a group of patients in Baghdad hospitals.

Type of the study: A cross sectional study with analytic elements,

Methods: It was conducted in movement disorders clinic in neuroscience hospital, outpatient clinic at Baghdad teaching hospital and AL-Kadhmain teaching hospital during the period between the 1st. of December 2013 through July 2014. One hundred and two patients diagnosed as idiopathic Parkinson disease by a consultant neurologist..

Results: The study found that the mean age of patients with Idiopathic Parkinson disease was 60 years. Among them, two thirds of patients (68/102) were males, and 55 % (56/102) of patients were in advanced stage of the disease. The study also mentioned the percentage of non-motor

symptoms of Idiopathic Parkinson disease and they ranged from the most frequent symptom [constipation (80%)] to the least frequent [bowel incontinence (16%)]. Also the study shows the distribution of symptoms according to gender and the study found no significant difference between males and females. The study finds that there is no significant difference in symptoms development along the period of disease progression except for bowel incontinence [30.4 % (14/46) in early disease progression compared to 3.6 % (2/56) in advanced disease] and sexual interest [34.8 % (16/46) in early disease progression compared to 3.6 (2/56) in advanced disease].

Conclusions: Non motor symptoms of Parkinson disease is so frequent and represent a major burden on patients' quality of life and the study recommends a more concentration on them in the future.

Keywords: Parkinson, Motor, Baghdad.

*Al-Kindy College Medical Journal 2017: Vol. 13 No. 1
Page: 122-127*

**Neuro Science Hospital*

***Baghdad Teaching Hospital*

****Mesan Al-Sader Teaching Hospital*

*****Al-Kindy College of Medicine*

Department of Biology, College of Science, Tikrit University.

Received 15th Feb 2017, accepted in final 30th March 2017

Corresponding to: Ahmed Tahseen Muslim

Parkinson's disease (PD) is a neurodegenerative disorder of the central nervous system characterized by resting tremor, bradykinesia, cogwheel rigidity, and impairment of postural reflexes. The syndrome was first described by the British physician James Parkinson in An Essay on the Shaking Palsy published in 1817. The eponymous designation was given some years later by Jean-Martin Charcot, the famous director of Paris's Salpêtrière Hospitalⁱⁱ. The neuropathology of PD is characterized by neuronal loss and neuromelanin loss in the Substantia Nigra compacta, as well as accumulation of intraneuronal eosinophilic inclusions (Lewy bodies) in the same structure. There is characteristic topography to the neuronal loss in the Substantia Nigra compacta with cell loss occurring first in the ventrolateral tier and then progressing to involve the dorsomedial tier (Lowe et al, 1997). PD also involves loss of cells in other pigmented catecholaminergic nuclei, including the ventral tegmental area, locus caeruleus and the serotonergic raphe nucleusⁱⁱⁱ. The objectives of this study are to find out the frequency of

the non-motor symptoms of idiopathic Parkinson disease in a group of patients in Baghdad hospitals.

Methods:

Study design: A cross sectional study with analytic elements, conducted in movement disorders clinic in neuroscience hospital, outpatient clinic at Baghdad teaching hospital and AL-Kadhmain teaching hospital during the period between the 1st. of December 2013 and July 2014.

One hundred and two patients diagnosed as idiopathic Parkinson disease by a consultant neurologist; the patients were considered as cases of idiopathic Parkinson disease when they had bradykinesia plus either of the following²:-

1. Rest tremor. 2. Cog wheel rigidity. 3. Late postural instability.

And the patients excluded from the study when they had the following:-

1. Dementia within less than one year of motor symptoms.2. Pyramidal signs.3. Early postural instability.4. Cerebellar signs5. Early autonomic dysfunction.6. Persistence of strict unilateral features for more than 3 years.7. Oculomotor abnormality.8. Patients with abnormal imaging findings (brain CT &MRI).9. Poor response to levodopa. The patients were considered as cases of early Parkinson's disease when they had stage 1, 2 or 3Hoehn and Yahr Scale; and considered advanced Parkinson's disease when they had stage 4 or 5 Hoehn and YahrScale^{IV}.

Study tool: A questionnaire form had been structured and tailored by the researcher and supervisor to insure proper data collection.All questionnaire forms were filled by the researcher by obtaining the data from the patients themselves in the movement disorders clinic and the outpatient clinics.

Data analysis: Analysis of data was carried out using the available statistical package of SPSS-22 (Statistical Packages for Social Sciences- version 22).Data were presented in simple measures of frequency, percentage, mean, standard deviation, and range (minimum-maximum values).The significance of difference of different percentages (qualitative data) was tested using Pearson Chi-square test (χ^2 -test) with application of Yate's correction or Fisher Exact test whenever

applicable. Statistical significance was considered whenever the P value was equal or less than 0.05.

Results: Data were collected from the records of (102) patients with Idiopathic Parkinson disease attending the movement disorders clinic in neuroscience hospital, outpatient clinic at Baghdad teaching hospital and AL-Kadhmain teaching hospital during the period between the 1st. of December 2013 and July 2014 according to the preset questionnaire sheets.The study found that the mean age of patients with Idiopathic Parkinson disease was 60 years. Among them, two thirds of patients (68/102) were males, and 55 % (56/102) of patients were in advanced stage of the disease (table 3-1).

Table (3-2) mentioned the percentage of non-motor symptoms of Idiopathic Parkinson disease.

Table (3-3) shows the distribution of symptoms according to gender and the study found no significant difference between males and females.The study finds that there is no significant difference in symptoms development along the period of disease progression except for bowel incontinence [30.4 % (14/46) in early disease progression compared to 3.6 % (2/56) in advanced disease] and sexual interest [34.8 % (16/46) in early disease progression compared to3.6 (2/56) in advanced disease]. (Table 3-4).

Table (3-1)The distribution of patients according to demographic characteristics.

		Disease	
		No.	%
Age (years)	<50	20	19.6
	50---	22	21.6
	60---	32	31.4
	=>70	28	27.5
	Mean±SD(Range)	60.4±10.7(40-80)	
Gender	Male	68	66.7
	Female	34	33.3
	Male Mean age	60.3±10.3(40-76)	
	Female Mean age	60.6±12.0(40-80)	
Progression of the diseases	Early	46	45.1
	Late	56	54.9

Early Mean age	58.4±11.5(40-76)
Late Mean age	62.0±10.0(40-80)

Table (3-2)The distribution of patients according to the non-motor symptoms.

Have you experienced any of the following?	Disease	
	No	(%)
1-Loss or change in your ability to taste or smell	58	(56.9%)
2-Difficultu in swallowing food or drink or problems with chocking	54	(52.9%)
3-Constipation (less than 3 bowel motions a week) or having to strain to pass a stool	80	(78.4%)
4-Bowel (fecal) incontinence	16	(15.7%)
5-Feeling that your bowel emptying is incomplete after having been t toilet	68	(66.7%)
6-A sense of urgency to pass urine makes you rush to toilet	78	(76.5%)
7-Getting up regularly at night to pass urine	58	(56.9%)
8-Problems remembering things that have happened recently or forgetting to do things	76	(74.5%)
9-Seeing or hearing things that you know or are told are not their	34	(33.3%)
10-Feeling sad "low" or "blue"	70	(68.6%)
11-Feeling anxious, frightened or panicky	42	(41.2%)
12-Feeling more interested in sex	18	(17.6%)
13-Finding it difficult to stay awake during activities such as working, driving, or eating	26	(25.5%)
14-Difficulty getting to sleep at night or staying asleep at night	68	(66.7%)
15-Intense vivid dreams or frightening dreams	42	(41.2%)
16-Talking or moving about in your sleep as if you are "acting" out dream	50	(49.0%)
17-Unpleasent sensation in your legs at night or while resting, and a feeling that you need to move	38	(37.3%)
18-Excessive sweating	72	(70.6%)

Table (3-3)The distribution of symptoms according to gender.

Have you experienced any of the following?	Disease			
	Male		Female	
	No.	%	No.	%

1-Loss or change in your ability to taste or smell	Yes	40	58.8	18	52.9
	No	28	41.2	16	47.1
2-Difficultu in swallowing food or drink or problems with chocking	Yes	36	52.9	18	52.9
	No	32	47.1	16	47.1
3-Constipation (less than 3 bowel motions a week) or having to strain to pass a stool	Yes	56	82.4	24	70.6
	No	12	17.6	10	29.4
4-Bowel (fecal) incontinence	Yes	12	17.6	4	11.8
	No	56	82.4	30	88.2
5-Feeling that your bowel emptying is incomplete after having been t toilet	Yes	48	70.6	20	58.8
	No	20	29.4	14	41.2
6-A sense of urgency to pass urine makes you rush to toilet	Yes	58	85.3	20	58.8
	No	10	14.7	14	41.2
7-Getting up regularly at night to pass urine	Yes	46	67.6	12	35.3
	No	22	32.4	22	64.7
8-Problems remembering things that have happened recently or forgetting to do things	Yes	58	85.3	18	52.9
	No	10	14.7	16	47.1
9-Seeing or hearing things that you know or are told are not their	Yes	20	29.4	14	41.2
	No	48	70.6	20	58.8
10-Feeling sad "low" or "blue"	Yes	46	67.6	24	70.6
	No	22	32.4	10	29.4
11-Feeling anxious, frightened or panicky	Yes	22	32.4	20	58.8
	No	46	67.6	14	41.2
12-Feeling more interested in sex	Yes	14	20.6	4	11.8
	No	54	79.4	30	88.2
13-Finding it difficult to stay awake during activities such as working, driving, or eating	Yes	14	20.6	12	35.3
	No	54	79.4	22	64.7
14-Difficulty getting to sleep at night or staying asleep at night	Yes	48	70.6	20	58.8
	No	20	29.4	14	41.2
15-Intense vivid dreams or frightening dreams	Yes	26	38.2	16	47.1
	No	42	61.8	18	52.9
16-Talking or moving about in your sleep as if you are "acting" out dream	Yes	36	52.9	14	41.2
	No	32	47.1	20	58.8
17-Unpleasant sensation in your legs at night or while resting, and a feeling that you need to move	Yes	28	41.2	10	29.4
	No	40	58.8	24	70.6
18-Excessive sweating	Yes	52	76.5	20	58.8
	No	16	23.5	14	41.2

Table (3-4)Distribution of symptoms according to progression of the disease.

Have you experienced any of the following?	Progression of the diseases				P value	
	Early		Advanced			
	No	%	No	%		
1-Loss or change in your ability to taste or smell	Yes	22	47.8	36	64.3	0.238
	No	24	52.2	20	35.7	
2-Difficultu in swallowing food or drink or problems with chocking	Yes	20	43.5	34	60.7	0.220
	No	26	56.5	22	39.3	
3-Constipation (less than 3 bowel motions a week) or having to strain to pass a stool	Yes	34	73.9	46	82.1	0.477
	No	12	26.1	10	17.9	
4-Bowel (fecal) incontinence	Yes	14	30.4	2	3.6	0.009*
	No	32	69.6	54	96.4	
5-Feeling that your bowel emptying is incomplete after having been t toilet	Yes	30	65.2	38	67.9	0.842
	No	16	34.8	18	32.1	
6-A sense of urgency to pass urine makes you rush to toilet	Yes	34	73.9	44	78.6	0.696
	No	12	26.1	12	21.4	
7-Getting up regularly at night to pass urine	Yes	26	56.5	32	57.1	0.964
	No	20	43.5	24	42.9	
8-Problems remembering things that have happened recently or forgetting to do things	Yes	32	69.6	44	78.6	0.463
	No	14	30.4	12	21.4	

9-Seeing or hearing things that you know or are told are not their	Yes	16	34.8	18	32.1	0.842
	No	30	65.2	38	67.9	
10-Feeling sad "low" or "blue"	Yes	36	78.3	34	60.7	0.179
	No	10	21.7	22	39.3	
11-Feeling anxious, frightened or panicky	Yes	24	52.2	18	32.1	0.148
	No	22	47.8	38	67.9	
12-Feeling more interested in sex	Yes	16	34.8	2	3.6	0.004*
	No	30	65.2	54	96.4	
13-Finding it difficult to stay awake during activities such as working, driving, or eating	Yes	12	26.1	14	25.0	0.929
	No	34	73.9	42	75.0	
14-Difficulty getting to sleep at night or staying asleep at night	Yes	30	65.2	38	67.9	0.842
	No	16	34.8	18	32.1	
15-Intense vivid dreams or frightening dreams	Yes	16	34.8	26	46.4	0.400
	No	30	65.2	30	53.6	
16-Talking or moving about in your sleep as if you are "acting" out dream	Yes	18	39.1	32	57.1	0.200
	No	28	60.9	24	42.9	
17-Unpleasant sensation in your legs at night or while resting, and a feeling that you need to move	Yes	12	26.1	26	46.4	0.135
	No	34	73.9	30	53.6	
18-Excessive sweating	Yes	28	60.9	44	78.6	0.167
	No	18	39.1	12	21.4	

*Significant using Pearson Chi-square test at 0.05 level.

Discussion: Non motor symptoms of Parkinson disease are common, but they are under estimated in clinical practice, because of the lack of spontaneous complaints by the patients, and partly because of the absence of systemic questioning by health care professionals. The prevalence of anosmia or hyposmia in the present study was (56.9%) which was close to the result reported by Braack H et al, and Walters E, Braak H.^{v.vi}. Swallowing difficulty was present in (52.9%) of patients in which males and female were equal in percent and these results were very closely to Martinez-Martin et al^{vii}. Constipation is a very annoying symptom of Parkinson disease and was so prevalent in this study (78.4%) which comes so closely from the studies of Poewe W. and Sakakibara R. et al^{viii.ix}. Fecal incontinence is a rare non-motor manifestation, and it is usually seen with urinary incontinence. The prevalence of fecal incontinence in this study was (15.7%) slightly more than the study obtained by Martinez-Martin P. et al (less than 10%) and this slight difference may be due to large scale of patient in the latter study⁷. A diverse range of bladder symptoms are experienced by PD patients. The commonest are related to detrusor hyperreflexia, including nocturia, urinary urge, urinary frequency, and incontinence. Urgency and urge incontinence were so prevalent in this study (76.5%) and this result was so close to the study of Visser M. et al^x. Nocturia represent one of the common non-motor symptoms of Parkinson disease. The prevalence of nocturia in our study was (56.9%) and this result was close to Sakakibara R. et al^{xi}. From our study, we can see that urinary symptoms can appear at early stage of the disease and this was matched with the study results of O'Sullivan S. et al^{xii}. Sexual dysfunction in Parkinson disease includes erectile dysfunction, difficulty reaching orgasm, decreased libido, and decreased genital sensitivity. In this study, the prevalence of decrease libido was (82.4%) and this result was mildly more than the result of Sakakibara R. et al^{xiii}, and this difference in results could

be due to social, ethnical and even political differences between Japanese and Iraqi societies. Parkinson disease patients sometimes experience excessive sweating. Usually, hyperhidrosis manifests in the axilla, the palms, the soles of the feet, and the face, but in Parkinson disease it often also involves the whole body (drenching sweats) the prevalence of excessive sweating in our study was (70.6%) and this result is moderately higher than the results of Chaudhuri KR. et al (50%) and this difference possibly due to hot weather of our country in compares to Europe or North America^{xiv}. The prevalence of impaired memory was (74.5%) which was close to the study of Chaudhuri KR. et al^{xv}. Prevalence in male patients was (85.5%) and in female patients was (52.9%); (69.6%) of early disease stage patients and (78.6%) of advanced stage patients were had memory impairment. Hallucinations usually occur in later stages of Parkinson disease. Auditory (whispers, music), gustatory, olfactory, and tactile hallucinations are uncommon in Parkinson disease, while visual hallucinations are more common¹⁵.

Depression is a common non-motor symptom with prevalence rate of (68.6%) which was close to the study of Veazey C. et al^{xvi}. Prevalence in males was (67.6%) and in females was (70.6%), prevalence at early disease progression was (78.3%) and in advanced disease progression was (60.7%).

Generalized anxiety appears to be frequent in Parkinson's disease, as well as single phobia, social phobia, and panic trouble. The presence of anxiety symptoms had been found in about (41.2%) which was very similar to the study of Marsh L^{xvii}.

Sleep disorders are among the most common non-motor symptoms in Parkinson's disease. Sleep disorders negatively affect the quality of life. The prevalence of Excessive day time sleepiness in our study was (25.5%) and this result comes closely to the result of Tandberg E. et al^{xviii}. Insomnia represents one of the most common symptoms of sleep disorders in Parkinson's disease.

The prevalence of insomnia in this study was (66.7%) which was close to the results of Tandberg E. *et al*^{ix}. The prevalence of REM sleep Behavior Disorder in our study was (49.0%) which comes so closely to the results of Comella CL. *et al* and Gagnon JF. *et al*^{xx,xxi}. The prevalence in male patients were (52.9%) and in female patients (41.2%). Early disease course accounted for (39.1%) and advanced stage accounted for (57.1%) of patients who had this symptom.. The prevalence of restless leg syndrome in our study was (37.3%) in Parkinson's patients in compares to (25.5%) in control population which was not significant change and this result was so close to the results of Verbaan D. *et al*^{xxii}. the prevalence in male patients was (41.2%) and in female patients was (29.4%) and the prevalence of early stage disease progression was (26.1%) in compares to advanced disease which was (46.4%).

Conclusion :Non motor symptoms of Parkinson disease is so frequent in the collected group of patients affecting the quality of their lives. There is no significant difference between the age groups of patients of Parkinson's disease and the development of non-motor symptoms of Parkinson's disease. There is no significant difference between males and females in developing non-motor symptoms of Parkinson's disease. There is no significant difference in developing the non-motor symptoms of Parkinson's disease and the progression of the disease (early or late) except for decrease libido which was more prominent in advanced stage of the disease and fecal incontinence which was more in early stage of the disease.

References

1. ¹Suchowersky O ,Furtado S: Parkinson's disease: etiology and treatment ,movement disorders , continuum 2004 ;10(4): P. 15
2. ¹Allan H. Ropper, Martin A. Samuels, Joshua P. Klein: degenerative diseases of the nervous system. Parkinson disease. Adams and Victor's Principles of Neurology. McGraw Hill education publishing, Harvard, 2014; P.1082.
3. ¹Suchowersky O. ,Furtado S. , Parkinson's disease: etiology and treatment ,Movement disorders , Continuum 2004 ;10(4):P.16
4. ¹Varanese S, Birnbaum Z, Rossi R, Di Rocco A: Treatment of Advanced Parkinson's disease, SAGE Hindawi Access to Research Parkinson's Disease, Volume 10, 2010, pp. (1-9).
5. ¹Braack H ,Ghebremedhin E, Rub U *et al* :Stages in the development of Parkinson's disease-related pathology. Cell tissue Res. (2004).318:p (121-134).
6. Walters E ,Braak H : Parkinson disease: premotor clinicopathological correlations. *J. Neuraltransm. suppl.*(2006), 70:309-319.
7. Martinez-Martin P, Schapira AH, Stocchi F, *et al*: prevalence of non-motor symptoms in Parkinson's disease in an international setting; study using non motor symptoms questionnaire in 545 patients. *MovDisord* . 2007; 22: P 1623-1629.
8. Poewe W: Non-motor symptoms in Parkinson's disease. *Eur J Neural* 2008; 15 suppl 1:14-20
9. Sakakibara R ,Uchiyama T ,Yamanishi T ,Shirai K ,Hattori T: Bladder and bowel dysfunction in parkinson's disease. *Journal of neural transmission*. 2008; 115(3):443-460.
10. Visser M, Marinus J, Stiggelbout AM, van Hilten JJ. Assessment of autonomic dysfunction in Parkinson's disease: the SCOPA-AUT. *Movement disorders*.2004; 19(11):1309-1312.
11. Sakakibara R,Uchiyama T,Yamanishi T,Klshi M : Genitourinary dysfunction in Parkinson's disease. *Movement disorders*.2010;25(1):2-12.
12. O'Sullivan S, Williams DR, Gallagher DA, Massey L A, Silvera-Moriyama L, Lees AJ : Nonmotor symptoms as presenting complaints in Parkinson 's disease: a clinicopathological study. *Movement disorders*.2008;23(1):101-106.
13. Sakakibara R, Shinotoh H, Uchiyama T, *et al*. Questionnaire-based assessment of pelvic organ dysfunction in Parkinson's disease. *Autonomic Neuroscience*. 2001;92(1-2):76-85.
14. Chaudhuri KR, Healy DG, Schapira AH: Non-motor symptoms of Parkinson's disease: diagnosis and management. *Lancet Neurol* 2006; 5:235-245.
15. Chaudhuri KR, Martinez-Martin P, Schapira AH, *et al*. International multicenter pilot study of the first comprehensive self-completed non-motor symptoms questionnaire for Parkinson's disease: The NMSQuest study. *MovDisord* 2006; 21:916-923.
16. Veazey C, Aki SO, Cook KF, Lai EC, Kunik ME: Prevalence and treatment of depression in Parkinson's disease. *J. Neuropsychiatry Clin. Neurosci.* (2006)17(3), 310-323.
17. Marsh L: Anxiety disorders in Parkinson's disease. *International review of Psychiatry*. (2000)12(4):307-318.
18. Tandberg E, Larsen JP, Karlsen K: Excessive day time sleepiness and sleep benefit in Parkinson's disease: a community-based study. *Movement disorders*.(1999)14:922-927.
19. Tandberg E, Larsen JP, Karlsen K: A community-based study of sleep disorders in patients with Parkinson's disease. *MovDisord* (1998)13:895-899.
20. Comella CL, Nardine TM, Diederich NJ, Stebbins GT: Sleep related violence, injury, and REM sleep behavioral disorder in Parkinson's disease. *Neurology*(1998)51,526-529.
21. Gagnon JF, Postuma RB, Maza S, *et al*.: Rapid eye movement sleep behavioral disorder and neurodegenerative diseases. *Lancet Neural*.(2006)5,424-432.
22. Verbaan D, Van Rooden SM, Van Hilten JJ, Rijsman RM: Prevalence and clinical profile of restless leg syndrome in Parkinson's disease. *MovDisord* (2010)25:2142-2147.

