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Prevalence of Non-motor Clinical Features of Parkinson Disease in Pakistan

Jaiperkash Moolchandani [a*], Geeta Moolchandani [b], Shaima Sultana Memon [c], Humera Khalid [b], Faisal Ali Baloch [d] and Faizah Mughal [e]

[a] Department of Neurology, Hamdard Medical University and Hospital, Karachi, Pakistan.
[b] Department of Neurology, Sindh Government Lyari General Hospital, Karachi, Pakistan.
[c] Department of Pathology, Dow Medical College, Karachi, Pakistan.
[d] Department of Dental Material, Baqai Medical University, Karachi, Pakistan.
[e] Department of Biochemistry, Fazaiya Ruth Pfau Medical College, Karachi, Pakistan.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Original Research Article

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ABSTRACT

Aim: To highlight the frequency of non-motor clinical features in patients of Parkinson's disease in Pakistan.
Study Design: Descriptive cross-sectional study.
Place and Duration of Study: Study was conducted at the neurology ward of Jinnah postgraduate medical center, Karachi during August 2019 to February 2020.
Methodology: The study participants were having age >50 years but <70 years and were diagnosed case of Parkinson's disease. Demographic data including; age, gender, residence, and duration of symptoms were collected on the preformed proforma. Depression was diagnosed by using ICD-10 while anxiety and sleep disturbance were diagnosed by using BAI and DSM-IV respectively. Data was entered into SPSS version 20.
Results: The mean ± SD of age of patients was 59.26 ± 5.95 years. The mean ± SD duration of symptoms among these patients was 2.67 ± 2.04 months while mean ± SD of MMSE (mini mental status examination) score was 24.29 ± 1.59. About two thirds (62.86%) of patients were of age 50-60 years. Male to female ratio was 1.69: 1. The main outcome variable of this study was frequency of non-motor clinical features of Parkinsonism, it was noted that depression was more prevalent

**Corresponding author: E-mail: jaiperkash10@gmail.com;*

with frequency of 54.3%, anxiety was 41.4% and insomnia was present in 32.9% patients of Parkinson's disease.

Conclusion: There is a high frequency of non-motor clinical symptoms particularly depression, anxiety and insomnia among patients of Parkinson's disease with frequency of 54.3%, 41.4% and 32.9% respectively.

Keywords: Parkinson's disease; non-motor clinical symptoms; depression; anxiety; insomnia.

1. INTRODUCTION

Parkinson's disease (PD) or Parkinsonism is one of the most common neurological disorders & second most prevalent movement disorder in elderly people [1]. The disease has worldwide prevalence, with our part of world (South Asia), including Pakistan, not being excluded. The prevalence is however extremely variable, ranging from as low as 31/100,000 population in Libya to 300/100,000 and 328/100,000 population from Canada and India (Parsi community), respectively [2-4]. Except for the Parsi community, which has the highest prevalence of the disease in the world, the overall prevalence in India is about 70/100,000 population and this is lower than that reported in the West [5]. Despite the relatively low prevalence, the burden of disease in South Asia is enormous, as the population is huge. Little work has been done on this relatively common disorder in Pakistan and there is no published data on epidemiology and clinical presentation from our country [6,7].

The clinical feature of Parkinson's disease including tremors at rest, rigidity, akinesia and postural disturbances [8-10], these are the motor features but beside these some of the non-motor features are also noted which include cognitive impairment, depression, orthostatic hypotension and sleep disturbances [11,12]. The non-motor clinical features are not yet properly studied so limited data is available on this, so the aim of current study is to highlight the frequency of non-motor clinical features in patients of Parkinson's disease in Pakistan.

2. METHODOLOGY

A descriptive cross-sectional study was conducted at the neurology ward of Jinnah postgraduate medical center, Karachi during August 2019 to February 2020. The study got ethical approval from the concerned institute. Sample size was calculated by using Open Epi calculator and was 70. The study participants were having age >50 years but <70 years and were diagnosed case of Parkinson's disease while those were excluded who were diagnosed case of either depression or panic disorders or intracranial masses or Alzheimer's disease or epilepsy.

The written informed consent was taken from the study participants. Demographic data including; age, gender, residence, and duration of symptoms were collected on the preformed proforma. Depression was diagnosed by using ICD-10 while anxiety and sleep disturbance were diagnosed by using BAI and DSM-IV respectively. Data was entered into SPSS version 20. Continuous variables like age, mini mental status examination score, duration of symptoms were analyzed as mean (+ SD). Frequencies & percentages were expressed for gender, non-motor clinical features (depression, anxiety and insomnia).

3. RESULTS

About 70 patients of Parkinson's disease were analyzed. The mean ± SD of age of patients was 59.26 ± 5.95 years with range of 50-70 years. The mean ± SD duration of symptoms among these patients was 2.67 ± 2.04 months (Range: 1-9 months) while mean ± SD of MMSE (mini mental status examination) score was 24.29 ± 1.59 and it ranged from 22 to 28 out of 30 as mentioned in Table 1. About two thirds (62.86%) of patients were of age 50-60 years while rest of patients (37.14%) were of age 61-70 years as mentioned in Fig. 1. Male to female ratio was 1.69: 1 as the males were predominant over females (Fig. 2). It was also noted that 65.7% patients belong to urban areas while 34.3% were from rural areas.

The main outcome variable of this study was frequency of non-motor clinical features of Parkinsonism, it was noted that depression was more prevalent with frequency of 54.3%, anxiety was 41.4% and insomnia was present in 32.9% patients of Parkinsonism as reported in Table 2).

Table 1. Characteristics of study participants

	Mean	Std. Deviation
Age (Years)	59.26	5.95
Duration of symptoms (Months)	2.67	2.04
MMSE score	24.29	1.65

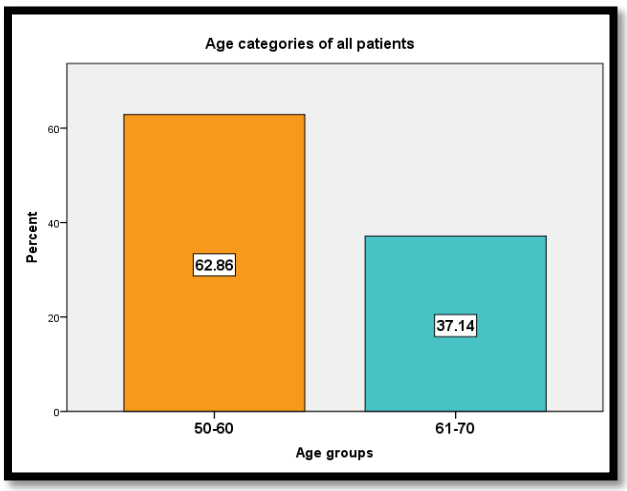

Fig. 1. Age distribution of study participants

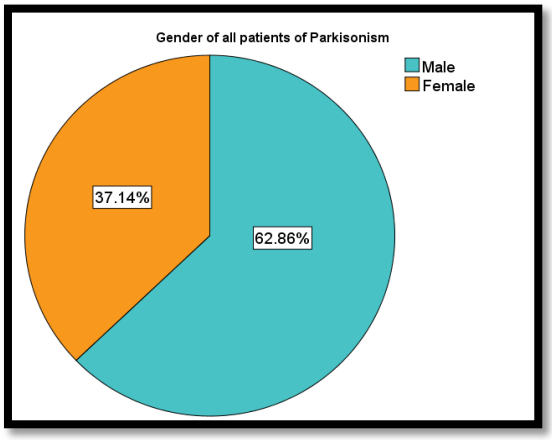

Fig. 2. Gender distribution of study participants

Table 2. Frequency of non-motor clinical features of Parkinsonism (n=70)

Non-motor clinical features	Frequency	Percent
Depression	38	54.3
Anxiety	29	41.4
Insomnia	23	32.9

4. DISCUSSION

Non-motor symptoms (NMS) of Parkinson's disease (PD) are common and found in a large proportion of patients with Parkinson's disease (12). These premotor symptoms include olfactory dysfunction, REM sleep behavioral disorder (RBD), constipation, depression, and pain [11,12]. Some of them, such as depression, fatigue, and olfactory disorders, may appear at the earliest stage of the disease, in not treated patients. Sometimes, NMS can even precede

the motor symptoms or signs by several years and then herald the onset of Parkinson's disease [13]. On the other hand, at advanced stage of the disease, NMS coexist for most patients with motor fluctuations [14].

It is estimated that about 1% of population above the age of 65 years and about 5% above the age of 80 years suffer from Parkinson's disease [15]. Current study found that about two third of the patients were of age 50-60 years while rest of the patients were of age 61-70 years. The frequency of NMS increases along with the disease duration. At the time of diagnosis, the prevalence of NMS among PD patients is 21% (pain, urinary symptoms, depression, and anxiety) and goes up to 88% after 7 years of disease progression. In a recent international study, NMS such as constipation, bladder dysfunction, and feeling of sadness are reported by more than one-half of the patients, significantly more prevalent among patients of Parkinson's disease than controls [11]. In current study, mean ± SD of duration of symptoms among these patients was 2.67 ± 2.04 months (Range: 1-9 months).

Depression occurs at any stage of the disease, even at the beginning or sometimes many years before the onset of the disease. Depression can occur in up to 27.6% of PD patients during early stages of the disease [16]. Current study favored this finding by reporting highest percentage of depression among patients of Parkinson's disease. Generalized anxiety (with a feeling of situational insecurity) appears to be frequent in Parkinson's disease, as well as single phobia, social phobia, and panic trouble. Anxiety is two times more frequent in Parkinson's disease compared with the general population. The presence of anxiety symptoms has been found in 20 to 46% of PD patients [17]. During the course of the disease, 30 to 50% of Parkinson's disease patients experience anxiety, which can be partly explained by the burden of the disease [14]. Current study reported 41.4% anxiety among Parkinson's disease patients. Insomnia, particularly sleep fragmentation, is also frequent (50% prevalence), but the occurrence is highly variable among patients [18]. Current study found 32.9% cases of Parkinson's disease with insomnia. Study limitation is the small sample size, so it is recommended to perform study on larger scale to generalize the results.

5. CONCLUSION

There is a high frequency of non-motor clinical symptoms particularly depression, anxiety and insomnia among patients of Parkinson's disease with frequency of 54.3%, 41.4% and 32.9% respectively. It highlights the importance of adequate tools to detect non-motor clinical symptoms, in order to optimize the treatment of Parkinson's disease patients.

CONSENT

As per international standard or university standard, Participants' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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