Original Article

# Frequency of Dementia in Patients with Parkinson's Disease in a Tertiary Care Hospital in Lahore

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**Objective:** The objective of the study is to determine the frequency of dementia in patients with Parkinson's disease.

**Material and Methods:** A hundred patients of Parkinson's disease presenting to OPD between the ages of 40 and 100 years were enrolled in the study and dementia was assessed in these patients by performing mini-mental state examination .

**Results:** Mean age was 69.31±16.37years,. The age range was 40-100 years, but 68 (68 %) patients were more than 60 years of age. Out of the 100 patients, 66 (66%) were males and 34 (34 %) were females. Mean mini-mental state score at admission was 16.75±2, 7(24%) Patients were having mini-mental score of 5-10 , 10 patients (34%) had mini-mental score 11-18, and 12 patients (41%) had mini-mental score of 19-24 at presentation. Mean duration of disease was 11±2.08 years. Out of total 100 patients, 29 (29%) patients had dementia ,whereas 71 (71%) did not have cognitive impairment.

**Conclusion:** It is concluded from the study that dementia develops in considerable number of patients and is most commonly associated with late onset of disease and with longer duration of PD. Most of the patients had moderate dementia. Therefore, it is recommended that every patient with PD should be assessed for cognitive impairment so as to enable early detection of dementia and to halt the progression in such patients

**Key words:** Parkinsons disease, Dementia, Mini-mental state.

## Introduction

Dementia affects about 40% of patients with Parkinson's disease.[1] The incidence increases with advancing age, approaching 65% risk of dementia as compared with healthy populations.[2]

Dementia is associated with higher mortality, and increased risk of institutionalization. Severe motor symptoms and advance age are risk factors for development of dementia.[3] Cognitive and mental symptoms could be as incapacitating as motor symptoms which cause problems for both patients and caregivers.[4]

Cognitive impairment is a commonly occurring phenomenon in Parkinson's disease (PD) and involves dysfunction of memory as well as attention and executive functions. Dementia occurs more frequently in patients with PD as compared to people of same age without PD .[5]

Among all neurodegenerative movement disorders Parkinson's disease (PD) is the most common. It affects about 0.5-5% of the population older than age 65, both in Europe and other populations.[6]

In most studies the prevalence of PD increases with age. It increases from less than 1% in people aged 65-69 years to more than 2-3% in people older than age 90.[2] Now there is increase in worldwide recognition of dementia as part of Parkinson's disease. The incidence of dementia in PD has increased up to six times and the point prevalence is 30%.[7] There is a two fold increase in mortality associated with development of dementia.[8] In PD impaired memory and difficulty in performing activities that require high skills are associated with increased risk of developingdementia.[9]

The Mini-Mental Status Exam (MMSE) is commonly used to calculate dementia score. Its validity has been studied and established in Arab populations.[10] A patient has been found to have clinical dementia syndrome he should be subjected to structural brain imaging to look for focal lesions, ischemic and atrophic changes.[10] The data for this extensively used scale is still limited in PD patients. [11]

In general, Dementia occurs in later stages of Parkinson disease. Early onset of significant cognitive dysfunction with onset of parkinsonian features suggest a diagnosis other than PD. Parkinson's disease dementia is sometimes over diagnosed due to high prevalence of depression in PD patients.[12]

The purpose of carrying out this study is to ensure early detection of dementia in patients with PD so as

to improve the quality of life in patients and to reduce the burden on caregivers.

## Material and Methods

### Study Design:

Descriptive case series

### Setting:

The study was carried out on patients coming to Outdoor department of Neurology, Services Hospital Lahore.

**Duration Of Study:** Study was carried out from 1st July 2011 to 31st December 2011

**Study Sample Size:** 100 patients

**Sampling Technique:** Non probability consecutive sampling

### Inclusion Criteria:

1. Duration of parkinson's disease at least 12 months (as determined by history and clinical examination.)
2. Age 40 -100yrs.
3. Patients of either gender.

### Exclusion Criteria:

1. Occurrence of symptoms of dementia during the course of delirium(as defined by altered state of consciousness due to to any metabolic cause).
2. History of depressive illness.(as defined by history of insomnia ,low mood and loss of appetite).
3. Illiterate patients (cannot read or write).

### Data Collection Procedure:

The study was approved from hospital ethical committee. All patients underwent a detailed history taking and physical examination. All relevant investigations were performed. The diagnosis of PD was made on clinical findings.

The dementia was classified as mild, moderate or severe according to MMSE . Patients fulfilling the inclusion criteria were enrolled after taking informed consent from the them or their relatives. The data collected was entered on the specifically designed proforma . The data was analyzed using SPSS version 14.0. Descriptive analysis was done for numerical variables such as age and reported as mean; median and standard deviation, whereas frequencies and percentages was calculated for categorical variables such as gender, duration of parkinsons disease and degree of dementia according to minimental scoring at presentation.

## Results

A total of 100 patients fulfilled the inclusion criteria and were enrolled in the study. Minimental state examination was done in all patients to identify patients with dementia. Mean age was 69.3 years. The age range was 40-100 years, but 68 (68 %) patients were more than 60 years of age.

Out of the 100 patients, 66 (66%) were male and 34 (34 %) were female. Thus Parkinson's disease was more commonly seen in men compared to women 66 % vs 34 %. Out of the 29 patients who had dementia, 18 (62.07%) were males and 11 (37.93%) were females in our study. When results were stratified on the basis of age, it was noticed that most of the patients (34.48%) with dementia were in the 72-81 age group followed by (31.03)% in the 82-91 yrs group.

**Table-1:** Frequency of dementia.

| Dementia | No of Patients | Percentage |
|---|---|---|
| Yes | 29 | 29% |
| No | 71 | 71% |

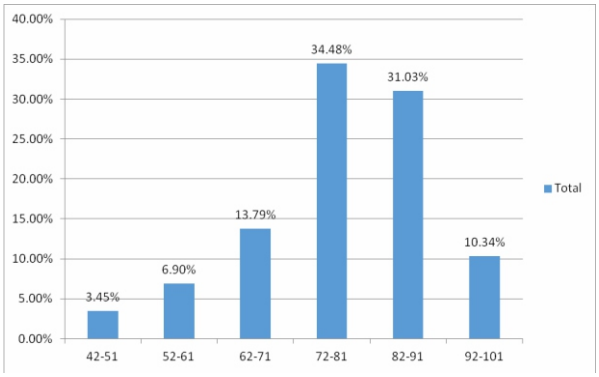


**Fig-1:** Distribution according to age.

The least number of patients fell into the 42-51 age group. as shown in patients were having mini-mental score 5-10, 10 patients (34%) had mini-mental score 11-18, and 12 patients (41%) had mini-mental score of 19-24 at presentation. Mean duration of disease was 11±2.08 years. Out of total 100 patients, 29 (29%) patients had dementia, whereas 71(71%) did not have cognitive impairment. Out of 18 patients having < 10 years duration of disease only 10.34% had dementia whereas in patients having disease duration >10 years 89.66% had dementia.

## Discussion

The prevalence of Parkinson's disease varies from 7 to 450 per 100,000.[13] Dementia can develop in 80 % of patients with long standing PD (>20yrs).[14] Dementia associated with PD is found to have good

Response to levodopa depending on certain factors.[15] MMSE is a widely used tool for assessment of dementia in memory clinics because of its simplicity.[16] Dementia contributed to 3.8% of deaths in patients with PD according to a study carried out in japan.[17] In one study prevalence of dementia with PD was crudely 41.1%.[18] Out of 100 enrolled patients, 66 patients (66 %) were male and 34 (34 %) were female. This difference in number of patients with respect to gender is reflected in various studies conducted worldwide, where male patients were in overwhelming majority.[19,20] This difference may further strengthen the fact that male population seeks health care facilities with increased frequency in Pakistan. The mean age was 69.31 ± 13 years which was well in accordance wit internationally published study.[10] In our study 29 patients (29%) developed dementia, supporting further the already established fact by different studies conducted worldwide, although it was slightly lower than those in the west.[21] In this study group most of the patients were having motor symptoms of PD for a long time. This fact is well supported by different studies in which patients having mild parkinsonian features were more likely to develop cognitive decline.[22]

Regarding the severity of dementia which was based upon minimental state examination, most of the patients (34%) had minimental score in the range of (10-19). International data also suggests that the most studies had mean minimental score of 20-24.[23,24] Results of current study showed that dementia appeared in more patients within the late stage of PD .many other studies have also established this fact that patients with stage4 and 5 disease are unlikely to avoid developing dementia.[25]

## Conclusions

It is concluded from the study that dementia develops in considerable number of patients and is most commonly associated with late onset of disease and with longer duration of PD. Most of the patients had moderate dementia. Therefore, it is recommended that every patient with PD should be assessed for cognitive impairment so as to enable early detection of dementia and to halt the progression of disease in these patients.

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