DEPRESSION AMONG SUDANESE PATIENTS WITH PARKINSONISM

Abbasher Hussein MD, MD. Sania Saeed Seddig MD, Abdulaziz A. Omer MRC Psych. A.
Abdelrahman MD, Amira Sidig MD, Mohmad Malkdar MBBS.

ABSTRACT:

Parkinson’s disease (PD) is the second most common neurodegenerative disorder, after Alzheimer’s disease. Various degree of depression frequently complicate its course, the prevalence of depression in Parkinson disease has been estimated from epidemiological studies to be as high as 40%. Objectives: To determine the prevalence of depression among Sudanese patients with parkinsonism. Methodology: This is descriptive prospective cross sectional hospital based study. It was conducted at Elshaab Teaching Hospital, which is a 200 bedded tertiary hospital. The study population included 34 patients with Parkinsonism referred to the hospital in the period from (October 2006 _April 2008). Patients with Parkinsonism due to used of psychotropic drug, and those who had psychiatric problem before diagnoses were excluded. A full detailed history was taken from each patient in semistructural inter view using DSMIV-TR criteria for depressive disorder. Results: The study showed that the frequency of depression among our patients was 35.3%, the widely varying rates among patients with parkinsonism had been reported. The frequency of depression decreased with increased ages as in general population, the age group 51-70 years had higher rates of depression than other ages groups, as the prevalence rate of depression higher in female our study showed increased rate in female with ratio of 46.15-28.15%. The depressive disorder found to be higher at the begging of the disease, 5 patients with duration of 0.1-3 years and decreased as the duration increase, with no statistically significant correlation between depression and duration of Parkinsonism. The depression was higher in patients with tremor than those without tremors. All patients with depression had poverty of movement. The most common depressive symptoms in our study were fatigue, sadness, loss of interest, weight loss and decreased in concentration and memory, while death wishes and guilty feeling were less common. CONCLUSION: The frequency of depression in Parkinson's disease was found to be high (35%).

Introduction

Parkinson’s disease (PD) is the second most common neurodegenerative disorder, after Alzheimer’s disease, affecting approximately one million persons in the United States. Parkinson Disease (PD) is a neurodegenerative disorder characterized by primary degeneration of nigral dopaminergic neurons of the pars compacta. It was first described in 1817 by James Parkinson, British physician. Parkinson disease is a chronic progressive disease, with an incidence of 20 new cases per 100000 people; the prevalence is 200 cases per 100000 in the United States. Parkinson disease seems to be run in family in some cases but 95% of cases are sporadic. PD is age specific, it affects 1% of population over the age of 60, and it suggests that the disease may be time locked to certain age related changes in the nervous system. However, early onset disease below the age of 40 is 5-10% of cases; this suggests that in addition to any changes
related to age there are specific changes related to other disease. PD has equal sex distribution. There is no social, economic or geographical variation but some study showed that African, American and Asian are less likely affected than white people. Parkinson disease is characterized by four main features tremor, rigidity, bradykinesia and postural instability, also there is secondary feature may accompany the main features, like depression, emotional change, dementia, constipation, postural hypotension, skin problem ,speech problem ,and dysphagia. 

Idiopathic Parkinson account for 65%. It occurs when there is no obvious cause and the course of the disease is slow. In idiopathic PD there is loss of dopamine producing cell and the dead cell contain Lewy bodies. A number of disorders including Progressive Supranuclear Palsy, Corticobasilar degeneration and Multisystem atrophy can present with parkinsonian feature which account for 10% of total number of PD. Drugs like reserpine, metaclopramide, and haloperidol can cause parkinsonian features. Parkinson syndromes may be a feature of multi infarction, trauma or carbon monoxide and manganese poisoning. Parkinsonian symptoms may accompany other neurological disorders like Wilson disease, Huntington's disease, Alzheimer's disease and Creutzfeldt-Jakob disease. Parkinson disease diagnosis based on history and clinical examination. Investigations request if there is suspicious of under lying causes.

Depression is feeling low, with loss of self stem. Everyone occasionally feels blue or sad, but these feelings are usually fleeting and pass within a couple of days although the term "depression" is commonly used to describe a temporary depressed mood when one "feels blue. Various degree of depression frequently complicate it's course, the prevalence of depression in parkinson, disease has been estimated from epidemiological studies to be as high as 40%. Both major and minor depression has been described in PD, independently of age, duration, severity of the disease or cog native impairment, symptoms characterized by guilty feeling, helplessness and sadness. Depression may be under diagnosed or even over diagnosed because patients with hypomania, hypophonia, psychomotor retardation and stooped posture may only appear to be depressed and alternatively patient may be under diagnosed because loss of energy, appetite, libido and sleep disturbance may be mistakenly attributed to PD. The risk factors for developing depression with Parkinsonism include: 1) Right sided hemi Parkinsonism. 2) Akinesia. 3) Increased severity of disability. 4) Anxiety and psychosis. 5) Onset of Parkinsonism at younger age. 6) Female gender. 7) Use of Levodopa.

Objectives: General: To determine the prevalence of depression among Sudanese patients with parkinsonism. Specific: 1) To investigate the association between depression and Parkinsonism. 2) To identify most common depressive symptoms.

Material &Methods: This is descriptive prospective cross sectional hospital based study. It was conducted at Elshaab Teaching Hospital, which is a 200 beded tertiary hospital. There are 2 neurological units with 50 beds, 2 intensive care units and intermediate one. The study population included patients with Parkinsonism referred to the hospital in the period from (October 2007 - April 2008). All of them were diagnosed by neurologist, and all were Sudanese, those patients with Parkinsonism due to used of psychotropic drug, and those who had psychiatric problem before diagnoses were excluded. The patients gave their verbal consent to participate in the study. The study was approved by the ethics committee. A full detailed history was taken from each patient in semistructural inter view using DSM1V-TR criteria for depressive disorders, asked about depressed mood most of the time, diminished interest in all activities, decrease or increase in appetite, weight loss or gain, fatigue, in appropriate guilt,
diminished ability to concentrate, recurrent thought of death, impaired in social and occupational function, duration of the above symptoms, duration of the parkinsonism, neurological symptoms such as poverty of movement, tremor, excessive salivation, excessive sweating, constipation, dysphagia, dysarthria, and proper systemic and neurological examination was done. Data was introduced into the computer from master sheet recording using software programme, data entered and analyzed, then expressed in form of figures, tablets and graphs using SPSS programme (Statistical Package for Social Sciences).

Results: The study showed that male were 61.8% and female were 38.2%. Age distribution was found as follow: 11-20 years was one patients, 21-30 years was one patients, 31-40 years were 2, 41-50 were 3, 51-60 were 7, 61-70 were 18, 71 and above were 2 patients. Regarding geographical distribution, 44.1% resided in urban & 55.9% were in rural areas. The duration of parkinsonism among our studied group was found as follow: 0-5 years were 24 patients, 6-10 years were 5, 11-15 years were 3, 16 years and above were 2 patients. The duration of depressive symptoms among 34 Sudanese patients with Parkinsonism was noticed to be as follow: 1-10 months were 5 patients, 11-20 were 7, 21-30 months were 4, 2 patients had duration of 51 months and above and only one had depressive symptoms for 41-50 months. Regarding the relation between age of the patients and development of depression, the ages from 11 to 20 years no one had depression, 21-30 years only one patient had depression, age 31-40 years also one patient, 51-60 years were 3, 61-70 years were 5, 71 years and above were 2 patient with chi-square 8.492 and P value 0.204. The relation between duration of Parkinsonism and depression was found as follow: 0.1-3 years duration of the disease 5 patients had depression and 12 had no depression, 3.1-6 years 2 had depression, 5 had no depression, 6.1-9 years 2 had depression and one had no depression, 9.1-12 years one had depression and 4 had no depression, 12.1 years and above 2 patients had depression, with chi-square 5.86 and P value 0.209. It did appeared that the relation between tremor and depression was observed as follow: 9 patients had depression and tremor, while 16 had tremor without depression, 3 patients had depression without tremor and 6 patients had no depression neither tremor with chi-square 0.471 and P value 0.886. The relation between poverty of movement and depression among our patients revealed that all patients with depression had poverty of movement and 5 patients had no depression neither poverty of movement, with chi-square 0.471 and P value 0.07. The frequency of depression among our patients was found to be 35.3%. The frequency of depressive symptoms were found as follow: fatigability was detected in 27 patients, sadness, loss of interest, sleep disturbances in 20 patients, weight loss in 18 patients, loss of appetite in 16 patients, decreased in concentration and memory in 15 patients, death wishes in 13 patients and guilty feeling in 67 patients. The distribution of neurological symptoms among 34 Sudanese patients with parkinsonism was found as follow: poverty of movement was observed in 29 patients, constipation in 24 patients, excessive salivation in 20 patients, dysarthria in 14 patients, excessive sweating in 13 patients, tremor in one site in 11 patients, tremor in both sites in 9 patients and dysphagia in 9 patients. The following neurological sings were detected: cog wheel rigidity in 31 patients, lead pipe rigidity in 16 patients, bradykinesia in 23 patients, primitive reflex in 26 patients, tremor in 20 patients, abnormal gait in 9 pts.
Table (1) shows the relation between tremor and depression

<table>
<thead>
<tr>
<th>Tremor</th>
<th>Depression</th>
<th>No depression</th>
</tr>
</thead>
<tbody>
<tr>
<td>yes</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>no</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>

Chi-square 0.471  P value 0.886

Table (2) shows the relation between poverty of movement and depression

<table>
<thead>
<tr>
<th>Poverty of movement</th>
<th>Depression</th>
<th>No depression</th>
</tr>
</thead>
<tbody>
<tr>
<td>yes</td>
<td>12</td>
<td>17</td>
</tr>
<tr>
<td>no</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>

Chi –square 3.197 P values 0.07

fig (1) shows frequency of depression among 34 sudanese pts with parkinsonism seen at Elshaab teaching hospital in the period (October 2007 - April 2008)
Discusson:
Depression in PD could be exogenous, a reaction to being diagnosed with a disabling, chronic illness for which there is no known cure, or it may be endogenous caused by neurological changes associated with the disease process itself. The study showed that the frequency of depression among our patients was 35.3% which is keeping with current literatures data eg Brown and Jahanshahi, 1995; Cummings and Masterman, 1999 they found that The frequency of depression in Parkinson's disease was 40%, also in study done by Santamaira (1968) found that the prevalence of depression among his studied group of patients with parkinsonism was 32%, another study done by Celesia and Wanamaker (1972) they found that the prevalence was 37%, the widely varying rates among patients with parkinsonism had been reported, Slueter, summarized 44 studies he found that depression rates was range from 7-70%, more than one factor may be contributes to the variation in depression rates eg differences classification, sample sizes and severity of parkinsonism. Another important factor is that study setting in non tertiary care setting may not be as common or specific as that seen in specially care centre. However, the pathophysiology of depression in Parkinson's disease remains obscure. Some authors constructed models including multiple factors (Brown and Jahanshahi, 1995), whereas others postulate that neurochemical abnormalities may explain depression in Parkinson's disease (Cummings and Masterman, 1999). While widespread dopamine deficiency is the main feature of Parkinson's disease, other neurotransmitter systems degenerate or are altered by the degenerative process, such as the noradrenergic and serotonergic brainstem nuclei (Halliday et al., 1990). Several studies have suggested the involvement of these neurotransmitters in the pathogenesis of depression in Parkinson's disease, but no clear pattern has emerged. The relationship between PD and depression is complex and that a single explanation cannot account for the majority of the observed cases of depression. The prevalence of depression among
general population was range from 12-25%.\textsuperscript{(20-14)} Compared to the prevalence in other chronic illness it was within the range of diabetes mellitus which was 25-50%, and more than that of coronary heart disease which was found to be 18-20%.\textsuperscript{(19)} the frequency of depression decreased with increased ages as in general population, the age group 51-60 years had higher rates of depression than other ages groups, this is similar to study done by Peijun Chen where he found that the frequency of depression is higher in patients ages 55-64% than those ages 75 and above\textsuperscript{22}. This may reflect possible attenuation in depression with increasing age both in general population and in parkinsonism. As the prevalence rate of depression is higher among female in general population our study showed increased rate of depression in female with parkinsonism this is similar to Peijun study. The depressive disorder was found to be higher at the begging of the disease, and decreased as the duration increase, this is similar to what was reported in study done by Roberto Cesar, Egberto Rise in Brasil.\textsuperscript{23} The depression was higher in patients with tremor than those without tremors, this similar to what was mentioned in the literature. All patients with depression had poverty of movement but there is no statistically significantly correlation as the P value is 0.074, this is differed from what was reported by Roberto and Egberto where they found statically significant correlation between severity of disease and depression this is due to the use of different tools to assess the severity, they used UPDRS (unified Parkinson disease rating scale) part III (motor sign) and part V (Holen and Yahr PD staging scale) and we used only poverty of movement and tremor to assess severity.\textsuperscript{23} The natural history of depression in Parkinson's disease does not parallel the progression of physical symptoms, suggesting that it is an independent process that might affect vulnerable patients. The most common depressive symptoms in our study were fatigue, sadness, loss of interest, weight loss and decreased in concentration and memory, while death wishes, guilty feeling, self blame, self destructive thought and suicide were less common this is keeping with what was mentioned in the literatures.\textsuperscript{24} The advent of severe depression in PD may anticipate the development of intellectual impairment. Depression may also compromise intellectual functions, giving an erroneous impression of dementia, a presentation known as pseudodementia. Gratifyingly, pseudodementia resolves with effective treatment of the depression.

**Conclusion:** The frequency of depression in Parkinson's disease was found to be high.

**Recommendations:** Further studies, using standardize method to assess severity of Parkinsonism.

**References:**


5-Caroline M Tanner. PD or not PD? That is the question. Neurology 2003; 61:5-6.


Address correspondence: to Dr. Abdelaziz Ahmad Omer, Associated Prof, University of Khartoum, Faculty of medicine department of Psychiatry. Sudan, P.O.Box102 Khartoum, Sudan, Tel. +24912173177. E-mail: abdelazizomer@hotmail.com