Original Article

Clinical presentation of Parkinson's disease among Sudanese patients

Khalda .A. Khalid, Abbasher Hussien, Khalid Khalafela, Ali Yonis, A.Sidig,Hassan. A.A.Eltoum, Mohammed OEH Gadour

Abstract: Parkinson Disease (PD) is a neurodegenerative disorder affecting motor system. It is a chronic progressive disorder leading to long standing disability.
Objective: To study the clinical presentation of PD among Sudanese patients seen at Elshaab Teaching Hospital during the period from May2004-April 2008.
Methodology: In this descriptive prospective, cross sectional hospital based study, 94 patients were studied using standardized questionnaire including history and clinical examination.
Result: The total number diagnosed to have PD was 94 patients. Male to female ratio was found to be1.5:1.Common age group affected was 70-80 years (24.47%).The common presenting symptom was found to be poverty of movement (93.6%) followed by tremor (82.98%). On neurological examination; rigidity, dyskinesia and festinate gait were the common signs. Primitive reflexes were found in significant number of patients. Idiopathic PD was found to be the common type (75.53%). Of the side effects of benzhexol, 66.67% of our patients developed dry mouth. Postural hypotension was seen in 10.42% of the patients who were taking levodopa.
Conclusion: The clinical presentations of our patients does not differ from what was mentioned in the literature

Keywords: rigidity, dyskinesia, festinate gait, benzhexol, levodopa.

Parkinson disease (PD) is a neurodegenerative disorder affecting motor system. It was first described in 1817 by James Parkinson, a British physician, who published a paper in what he called it shaking palsy[1,2]. PD is a chronic progressive disease, with an incidence of 20 new cases per 100000 people and a prevalence of 200 cases per 100000 in the United States. PD seems to be running in families in some cases but 95% of cases are sporadic[3, 4].

PD is age specific, it affects 1% of population over the age of 60, which is the average age of onset, and it was suggested 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 occurs in 5-10% of cases, suggesting that in addition to any changes related to age there are other contributory factors to the disease.

PD has equal sex distribution[5, 6]. There is no social, economic or geographical variation but some studies showed that African American and Asian are less likely affected than Caucasians. Idiopathic PD account for 85% of cases[7, 8]. In idiopathic PD there is loss of dopamine producing cells, the dead cells contain Lewy bodies[9, 10]. A number of other disorders and some drugs can cause parkinsonian features.

PD diagnosis is based on history and clinical examination. Investigations are requested if there is suspicious of underlying causes. PD is not a curable disease; treatment is to relief the symptoms.

Objective: To study the clinical presentation of PD among Sudanese patients.

Methodology: This is a descriptive prospective cross sectional hospital based study. It was conducted at Elshaab Teaching Hospital, which is a 200 bedded tertiary hospital. There are two neurological units with 50 beds, two intensive care units and an intermediate one. The study population included patients with PD referred to the hospital in the period from May2004-April 2008.All of the patients were Sudanese and newly diagnosed. They gave their verbal

Correspondence: Dr. Abbasher Hussien . Department of medicine, University of Khartoum -Sudan

consent to participate in the study. The study was approved by the local ethics committee. A detailed history and clinical examinations were performed by the authors. The physical signs were grouped into general, systemic and neurological. Diagnosis of PD is clinically based on primary and secondary symptoms. Investigations were requested to rule out other diseases if needed. Patients were treated medically and followed up monthly. Data were analyzed, then the results expressed in form of figures, tables and graphs using SPSS programme.

Result: The total number diagnosed to have PD was 94 patients, 59.6% out of these were males with male to female ratio of 1.5:1. The age groups 70-79 years, 60-69years and 50-59 years represent the majority of patients (24.47%, 22.3% and 18.09% respectively), while the younger ages 40-49 years, 30-39 years, 20-29 years, 10-19 years and 1-9 years constitute smaller percentages (7.45%, 10.64%, 6.38%, 8.5% and 1.06% respectively). Very old patients (80-89 years) form 1.06% of patients. House wives constituted 34.04% of patients. Geographical distribution showed that 50% of our patients were from Khartoum region, 30.85% from central Sudan, 9.57% from western Sudan, 8.5% from northern Sudan and 1.06% from eastern Sudan. Family history of similar condition was found in 11.7%. In the past medical history 17.02% of our patients had febrile illness that preceded the Parkinsonian feature, 8.5% had jaundice, 3.19% had trauma and 1.06% had Syphilis. 12.77% used to consume alcohol. The common presenting symptoms were illustrated in table (1) .

Table 1: Presenting symptoms among 94 Sudanese patients with Parkinson disease

Symptoms	NO	%
Poverty of movement	88	93.6
Tremor	78	82.98
Excessive salivation	28	29.79
Excessive sweating	27	28.7
Constipation	45	47.87
Dysphagia	18	19.15
Dysartheria	45	47.87

Some of our patients had associated diseases. Hypertension, diabetes mellitus, cerebrovascular disease, disc prolapse and epilepsy were seen in 15.97%, 5.32%, 5.32%, 3.19% and 2.13% of patients respectively. Ischemic heart disease, goitre, asthma, gallstone, breast lump, chronic renal failure, benign prostatic hypertrophy, renal stone, coeliac, gastritis and congenital ptosis were found in 1.06% each. The primitive reflexes observed and the Parkinsonian features were shown in table (2)

Table 2: The primitive reflexes and clinical findings among 94 Sudanese patients with Parkinson disease

Signs	No	%
Glabellar reflex	56	59.57
Bouting reflex	22	23.4
Palmomental reflex	14	14.89
Grasp reflex	15	15.96
Tremor	78	82.98
Cog wheel	79	84.04
Lead pipe	69	73.4
Dyskinesia	69	73.4
Festinant Gait	73	77.66

All patients had normal higher functions apart from three patients; two (2.13%) of them were mentally retarded.

Kayser Fleischer ring was found in 6.38%, 3.19% patients had facial nerve palsy and 1.06% had gaze palsy. Dystonia was detected in 6.38 % (3.19% due to Wilson disease, 2.13% due to Levodopa side effect and 1.06% associated with Idiopathic Parkinson. Examination of the upper and lower limbs showed that 44.68% had wasting and 1.06% had deformity. All patients had normal power except 12.77% whose power ranged from grade 3 to 4. Reflexes were normal in 58.51% and hyperreflexia was observed in 41.49%. Nine patients (9.57%) were bed ridden and 12 patients (12.77%) had normal gait. Postural hypotension was observed in 14.89% of the patients, in most of them it is due to Levodopa therapy (9.6%). Causes of Parkinson disease were found as follow: Idiopathic in 75.53% of the patients, Wilson

disease in 12.77%, vascular in 7.45%, supra nuclear palsy in 2.13%, Multi system Atrophy in 1.06% and drug induced in 1.06% of the patients.

All patients were treated medically, Benzhexol was used by 30.85% of the patients, Levodopa used by (18.09%) of the patients, 32.98% of the patients received Benzhexol and Levodopa and 18.09% received other drugs like Selegiline and Bromocriptine. Side effects of Benzhexol and Levodopa were shown in table (3&4).

Table 3: Side effects of Benzhexol among 60 Sudanese patients with Parkinson disease

	No	%
Dry mouth	40	66.67
Blurring of vision	20	33.33
Urine retention	2	3.33
Constipation	12	20
Confusion	14	23.33

Table 4: Side effects of Levodopa among 48 Sudanese patients with Parkinson disease

	no	%
Nausea	8	16.67
Vomiting	8	16.67
Postural hypotension	5	10.42
Palpitation	4	8.44
Dystonia	2	4.17
Axial rigidity	1	2.08
On-off phenomena	1	2.08

Discussion

The study showed that the vast majority of patients were from Khartoum and central Sudan (80.5%). The large population and the feasibility of diagnosis in this part of the country had probably played a central role in that. Males were affected more than females with male to female ratio of 1.5:1 this is similar to other reports[11]. The fact that males are exposed to risk factors that cause Parkinson disease more than females may partially explains that[12]. The peak incidence of PD was found to be in the age group 70 -80 years (24.47%). This is similar to the findings of Witjas et al, but it differs from others[13]. The late presentation of our patients could be behind these differences[12, 14]. This also holds true for the duration of the disease before presentation, however, miss diagnosis is another contributory factor[12, 13]. Most patients had idiopathic Parkinson (75.53%) and that goes with what was mentioned in the literature[15]. A considerable number of our patients had Wilson disease (12.77%). Atherosclerosis was found in 7.45% of our patients, which is similar to literature, but it differed from a study done in Spain[15]. Drug induced PD accounted for 1.06% which is far less than the 22% reported elsewhere. There is no clear reason for that, however, non compliance to treatment especially hypertensive and psychotic patients might have contributed to that[15]. Common presenting symptoms in our study were found to be poverty of movement (93.6%) and tremors (82.98%), this is similar to the reports from Saudi Arabia and elsewhere[11, 13]. Other presenting symptoms include constipation which was detected in 47.87%, this is similar to study done by Witjas and et al (40%) and differed from a study done in Sudia Arabia by Al Bunyan (63%)[11, 13].

Excessive sweating, excessive salivation and dysphagia were less common than reports from Saudi Arabia and other places[11, 13]. The stage, activity of the disease and the differences in daily habit, emotional support and style of life appeared to play a role in these differences[11, 13]. Dysartheria was detected in (47.87%) of the patients[13]. The small number of patients in this study could explain the relatively small percentage (11.7%) of patients with family history compared to that found in Denmark[14]. There is significant number of patients who had past history of jaundice, fever, trauma, some patients were used to take alcohol and one patient had past history of syphilis, all these are well known causes of parkinsonism. The primitive reflexes, signs of brain atrophy, which has a well known recognized association with PD had appeared at the expected ages in our patients. Cog wheel

rigidity and lead pipe rigidity were seen in a high percentage in our patients, similar to a report from Saudi Arabia[11]. Dyskinesia was less in our patients compared to Al Bunyan's finding[11]. Festinant gait was found in 77.66% which is different from the results reported by Witjas et al. Part of these neurological differences can be explain by the late presentation of our patients. Cranial nerves involvement in our patients is due to vascular causes, three patients had facial palsy and they had repeated attacks of CVA. Dystonia was reported in few numbers of patients unlike what was mentioned in the literature[4, 5]. The small doses of Levodopa used by our patients is probably behind that, this also holds true for the decreased incidence of on-off phenomena, postural hypotension and other side effects of the drug among our patients[6-10].

Conclusion: PD is common among male than female. The most affected age group was found to be 70-80s. Idiopathic PD was found to be the most common type. Family history was found in a minority of our patients. There were significant numbers of patients with Wilson's disease and febrile illness preceding the parkinsonian feature. Few patients were bedridden. Primitive reflexes were found in significant number of patients. Although our findings were generally similar to literature; there are some few differences. Our patients had minimal side effects of the drugs.

Reference

1- Parkinson J. An essay on the shaking palsy. 1817. (Reproduced\). J Neuropsychiatry Clin Neurosci 2002; 14 (2): 223-36.

2- Zanettini R, Antonini A, Gatto G et al. Valvular heart disease and the use of dopamine agonists for Parkinson's disease. N Engl J Med 2007; 356(1):39-46.

3-Caroline M Tanner. PD or not PD? That is the question. Neurology2003; 61:5-6.

4. Masliah E, Rockenstein E, Veinbergs I et al. "Dopaminergic Loss and Inclusion Body Formation in alpha-Synuclein Mice: Implications for Neurodegenerative Disorders". Science2000; 287 (5456): 1265–1269.

5. Lohmann E, Periquet M, Bonifati V et al."How much phenotypic variation can be attributed to parkin genotype?". Annals of Neurology2003; 54 (2): 176–185.

6. Pramstaller PP, kunig G, Leenders K et al. Parkin mutations in a patient with hemi parkinson-hemi atrophy:A clinical-genetic and PET study.Neurology2002;58:808-810.

7. Foroud T, Uniacke SK, liu L et al. Heterozygosity for a mutation in the parkin gene leads to later onset PD. Neurology 2003;60:796-801.

8. Murata M, Hasegawa K, Kanazawa I. Zonisamide improves motor function in Parkinson disease: a randomized, double-blind study. Neurology 2007;68(1):45-50.

9. Deuschl G, Schade-Brittinger C, Krack P et al. A randomized trial of deep-brain stimulation for Parkinson's disease. N Engl J Med 2006;355(9):896-908.

10. Suchowersky O, Reich S, Perlmutter J et al. Quality Standards Subcommittee of the American Academy of Neurology. Practice Parameter: diagnosis and prognosis of new onset Parkinson disease (an evidence-based review): report of the Quality Standards Subcommittee of the American Academy of Neurology. Neurology 2006;66(7):968-75.

11. Muneera A Al- Bunyan. Parkinson's Disease: Clinical and electro- physiological evalution. Neurosciences 2000; 5:46-49.

12. Rayendran RR, Thompson R, Ruch RG. The use of alternative therapies by patients with Parkinson's Disease.Neurology 2001;57:790-794.

13. Witjas T, kaphan E, Azalay J P et al. Non motor fluctuation inPD frequent and disability.Neurology 2002;59:408-413.

14. Wermuth L, Pakkenberg H, Jeune B. High age adjusted prevelence of PD among Inuits in Greenland (DenMark). Neurology 2002; 58:1422-1425.

15. Bentio-Leon J,Bermejo-Pareja F, Rodriguez j et al. Prevalence of PD and other types of parkinsonism in three elderly populations of central Spain. Mov Disord 2003;18(3):267-274.