ORIGINAL ARTICLE

Parkinson Disease and Its Association between China and Pakistan

MASOOD MUNAWAR, LIU YI MING, MOHAMMAD UMER MALIK, *HAMMAD ALI ASGHAR*

ABSTRACT

Objective: To evaluate and compare the Parkinson disease patients between two races Chinese and Pakistanis, study the differences regarding clinical features, age of onset, treatment comparison and cost of management.

Setting and design: The patient studies and reports were taken from two countries China and Pakistan. The PD patients observed were from Qilu Hospital Jinan, Shandong province China and Services Hospital Lahore. Demographical characteristics, clinical features, laboratory investigations and other investigations were recorded and were analyzed in the outdoor department. After the study 50 patients were choose from each country. After complete examination the prescription details were given and cost of management was recorded.

Results: A total of 100 patients were observed. 50 patients from China and 50 patients from Pakistan out of which in Pakistan 42 patients were male and 8 female and in China 44 were male and 6 patients were female. The mean age of onset of the disease was 56 years in Pakistan and in China the mean age was 51.18 years. In our studies we found that (86%) of patients had onset of illness during the fifth or sixth decade of their life which is common in China. The mean duration of illness at the time of presentation was 6.9 years in China and that of Pakistan was 7.15 years. The mean cost of management for the patient in China is 53.51 dollars while that of Pakistan is 26.79 Dollars. Rigidity, Bradykinesia, tremors, hypomimia, primitive reflexes, difficulty in performing fine work and walking difficulty were the most common clinical signs in Pakistan and China. Patients had stage I or II (Hoehn-Yahr staging) disease at the time of presentation in China and in Pakistan patients had mean stage of 2.0-2.5 patients had predominantly unilateral symptoms in China which is common in Pakistan and China. (19%) patients had cognitive impairment.

Conclusion: Tremor, rigidity, walking difficulty, Bradykinesia and difficulty in performing fine work are the most common clinical features. Disease severity increases with duration of the disease. Although the cost of management in Pakistan was less as compared to china but the quality of life was better in China. Cognitive impairment is not uncommon in these patients and is associated with disease duration and age of onset of the illness.

Keywords: Parkinson's disease, bradykinesia, tremors, hypomimia, primitive reflexes.

INTRODUCTION

Parkinson disease is a chronic progressive neurodegenerative disorder. It affects 1% of the population above 65 years age[1]. Parkinson's disease is an idiopathic disorder of the extra pyramidal system characterized by tremors, rigidity and Bradykinesia. Though James Parkinson is credited for his very clear description of Parkinson's disease, evidence exists that the disease has affected mankind since 2500 BC[2]. Little has been added to the clinical description since its first crisp description in the monograph "An essay on shaking palsy" by James Parkinson in 1817[2]. In the United States approximately one million persons suffer from PD[3]. The disease has worldwide prevalence, with our part of the world (South Asia), prevalence is however extremely variable, ranging from as low as 31/100,000 of the population in Libya to 300/100,000 and 328/100,000 of the population from Canada and India (Parsi community), respectively[4-10]. The patients with PD have similar clinical features the world over but the onset of symptoms, motor complications, cost of management duration of disease, duration of drugs intake and the quality of life for the patients taking drug therapy might be different in different races. The patient appears with tremors, rigidity, postural abnormalities, gait disorder, sleep disturbances and depression. Depression can cause social embarrassment and affects the quality of life for the patient[4]. The progressive nature of PD and its increasing prevalence has resulted in a substantial economic burden to society, health care providers, individual patients and their families[10]. Little work has been done on this relatively common disorder in Pakistan.

Qilu Hospital Jinan, Shandong Province China and Services Hospital, Lahore

Correspondence to Dr. Liu Yi Ming Email: yiminqliu2012@gmail.com

ORIGINAL ARTICLE

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. I described the clinical spectrum of the disease from Pakistan a developing country and compared the clinical spectrum with china including the treatment strategies the quality of life and cost of management between the two races. In this article we studied the patient demographic and clinical differences in two countries.

METHODOLOGY

The study included 50 patients from Qilu hospital Jinan Shandong province China and 50 from Services hospital Lahore Pakistan. All the cases were examined in detail and confirmed diagnosed by us .The collective data was managed on excel spread sheet.

RESULTS

Table 1: Details for each patient on assessment

Name
Gender
Age
Marital status
Age of onset
Duration of disease
Living status
Social condition
Diet
Body weight
Tremor at rest
Postural tremor
Rigidity
Bradykinesia
Postural instability
Depression
Medication history
Past medical history
Duration of drug intake
Familial PD
Previous history of hospitalization
Cost of management
Hoehn and yahr stage
England and schwab score

The complete patient detail regarding demographic data and treatment detail including age, gender, marital status. (Living with spouse/no spouse) Working status (retired/working/unable to work), and treatment status (levodopa alone/levodopa) and other anti parkinsonian drugs (APD)/APD other than levodopa/no treatment and levodopa dose's) if taken Parkinsonian disability and stage was assessed by Hoehn and Yahr stage[11,12]. Depression was evaluated according to DSM III-R criteria[13]. After assessment from every patient we took the mean value from all the patients from Pakistan and compared it with the patients in China (Table 1 & 2)

Table 2: Mean values from China and Pakistan

	Mean values in China	**Mean values in Pakistan**
Age	Mean 51	Mean 56
Sex	42 male, 8 female	44 male, 6 female
Marital status	49 married	47 married
Age of onset	51	56
Duration of disease	6.96	7.1
Living status	50	50
Social status	48	46
Diet	45	47
Body weight	66.5Kg	56.5 Kg
Tremor at rest	48	50
Postural tremor	43	36
Rigidity	50	50
Bradykinesia		
Postural instability	44	35
Depression	46	36
Past medical history	35	30
Previous history of hospitalization	2	32
Cost of management	57	26

DISCUSSION

Parkinson's disease has a worldwide prevalence and is the second most prevalent movement disorder in elderly people[14]. However, it probably is an under diagnosed disease in this part of the world (South Asia) because all of the major clinical features of the disease such as tremors, slowing of movements and gait as well as posture abnormalities, are considered as features of normal ageing by the general population. As they may never seek medical advice, the diagnosis may not be made. No comparative studies had been made before to know the quality of life for the patient with PD and to know the treatment methods. In Pakistan the actual number might be higher as most of the patients with Parkinson's disease are managed in outpatient clinics and we were only able to retrieve records of inpatients. Contrary to Chinese literature, where disease affects males and females almost equally, significant male preponderance (male:female=1.7:1) was found in this study. This gender difference was also observed by other researchers in this country and has been attributed to the cultural rituals. This could also be a result of case ascertainment bias; however, we believe that the difference is real. My inference is

based on results from the neighboring countries and overall male to female ratio of patients admitted to this institution. In China, Parkinson's disease was found to be three times more common in men[15]. An epidemiological study from India revealed that men were at increased risk of developing Parkinson's disease (odds ratio 1.98; 95% confidence interval 1.34-2.92).[16] Over the study period (1988-1998) male to female ratio of all adult patients admitted to all medical subspecialties was 1.2:1. The reasons for the differences are not clear. Dietary factors may be important, as dietary habits are different between genders in this part of the world, especially in the middle and lower socioeconomic groups. In these socioeconomic groups, especially in the rural areas, men would be provided with the best available diet while women would contend with whatever is available after the men and children have eaten. This discrepancy leads to provision of a relatively high protein diets for men. Only epidemiological studies can answer whether this observation is relevant to the development of Parkinson's disease or is just a coincidence. However, it has been shown that a number of heat-prepared meat and fish dishes contain variable levels of b-aromatic carbolines i.e., non-harmalins and harmalines, which are structurally similar to 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP)[17] and can potentially lead to Parkinson's disease. Age of disease onset, proportion of early onset disease and clinical features (Table 2) were similar to those reported from the Chinese patients. Tremor deficient patients were also found which were clinically diagnosed as Parkinson's patients. However Rajput et al found that none of the pathologically proven patients had tremor-deficient disease[18].

The reasons for delay in medical consultation are probably an insidious onset and slow progression of the disease, presumption by patients and family that the clinical features are age-related findings, and prominently non-specific symptoms early in the course. Postural instability is the most disabling feature of the disease, which was found in 37% of patients of Hoehn-Yahr series, where the disease duration was more than five years. In this series, the average duration at presentation was approximately five years and 35% of patients in this series had stage III or more severe disease on their first visit in the hospital. The severity of the disease was directly related to the duration of illness, a fact which has been observed throughout history since its first clear description by James Parkinson. We found that late onset of the disease also has a negative impact on the severity of the disease (Table 2). 13(16%) patients had history of frequent falls and ten (77%) of them had stage III disease. The results are compatible with the fact that this is the stage when patients are still mobile and begin to have postural instability. Parkinson's disease is typically unilateral at onset. About 70% of patients had either predominantly unilateral disease at presentation or unilateral onset, 6% of patients had clearly bilateral onset and in 24% a clear history regarding onset of the side of the symptoms could not be established. Depression is not a feature of early Parkinson's disease; however, it has been found to be more common in patients with Parkinson's disease than in the general population. There was a correlation between the severity of depression and cognitive impairment, particularly for calculation, digit span, and visuomotor skills. The severity of Parkinsonism particularly bradykinesia, also paralleled cognition. There was a slight but significant relationship between Parkinsonism and depression. These results confirm the high incidence of depression in PD, and suggests that depression in Parkinson's patients may be accompanied by mild intellectual impairment and inattention which is independent of the severity of the illness.[19] In China the depression was found to be more common amongst women than in men which shows the similarity with Pakistan. Onset of illness in all these patients was beyond 50 years in our studies. Cognitive impairment was also more common in the patients with disease of longer duration. We conclude that the disease exists in Pakistan and has a similar clinical profile to that reported in China. Gender distribution is probably different from China but is compatible with prior Asian studies of PD. Cognitive impairment is not uncommon in patients.

CONCLUSION

We conclude that the average life span of the patient in Pakistan is 55 years. I have seen the patients in Services Hospital Lahore, which is a government hospital where the patients are provided free treatment or the medicine subsidized. The population of Lahore is 10 million. The PD patients makeup 1% of the total population. The average age ranges from 55 years. The prevalence of PD was found to be higher in males. This paper discusses the correlative studies between China and Pakistan. We conclude that there is an age, treatment, occupation, social, and cost of management differences. The social condition of the patients is poor mainly because the patients coming to the hospital are often farmers or retired people, so the patients show irresponsive behavior while taking medication. The treatment prescription includes Sinomet (75% of Levodopa + 25% of benserazide) remains the only medicine in treatment of PD in Pakistan. The management of PD also demands treatment of associated problem and

ORIGINAL ARTICLE

complications which are swallowing difficulty, constipation, sexual dysfunction, orthostatic hypotension, patients usually remain careless in sorting out these symptoms. The patients coming to the hospital do not go for surgery if the patient has levodopa induced dyskinesia (common in Pakistan). DBS remains an expensive procedure and unaffordable for the poor patients. The cost of management ranges from US15-30 dollars. Most of the patients do not have a history of Familial PD. The patients with PD do have a previous history of hospitalization which may result in further complications (SOB, CVA, Pneumonia, COPD etc) in treatment of PD. The HOEHN and YAHR scale showed that the average Pakistani had a score of 2±1.5. In China the average life span of people is higher due to quality of life and social conditions.

REFERENCES

1. American Psychiatric Association. Diagnostic and statisticians manual of mental disorders. 3rd ed. Washington, DC: Am Psychiat Assoc; 1987.
2. Stern G. Did Parkinsonism occur before 1817? J Neurol Neurosurg Psychiatry 1989; Supp l: 11-2.2. Lawrence IG, Jacob IS. Medical treatment of Parkinson's disease. In: Kurlan R, ed. Treatment of Movement disorders. Philadelphia: JB Lippincott 1995;1-57.
3. Parkinson J. An essay on shaking palsy. In: Wilkins RH, Brody IA, eds. Neurological Classics. Illinois: Am Assoc Neurol Surg 1997;87-92.
4. Ashok PP, Radhakrishnan K, Sridharan R, Mousa ME. Epidemiology of Parkinson's disease in Benghazi North-East Libya. Clin Neurol Neurosurg 1986; 88:109-13.6.
5. Rajput AH. Frequency and cause of Parkinson's disease. Can J Neurol Sci 1992;19 (suppl):103-77.
6. Bharucha NE, Bharucha EP, Bharucha AE, Bhise AV, Schoenberg BS.Prevalence of Parkinson's disease in Parsi community in Bombay, India. Arch Neurol 1988;45:1321-3.
7. Jos A. Obeso, C. Warren Olanow and John G. Nutt Shinder JS, Brown R, Welburn P, Parkes JD. Measuring the quality of life in patients with Parkinson's disease. In: Walker S, Rosser R, ed. Quality of life assessment key issues in the 1990s.
8. Kluwer:DoLindgren P, von Campenhausen S, Spottke AE, Siebert U, Dodel R. Cost of Parkinson's disease in Europe. Eur J Neurol 2005;12 (Suppl):68–73.
9. Whetten-Goldstein K, Sloan F, Kulas E, Cutson T, Schenkman M. The burden of Parkinson's disease on society, family, and the individual. J Am Geriatr Soc1997;45:844–9.
10. Shinder JS, Brown R, Welburn P, Parkes JD. Measuring the quality of life in patients with Parkinson's disease. In: Walker S, Rosser R, ed. Quality of life assessment key issues in the 1990s.
11. Hoehn MM, Yahr MD. Parkinsonism onset progression and mortality. Neurology 1967;17:427–42.
12. Schwab RS, England AC. Projection technique for evaluating surgery in Parkinson's disease. In: Gillingham FJ, Donaldson IMI, editors. Third symposium on surgery in Parkinson's disease. Edinburg: Livingstone 1969; p. 152–7.
13. American Psychiatric Association. Diagnostic and statisticians manual of mental disorders. 3rd ed. Washington, DC: Am Psychiatric Assoc; 1987.
14. Moghal S, Rajput AH, D'Arcy C, Rajput R. Prevalence of movement disorders in elderly community residents. Neuro Epidemiology 1994;13:175-8.
15. Tanner CM, Goldman SM. Epidemiology of Parkinson's disease. Neurol Clin 1996;14:317-25.
16. Behari M, Srivastava AK, Das RR, Pandey RM. Risk factors of Parkinson's disease in Indian patients. J Neurol Sci 2001;190:49-55.
17. Pfau W, Skog K. Exposure to beta-carbolines norharman and harman. J Chromatogr B Analyt Technol Biomed Life Sci 2004; 802:115-26.
18. Rajput AH, Rolzdilsky B, Arg L. Occurrence of resting tremor in Parkinson's disease. Neurology 1991; 41:1298-9.
19. Richard M, Yaakov S, Jeffrey R, Jean L. Address correspondence and reprint requests to Dr. Mayeux, Neurological Institute, New York, NY 10032. Parkinson Disease Foundation and the Eppley Foundation.Presented in part at the thirty-second annual meeting. Am Acad Neurology 1980;23.