

Preplanned Studies

Awareness, Treatment, and Rehabilitation of Elderly with Parkinson's Disease — China, 2015–2017

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Summary

What is already known about this topic?

Parkinson's disease (PD) affects 1% of the population over the age of 60 years old and 4% or more over the age of 80 years old. An estimated nearly 3 million elderly people are currently affected by Parkinson's disease in China, and the number of patients of all ages will be close to 5 million by 2030.

What is added by this report?

Rates of awareness, drug treatment, and rehabilitation among PD patients were 32.4%, 37.8%, and 16.0%, respectively. The rates of awareness and treatment were lower in rural areas than in urban areas and in older age groups.

What are the implications for public health practice?

Efforts should be made to improve health education among the elderly, to improve professional training of primary care and other health care institutions, and to strengthen the construction of community-based rehabilitative intervention for the elderly with PD.

Parkinson's disease (PD) is the second most common chronic progressive neurodegenerative disorder among the elderly after Alzheimer's disease, which led to a huge burden to patients' families as well as the medical system, and limited information was published about the awareness, treatment, and rehabilitation among elderly PD patients from actual communities in China. By summarizing and analyzing the data of Prevention and Intervention on Neurodegenerative Disease for the Elderly in China (PINDEC), rates of awareness, treatment, and rehabilitation were estimated based on PD patients' diagnostic and follow-up records. The differences of awareness, drug treatment, and rehabilitation between subgroups were analyzed via Rao Scott chi-square test. This study reported that rates of awareness, drug treatment, and rehabilitation were low among elderly PD patients in China, especially among older patients and patients in rural area. Efforts should be made to

carry out health education and professional training, reduce PD drug prices, raise the percentage of health insurance, and strengthen the construction of community-based rehabilitation for patients with PD.

According to the report of the National Bureau of Statistics of China, by the end of 2019, population aged 60 years and above was 25.38 million, accounting for 18.1% of the total population, of which 17.63 million are aged 65 years and above, accounting for 12.6% of the total population. Along with the aging population, we are facing numerous potential PD patients in the elderly. PD is currently affecting 1% of the population over the age of 60 years old, 4% or more over the age of 80 years old (1). According to statistics, it is estimated that 3 million elderly people are currently affected by PD in China, and the number of patients of all ages will be home to 5 million by 2030, — more than 50 percent of the cases in the world (2–3). Lots of efforts have done to update the local diagnosis criteria, to evaluating the effect of drug treatments, surgeries, and new rehabilitation therapies. However, limited information was published about the elderly PD patients from actual communities in China, especially about the awareness that they knew they had PD, and about whether they accepted drug treatment or rehabilitation.

Rates of awareness, treatment, and rehabilitation in elderly PD patients and the corresponding subgroups were estimated in this study. All patients were from the PINDEC project. In 2015–2016, more than 24,000 community residents aged 60 years and above were recruited in the PD screening-diagnosis procedure of PINDEC, 77 of whom reported being diagnosed with PD by doctors before screening (self-reported PD) while the other 161 were diagnosed with PD after the screening-diagnosis procedure (screen-detected PD). In 2017, all diagnosed PD patients were followed up to know if they received drug treatment and rehabilitation in the past year.

The PD screening-diagnosis procedure was divided into three steps: 1) subjects were screened using the Parkinson's Disease Symptom Inventory (PDSI),

which has been validated among Chinese population (4). Two or more of the nine questions of PDSI answered “yes” suggesting that the subject belonged to high-risk populations with PD, and entered the next step of screening; 2) according to Parkinson’s core symptoms: I. Is it obviously slower when you get up, walk, or turn? II. Does your hand often tremble? III. Has your body become a bit stiff? High-risk people who had problem 1 and at least one of problems 2 and 3 were classified as suspected PD and then move forward to the clinical diagnosis step; 3) the diagnosis of PD was made by neurologist of collaborative hospitals mainly based on “Chinese Diagnostic Criteria for Parkinson’s Disease (2016)”, using the clinical diagnostic criteria for Parkinson’s disease of UK Parkinson’s Disease Society Brain Bank and Movement Disorder Society (2015) as references.

Descriptive statistical analyses of different PD patients were performed among different gender, age, and area subgroups by using software SAS (version 9.4; SAS Institute, Inc. Cary, NC, USA). Chi-square test was adopted to analyze the differences of awareness, drug treatment, and rehabilitation between subgroups, with a *p*-value of <0.05 considered statistically significant. Rate of awareness was defined as the percentage of self-reported PD patients, rates of treatment and rehabilitation were defined as the percentage of patients received drug treatment and rehabilitation respectively in total PD patients.

A total of 238 PD patients were included, of which 77 were self-reported and 161 were screen-detected through the project. The overall rate of awareness was 32.4%, and significant differences were found in both age and area subgroups. The rate of awareness declined with aging (*p*=0.03). The rate of awareness was higher in urban than rural (*p*<0.01). No gender difference was found. Of all the 238 PD patients, 37.8% received drug treatment and 16.0% received rehabilitation. The rate of drug treatment declined with aging (*p*=0.04). The rate of drug treatment was higher in urban than rural (*p*<0.01). No statistically difference was found in rehabilitation for all subgroups. (Table 1)

DISCUSSION

This study suggested that rates of awareness, drug treatment, and rehabilitation were low among elderly PD patients in China, especially among older patients and patients in rural area. Among the 238 PD patients found in actual communities, only 32.4% were diagnosed before screening, in other words, the rest 67.6% were undetected or misdiagnosed. In 2017, after all 238 PD patients were followed up and interviewed, the overall rate of drug treatment and rehabilitation was 37.8% and 16.0%, respectively. The awareness, drug treatment, and rehabilitation are some of the key factors affecting the effect of self-management. Without clinical interventions,

TABLE 1. Awareness, treatment, and rehabilitation of Parkinson’s disease (PD) patients in different subgroups in China, 2015–2017.

Characteristics	Number of total PD	Awareness			Drug treatment			Rehabilitation		
		Number of self-reported PD	%	<i>p</i> *	Number of treated	%	<i>p</i> *	Number of received	%	<i>p</i> *
Sex										
Male	116	39	33.6	0.68	42	36.2	0.95	16	13.8	0.81
Female	122	38	31.1		48	39.3		22	18	
Age (Years)										
60–64	15	7	46.7	0.03	9	60.0	0.04	3	20.0	0.57
65–69	63	24	38.1		24	38.1		9	14.3	
70–74	52	19	36.5		20	38.5		10	19.2	
75–79	48	12	25.0		16	33.3		7	14.6	
≥80	60	15	25.0		21	35.0		9	15.0	
Area										
Urban	137	67	48.9	<0.01	56	40.9	<0.01	17	12.4	0.62
Rural	101	10	9.9		34	33.7		21	20.8	
All	238	77	32.4	NA	90	37.8	NA	38	16	NA

Abbreviation: NA=not applicable.

**p* value for difference.

symptoms like hand tremors, stiff movements, poor balance, and shuffling gaits would gradually and typically get worsen over time, resulting in permanent disability. This makes it extremely important to get the PD patients detected and diagnosed earlier, involved in more specific, individualized treatment or rehabilitation, in order to control their symptoms and improve their quality of life.

The reason for awareness rate declining with aging is that older people, due to the cultural and educational backgrounds, have less recognition of PD. We noticed in our investigation that older people were more likely to regard PD symptoms as common phenomena of aging other than a disease, which might affect their decisions to see a doctor. That also explained the very low awareness rate in rural areas where lacked relevant health education. Another reason is the little access for potential patients to local specialists. Evidence from a southwest China study proved that general neurologists lacked information about some aspects of PD (5), which suggested qualified specialists were not so accessible. Furthermore, PD nonmotor symptoms predate the onset of motor symptoms. However, diagnostic criteria for PD are validated based on motor features. Premotor symptoms like impaired olfaction, gastrointestinal disturbances (constipation), and depression may occur up to 10 years prior to motor symptoms and diagnosis (6). As for motor symptoms, even in developed regions like Shanghai, the median time from motor symptom onset to clinical diagnosis of PD was 10 months (7).

Cost of PD drugs is a core factor influencing the compliance to medication among PD patients. Many PD patients complained about the expensive drugs during our follow-up. Under current situation and policy of China's health insurance, older PD patients struggle to afford the expensive drug treatment, and this problem is particularly prominent in rural areas. Although a large percentage of patients (91.0%) knew that PD requires lifelong treatment, only about half of the patients (52.3%) thought that pharmacotherapy was necessary in the early stages of PD when the disease affects daily activity (5). Both lack of consciousness and economic consideration contributed to the lower drug treatment rate in rural areas. As for rehabilitation, it was reported that rehabilitation could induce clinically important benefits, particularly those affecting gait and balance (8). However, rehabilitation is quite a novel therapy for most PD patients and most have little faith in its effect. We can also see a big shortage of registered therapists in China, which makes

specific, individualized rehabilitation even harder.

For public health practice, we can take four steps to achieve early diagnosis, drug treatment, and rehabilitation intervention. Health education via various means is the first step in order to improve the public awareness of PD. The second step is professional training in order to improve the ability of diagnosis and treatment for local CDC staff, doctors from hospitals, and primary care agencies. The third step is to reduce PD drug prices and raise the percentage of health insurance in order to improve patient medication adherence. The fourth step is to strengthen the construction of community-based rehabilitation, including policy support, investment, and physical therapist training.

In conclusion, the rates of awareness, drug treatment, and rehabilitation for elderly PD patients were lower in China. Efforts should be made to increase health education among the elderly and professional training of primary medical and health service institutions, reduce PD drug prices, raise the percentage of health insurance, and strengthen the construction of community-based rehabilitative intervention for patients with PD.

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