

Incidence of Anxiety in Parkinson's Disease During the Coronavirus Disease (COVID-19) Pandemic

The recent pandemic of coronavirus disease 2019 (COVID-19) have forced countries to be under lockdown,¹ with strict emphasis being placed on self-isolation and social distancing.² The major impact of this mandate is on patients with chronic diseases.³ Parkinson's disease (PD) is a chronic neurodegenerative disease, and anxiety is one of the most frequent neuropsychiatric disorders in PD, with an incidence higher than in any other chronic medical diseases (38% vs. 11%).⁴ The recent outbreak of coronavirus in Iran could be a contributing factor for worsening anxiety in this group of individuals. Therefore, to test this hypothesis we undertook this study by quantifying anxiety levels using the Beck Anxiety Inventory.

This cross-sectional, case-control survey approved by the Iran National Committee for Ethics in Biomedical Researches (IR.SBMU.MSP.REC.1399.033) to evaluate the level of anxiety among PD patients compared with the general population. The study was carried out using a web-based questionnaire keeping in accordance with the current recommendations of preventing in person interviews to limit person-to-person contact. The questionnaire was administered to 500 patients with PD who were being followed up at the referral Movement Disorders Center in Tehran. The questionnaire consisted of Beck Anxiety Inventory II-Persian, which was validated in Persian. We excluded those patients who had a history of psychosis or a Mini-Mental State Examination score of ≤ 12 based on medical records.⁴ The questionnaire was also broadcasted over the internet using the WeChat public platform and over the mainstream media for the control group. Histories of PD and dementia were the exclusion criteria for healthy controls.

A total of 137 subjects were diagnosed cases of PD who responded to the questionnaire, 95 were caregivers of the PD subgroup, and 442 participants were designated as controls after they were age and gender matched to the patient population. Table 1 provides the demographic details and disease-related and COVID-19-related variables.

The mean Beck Anxiety Inventory II total score among PD patients and the control group was 18.34 ± 11.37 and 8.9 ± 8.26 , respectively. Severe anxiety was recorded in 25.5% of the cases and 4.8% of controls. Furthermore, 60%

TABLE 1. Characteristic of patients, caregivers, and controls

Demographic Information		Patients		Caregivers	
Mean age, y		55 ± 10.7		43 ± 9.3	
Sex, %		Male	Female	Male	Female
		34.3	65.7	25.3	74.7
		Patients	Controls	Caregivers	
Level of education, %	Illiterate	1.5	0.5	0	
	Primary school	19.7	8.1	8.4	
	High school diploma	27.7	28.5	25.3	
	Associate's degree	12.4	12.9	13.7	
	Bachelor's degree	26.3	28.5	33.7	
	Master's degree	9.5	13.6	13.7	
	Doctoral degree	2.9	7.9	5.3	
Occupation, %	Healthcare worker	4.4	6.1	2.1	
	Student	1.4	4.7	6.3	
	Teacher	2.2	4.1	2.1	
	Clerk	10.9	14.0	15.8	
	Retired	35.0	26.5	11.6	
	Other	43.1	42.1	62.1	
	Smoking cigarette	10.2	21.7	17.89	
COVID-19-related questions, %		Patients	Controls	P Value	
Infected by COVID-19		1.5	4.8	0.085	
Family members infected by COVID-19		5.8	14.0	0.01	
Afraid of infecting by COVID-19		38.7	43.2	0.349	
Afraid of family members infecting by COVID-19		64.2	71.9	0.085	
Sleep problems since COVID-19 pandemic		17.5	21.5	0.314	
Appetite change since COVID-19 pandemic		10.9	11.1	0.964	
Medical history		Patients	Controls	Caregivers	
Preexisting medical condition (rather than PD), %	Cardiac diseases	9.4	12.6	9.4	
	Diabetes	7.2	7.0	5.2	
	Hypothyroidism	1.4	0.9	1.0	
	Obesity	0	2.2	3.1	
	Other ^a	2.9	2.9	2.1	
	Antihyperglycemic	5.8	4.9	4.2	
	Antihypertensive	8.0	12.8	7.3	

(Continues)

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Relevant conflicts of interests/financial disclosures: Nothing to report.

Funding agency: Functional Neurosurgery Research Center, Shohada Tajrish Neurosurgical Center of Excellence, Shahid Beheshti University of Medical Sciences.

Received: 3 May 2020; Revised: 5 May 2020; Accepted: 6 May 2020

Published online 21 May 2020 in Wiley Online Library (wileyonlinelibrary.com). DOI: 10.1002/mds.28116

TABLE 1. Continued

Medical history			Patients	Controls	Caregivers	
Medication (rather than PD medication)	Thyroid medication		2.9	4.7	8.4	
	Antidepressant		7.2	2.9	4.2	
BAI-II-Persian results			Patients	Controls	Caregivers	<i>P</i> Value
Mean BAI-II-Persian score		18.34 ± 11.37	8.9 ± 8.26	10.53±8.98	<0.001	
Anxiety severity, %	No anxiety	18.2	56.3	42.1	<0.001	
	Mild anxiety	26.3	28.3	40.0		
	Moderate anxiety	29.9	10.6	13.7		
	Severe anxiety	25.5	4.8	4.2		
PD-related questions						
Disease duration, y, %	<5	32.8				
	5–10	35.8				
	>10	31.4				
Believe that COVID-19 pandemic has exacerbated your PD symptoms, %				20.4		
Inaccessibility to means of ordering medications during COVID-19 pandemic, %				45.3		
Believe that PD patients are at higher risk of COVID-19 because of PD, %				27.7		
Increased PD medication during COVID-19 pandemic, %				12.4		

^aAsthma, epilepsy, multiple sclerosis, autoimmune hepatitis, liposarcoma, Mediterranean fever, pemphigus vulgaris, depression, Sjogren's disease, fatty liver, and breast cancer.

BAI-II-Persian, Beck Anxiety Inventory II-Persian; COVID-19, coronavirus disease 2019; PD, Parkinson's disease.

of the caregivers had anxiety with 4.2% demonstrating severe anxiety. Therefore, there was a significant difference between the 3 groups with regard to the frequency of anxiety, and it was highest in the PD subgroup followed by their caregivers. In addition, people with a higher education had more anxiety. There was no correlation between PD duration and severity of anxiety, but there was a strong correlation between severity of anxiety in PD patients and fear of getting COVID19, and this correlation was significantly higher than the control group. There was also a strong

correlation between being infected by COVID-19 and anxiety in PD patients. We also found higher levels of anxiety in patients with PD who were concerned about drug availability during the lockdown as well as in those with comorbid chronic medical conditions.

Although the long-term impact of the COVID-19 pandemic on PD patients is yet to be determined, it seems that these patients are more prone to psychological disturbances attributed to the imposition of quarantine measures, social distancing, and fear of getting infected by COVID-19. These psychological disturbances may be attributed to the worsening of a preexisting anxiety, uncertainty regarding obtaining medications during lockdown, and the perceived higher risk of contracting COVID-19 because of an underlying chronic medical condition. ■

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