

DEPRESSION IN PATIENTS WITH PARKINSON'S DISEASE WITH DEMENTIA

Perovic Zlatana,¹ Cukic Mirjana²

¹ Neurology department, General Hospital Niksic, Montenegro

² Department of Neurology, University Clinical Center of Montenegro, Podgorica, Montenegro

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Abstract: Introduction: Parkinson's disease is a multisystem disorder which is characterized by a combination of motor and non-motor symptoms. Non-motor symptoms include: depression, cognitive impairment, autonomic and sensor symptoms. It is difficult to detect and treat depression symptoms in patients with Parkinson's disease with dementia. Early identification and treatment of depression symptoms can greatly improve the quality of life in these patients, as well as facilitate the quality of caregivers' lives.

Goal of the paper: The aim of our research was to evaluate frequency of depression occurrence in patients with Parkinson's disease with cognitive impairment.

Patients and methods: We did a prospective study which included 59 PD patients, who came for a regular check-up to Neurological infirmary of the General Hospital in Niksic, in the interval from 1st January 2016 to 31st December 2016, all of whom were previously diagnosed with Parkinson's disease. We tested their cognitive status using the Mini Mental State Examination scale. Out of 59 patients, 32 displayed cognitive deficit and were included in further research. We gave directions about testing to guardians or caregivers of the patients who displayed moderate or distinct cognitive impairment. The testing was done on the next check-up, with Cornell's depression scale.

Results: Research showed that out of 32 patients, 5 (15.6%) didn't suffer from depression, 8 (25%) probably suffered from major depression, while 19 (59.4%) definitely suffered from major depression. On the cognitive scale, 6 (18.8%) patients had mild, 11 (34.4%) moderate and 15 (46.9%) distinct cognitive deficit. Out of 8 patients with probable depression 3 (9.4%) had mild, 3 (9.4%) had moderate and 2 (6.2%) distinct cognitive deficit. We can also conclude that out of 19 (59.4%) with certain depression, 1 (3.1%) had mild, 5 (15.6%) had medium severe, and 13 (40.6%) had severe cognitive deficit.

Conclusion: Prevalence of depression and dementia in Parkinson's disease patients is high. Our patients have moderate cognitive deficit in 34.4% of the cases, and distinct cognitive deficit in 46.9% of the cases; while 59.4% definitely suffers from major depression at some point of their illness. Their early detection is of great importance for treatment and quality of life of these patients.

Keywords: depression, dementia, Parkinson disease.

INTRODUCTION

Parkinson's disease (PD) is a multisystem degenerative disorder which is characterized by a combination of motor and non-motor symptoms (1, 2). Non-motor symptoms include: depression, cognitive impairment, autonomic and sensor symptoms (2, 3). It can be very complicated to identify depression in PD patients who have cognitive impairment, for known depression scales are not reliable markers to evaluate depression (4). Dementia is present in more than 30% of PD patients, especially in those over 70 years old (5, 6). Depression and dementia are often connected comorbidities; however, depression can be considered a risk factor for dementia development in PD (7). Early depression identification and treatment can significantly improve the quality of life in PD patients, as well as facilitate the quality of caregivers' lives (7-10). Depression may appear as one of the first symptoms of PD, but it can appear many years before the beginning of motor symptoms of the illness. Dementia in PD implies impairment of executive function, attention, slow cognitive speed, recalling learned information, and visuospatial problem (11). Dementia is also a part of neurodegenerative illnesses, including PD (12-14). Prevalence of major depression in PD patients is from 2.7% to 8.2% and from 13% to 34.5% in case of minor de-

pression (14-16). Prevalence of mild cognitive impairment in PD patients is from 18.9% to 55% (17-19). PD patients with distinct cognitive deficit, who need a caregiver, form a special group. Mild cognitive deficit is present in about 35% of the patients at the beginning of motor symptoms and in about 50% of the patients after 5 years of being ill (20).

Depression is a very common in dementia as part of PD. Therefore, its early identification is of the essence in order to begin early medication therapy, which will in the long-run improve the quality of life both of the patient and the caregiver (11, 16, 21).

PATIENTS AND METHODS

We researched presence and degree of depression in patients with Parkinson's disease with cognitive impairment.

Patients that were tested are those who came for a regular check-up to Neurological infirmary of the General Hospital in Niksic, Montenegro, in the interval from 1st January to 31st December 2016, all previously diagnosed with idiopathic Parkinson's disease.

We tested cognitive status in 59 patients with idiopathic Parkinson's disease, using the MMSE scale. Out of the 59 patients, 32 were included in the research, all of whom tested less than 23 points on the Mini Mental State Examination (MMSE). They were divided to three groups: with mild (20-23), moderate (11-19), and severe cognitive deficit (0-10 points). After the applied MMSE testing, patients or caregivers of the patients received instructions about observing the patient in the next 7 days, when the testing with the Cornell's scale for depression would be applied (13). Cornell's scale for depression was applied on patients with dementia in order to achieve a more objective assessment. The scale consists of 19 parameters which are grouped into 5 groups: mood-related signs, behavioral disturbances, physical signs, cyclic functions and ideational disturbances. Each item is rated on a scale of 0-2 (0- absent, 1- mild or intermittent, 2- severe). Score above 10 indicates probable major depression; score above 18 indicates definite major depression; score below 6 as a rule is associated with absence of significant depressive symptoms (22).

Scores are presented tabularly and in percentage. We used the Chi-square test to connect depression and cognitive impairment.

We researched the significance of the Cornell scale in detecting depression in PD patients.

Ethics Statement: The paper was approved by the Ethical committee of the hospital where we did the research, and all the patients signed the informational consent before the beginning of research.

RESULTS

Out of 32 patients with cognitive deficit, 17 (53.1%) were men and 15 (46.9%) were women (Table 1), average age of 73.03 years old (Table 2), average illness duration being 8.175 years (Table 3). Out of 32 patients included in the study, 5 (15.6%) didn't suffer from depression, 8 (25%) probably suffered from depression, while 19 (59.4%) definitely suffered from major depression. On the MMSE scale, 6 (18.8%) patients had mild, 11 (34.4%) moderate and 15 (46.9%) distinct cognitive deficit (Table 3).

Table 1. Distribution of patients with PD and cognitive impairment in relation to gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	17	53.1	53.1	53.1
	Female	15	46.9	46.9	100.0
	Total	32	100.0	100.0	

Table 2. Average age patients with PD and cognitive impairment

The mean age was 73.03 years

Statistics		
Age		
N	Valid	32
	Missing	0
Mean		73.03

Table 3. The average length of the disease

Statistics		
Duration of illness		
N	Valid	32
	Missing	0
Mean		8.175

Out of 8 patients with probable depression 3 (9.4%) had mild, 3 (9.4%) had moderate and 2 (6.2%) distinct cognitive deficit. We can also conclude that out of 19 (59.4%) with certain depression, 1 (3.1%) had mild, 5 (15.6%) had moderate, and 13 (40.6%) had severe cognitive deficit (Table 4). There is a significant correlation between depression and cognitive impairment (Table 5). The size of the impact of depression on cognitive impairment is a high (Table 6).

We feel that the Cornell Scale is greatly significant in identifying depression in these patients (Table 7).

Table 4. The incidence of depression compared to the weight of dementia:

Analysis of the data by χ^2 - test we got the results:cognitive impairment

Depression * Cognitive impairment Crosstabulation						
			Cognitive impairment			Total
			mild	medium	severe	
Depression	no	Count	2	3	0	5
		% within depression	40.0%	60.0%	0.0%	100.0%
		% within cognitive impairment	33.3%	27.3%	0.0%	15.6%
		% of Total	6.2%	9.4%	0.0%	15.6%
	probably	Count	3	3	2	8
		% within depression	37.5%	37.5%	25.0%	100.0%
		% within cognitive impairment	50.0%	27.3%	13.3%	25.0%
		% of Total	9.4%	9.4%	6.2%	25.0%
	certainly	Count	1	5	13	19
		% within depression	5.3%	26.3%	68.4%	100.0%
		% within Cognitive impairment	16.7%	45.5%	86.7%	59.4%
		% of Total	3.1%	15.6%	40.6%	59.4%
Total	Count	6	11	15	32	
	% within depression	18.8%	34.4%	46.9%	100.0%	
	% within Cognitive impairment	100.0%	100.0%	100.0%	100.0%	
	% of Total	18.8%	34.4%	46.9%	100.0%	

Cornel scale: score > 10 probable depression, score > 18 certainly depression
 MMSE scale cognitive impairment: (20-23) mild, (11-19) medium, (0-10)severe

Table 5. The correlation between depression and cognitive impairment

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.926 ^a	4	.027
Likelihood Ratio	13.160	4	.011
Linear-by-Linear Association	9.508	1	.002
N of Valid Cases	32		
a. 7 cells (77.8%) have expected count less than 5. The minimum expected count is .94.			

Sig. 0027, indicating that significant correlation Yeats

Table 6. The size of the impact of depression on cognitive impairment

Symmetric Measures			
	Value	Approx. Sig.	
Nominal by Nominal	Phi	.584	.027
	Cramer's V	.413	.027
N of Valid Cases		32	
a. Not assuming the null hypothesis.			
b. Using the asymptotic standard error assuming the null hypothesis.			

The size of the impact of the 0,413 high.

Table 7. Cornel scale in detecting depression

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Cornel scale	.100	32	.200*	.983	32	.884
Depression	.364	32	.000	.707	32	.000
*. This is a lower bound of the true significance.						
a. Lilliefors Significance Correction						

DISCUSSION

Patients with Parkinson's disease, in over 50% of the cases, suffer from significant cognitive impairment at a certain stage of the illness, which is in accordance with many previous studies (17-20). In case of our PD patients, with cognitive impairment, at a certain point of the illness, 25% probably suffer from major depression, and 59.4% definitely suffer from depression, which is more than in previously shown results in other studies (14-16).

Cornell's scale may help us in our daily work to early diagnose depression in PD patients with dementia, which is a prerequisite for early treatment of depression of these patients (22).

Minimizing the disability includes treating not just motor symptoms, but treating also dementia, depression and psychosis. Therefore, identification of clinically relevant screening and diagnostic tools for depression and cognitive impairment are necessary in PD patients (22-23).

Sažetak

DEPRESIJA KOD PACIJENATA SA PARKINSONOVOM BOLEŠĆU SA DEMENCIJOM

Perovic Zlatana,¹ Cukic Mirjana²

¹ Neurology department, General Hospital Niksic, Montenegro

² Department of Neurology, University Clinical Center of Montenegro, Podgorica, Montenegro

Uvod: Parkinsonova bolest je multisistemski poremećaj koji se karakteriše kombinacijom motornih i nemotornih simptoma. Nemotorni simptomi su depresija, kognitivno oštećenje, autonomni i senzorni simptomi. Otkrivanje i lečenje depresije je otežavajuće kod pacijenata sa Parkinsonovom bolešću i demencijom. Rano prepoznavanje i lečenje simptoma depresije može značajno poboljšati kvalitet života ovih pacijenata, ali i olakšati kvalitet života i negovatelja.

Cilj rada: Cilj našeg istraživanja bio je da se proceni učestalost depresije kod pacijenata sa Parkinsonovom bolešću sa kognitivnim oštećenjem.

Metod rada: Sproveli smo prospektivnu studiju koja je uključila 59 pacijenata sa PB koji su se javili na redovni pregled u Neurološku ambulantu Opšte bolnice Nikšić u Crnoj Gori, u periodu od 01. 01. 2016. do 31. 12. 2016. g, kod kojih je ranije postavljena dijagnoza Parkinsonove bolesti. Kognitivni status pacijenata smo testirali pomoću Minimental skale. Od ukupno 59 pacijenata, 32 su na ovoj skali pokazali kognitivni deficit i uključeni su u dalje istraživanje. Kod pacijenata koji su pokazali umereno ili izraženo kognitivno oštećenje dali smo uputstva o testiranju starateljima ili nego-

CONCLUSION

Depression and dementia are a common problem in PD patients. Their detection is highly significant to clinical practice. PD patients with cognitive impairment present a special difficulty in identifying depression.

Abbreviations

MMSE — Mini Mental State Examination

PD — Parkinson's disease

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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vateljima pacijenata. Na narednoj kontroli, je testiranje urađeno Korlenovom skalom za depresiju.

Rezultati: Od 32 pacijenta sa kognitivnim deficitom, 17 (53,1%) su bili muškarcii 15 (46,9%) žene, prosečne starosti 73,03 godina, sa prosečnom dužinom trajanja bolesti od 8,175 godina. Istraživanje je pokazalo da od 32 pacijenta 5 (15,6%) nema depresiju, 8 (25%) verovatno ima veliku depresiju, dok 19 (59,4%) sigurno ima veliku depresiju. Na MMSE skali 6 (18,8%) pacijenata su imali blagi, 11 (34,4%) umereni i 15 (46,9%) izraženi kognitivni deficit. Od 8 pacijenata sa verovatnom depresijom 3 (9,4%) ima blagi, 3 (9,4%) sredniji 2 (6,2%) izraženi kognitivni deficit. Takođe se može zaključiti da od 19 (59,4%) sa sigurnom depresijom 1 (3,1%) ima blagi, 5 (15,6%) ima srednje teškii 13 (40,6%) teški kognitivni deficit.

Zaključak: Učestalost depresije i demencije kod obolelih od Parkinsonove bolesti je visoka. Naši pacijenti imaju u 34,4% umereni i u 46,9% izražen kognitivni deficit, dok 59,4% ima sigurno depresiju u nekom trenutku bolesti. Njihovo rano otkrivanje je od velikog značaja za lečenje i kvalitet života ovih pacijenata.

ključne reči: depresija, demencija, Parkinsonova bolest.

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Correspondence to/Autor za korespondenciju

Zlatana Perović MD

General Hospital Niksic, Montenegro

Str Radoia Dakica bb, Niksic, Montenegro

Tel +382 69 351 378

Email: zlataperovic@gmail.com